



CHICK-FIL-A JSP 18-75

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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 options (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.

Required Action

Recommend approval/denial of the Rezoning, Preliminary Site Plan with PD-2 Option, Special Land Use Permit, and Storm Water Management Plan

REVIEW	RESULT	DATE	COMMENTS
Planning- Rezoning	Approval recommended	03-06-19	<ul style="list-style-type: none"> • Waiver for lack of Rezoning Traffic Study
Planning- Site Plan	Approval recommended	03-06-19	<ul style="list-style-type: none"> • Findings regarding Section 3.31.4 relating to the PD-2 Option • Special Land Use Permit required • Ordinance deviations for the following <ul style="list-style-type: none"> ○ Proximity to other restaurants ○ Building setbacks ○ Parking setbacks ○ By-pass lane ○ Loading space area ○ Dumpster location • Additional items to be addressed with Final Site Plan
Engineeri ng	Approval recommended	03-08-19	<ul style="list-style-type: none"> • Additional items to be addressed with Final Site Plan
Landsca ping	Approval recommended with conditions	02-12-19	<ul style="list-style-type: none"> • Landscape deviations for the following <ul style="list-style-type: none"> ○ Landscape berm ○ Green belt planting along I-96 ○ Missing end cap islands ○ Building foundation landscape ○ Interior parking lot landscaping ○ Parking perimeter landscaping • Additional items to be addressed with Final Site Plan
Traffic	Approval recommended	03-14-19	<ul style="list-style-type: none"> • Recommended circulation path for exiting traffic • Additional items to be addressed with Final Site Plan
Traffic Study	Approval recommended	03-04-19	<ul style="list-style-type: none"> • Additional items to be addressed with Final Site Plan
Parking and	Approval recommended	03-04-19	<ul style="list-style-type: none"> • Additional items to be addressed with Final Site Plan

Queuing Study			
Façade	Approval recommended	02-28-19	<ul style="list-style-type: none">• No additional comments
Fire	Approval recommended with conditions	02-13-19	<ul style="list-style-type: none">• Additional items to be addressed with Final Site Plan

Motion sheet

Recommend Approval- Rezoning

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.
7. (additional reasons, if any)

-AND-

Recommend Approval – Special Land Use Permit

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;
8. (*additional comments here if any*)

(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.)

-AND-

Recommend Approval – Preliminary Site Plan with PD-2 Option

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; and
6. (additional conditions here if any).

(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.)

-AND-

Recommend Approval – Stormwater Management Plan

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 following:

- a. 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; and
- b. (additional conditions here if any).

(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.)

- OR -

Recommend Denial – Rezoning to RC with a PD-2 Option

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 denial to City Council to rezone the subject property from Regional Commercial (RC) to Regional Commercial with a Planned Development 2 Options (PD-2) for the following reasons:

1. Add reasons here

Recommend Denial – Special Land Use

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend denial to the City Council for Special Land Use *(because the plan is not in compliance with Article 3, Article 4, and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

-AND-

Recommend Denial – Preliminary Site Plan with a PD-2 Option

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend denial to the City Council for Preliminary Site Plan with a PD-2 Option... *(because the plan is not in compliance with Article 3, Article 4, and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

-AND-

Recommend Denial – Stormwater Management Plan

In the matter of the request of GPD Group for JSP 18-75 Chick-Fil-A, motion to recommend denial to the City Council for Storm water Management Plan ...*(because the plan is not in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

MAPS

Location

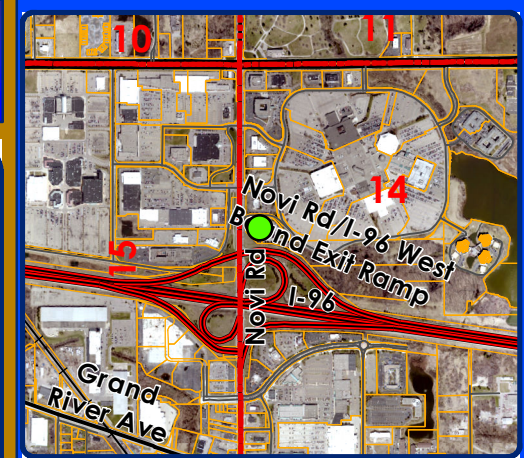
Zoning

Future Land Use

Natural Features

JSP 18-75:CHICK-FIL-A

Location



LEGEND

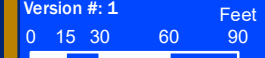
 Sections



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

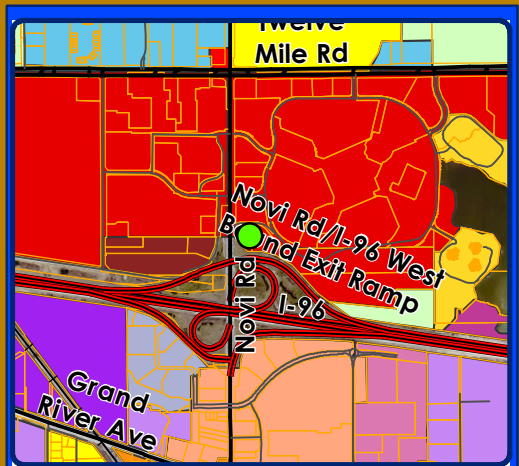


MAP INTERPRETATION NOTICE

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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



City of Novi

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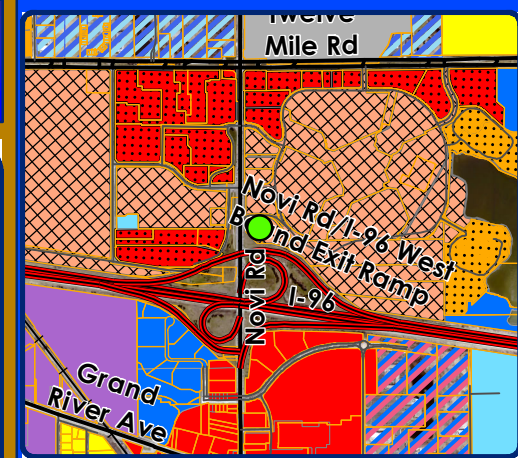


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JSP 18-75:CHICK-FIL-A

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

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JSP 18-75:CHICK-FIL-A

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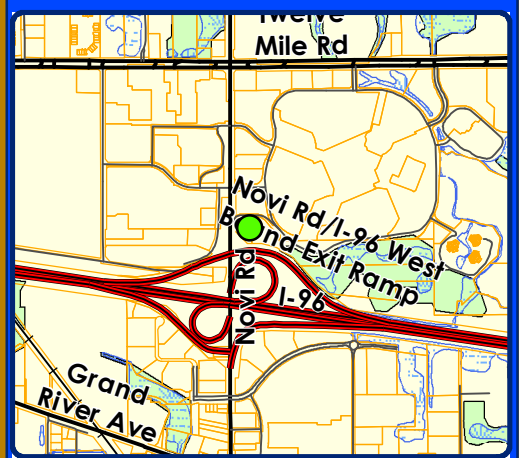


Subject Property



Twelve Oaks Mall Drive

Novi Road

I-96 Exit Ramp



LEGEND

-  WETLANDS
-  WOODLANDS



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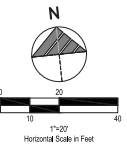
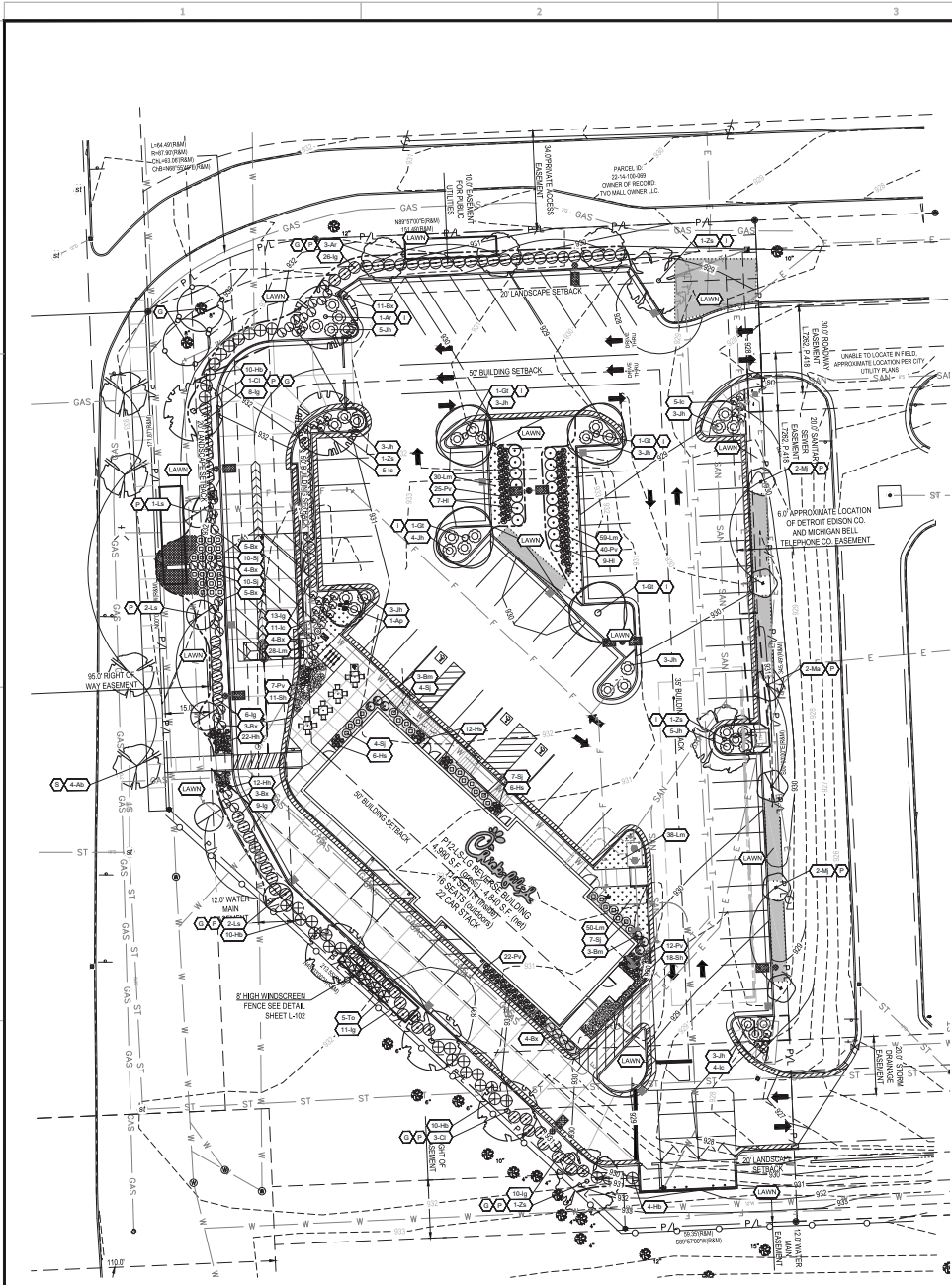
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SITE SURVEY

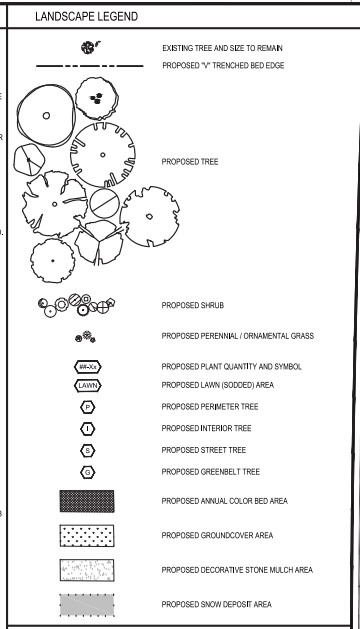
SITE PLAN

Full Size plans available at Community Development Department

C



- ### LANDSCAPE NOTES
1. ALL DISTURBED AREAS NOT TO BE PAVED OR MULCHED SHALL BE LAWN.
 2. ALL PROPOSED TREES SHALL BE INSTALLED A MINIMUM DISTANCE OF 10' FROM HYDRANTS AND UTILITY STRUCTURES.
 3. NO OVERHEAD UTILITY LINES ARE PRESENT ON SITE. CONTRACTOR SHALL FIELD VERIFY.
 4. LANDSCAPE CONTRACTOR TO DISCUSS ANNUAL COLOR BED OPTIONS WITH THE OWNER/OPERATOR PRIOR TO INSTALLING. IF THE OWNER/OPERATOR DETERMINES THAT THE ADDITIONAL MAINTENANCE AND REGULAR PLANTING OF THE ANNUAL COLOR BED IS NOT DESIRABLE, THEN THE AREA SHOWN AS COLOR BED IS TO BE PLANTED WITH ROYAL PURPLE LILY TURF.
 5. DECORATIVE MULCH TO BE PROVIDED AROUND THE BUILDING AS SHOWN PER SPECIFICATIONS. ALL OTHER SHRUB BEDS (EXISTING AND NEW) TO BE MULCHED WITH SHREDDED HARDWOOD MULCH PER SPECIFICATIONS.
 6. LANDSCAPE CONTRACTOR TO READ AND UNDERSTAND THE LANDSCAPE SPECIFICATIONS (SHEET L-101) PRIOR TO FINALING BEDS. THE LANDSCAPE SPECIFICATIONS SHALL BE ADHERED TO THROUGHOUT THE CONSTRUCTION PROCESS.
 7. CONTRACTOR RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
 8. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING TREES FROM DAMAGE DURING CONSTRUCTION.
 9. ALL TREE PROTECTION FENCING TO BE INSPECTED DAILY, AND REPAIRED OR REPLACED AS NEEDED.
 10. NO PARKING, STORAGE OR OTHER CONSTRUCTION ACTIVITIES ARE TO OCCUR WITHIN TREE PROTECTION AREAS.
 11. ALL PLANTING AREAS SHALL BE CLEANED OF CONSTRUCTION DEBRIS (I.E. CONCRETE, ROCK, RUBBLE, BUILDING MATERIALS, ETC.) PRIOR TO ADDING AND SPREADING OF THE TOPSOIL.
 12. GENERAL CONTRACTOR IS RESPONSIBLE FOR ADDING A MIN OF 4" CLEAN FERTILE TOPSOIL IN ALL PLANTING BEDS AND ALL GRASSED AREAS. GRADED AREAS TO BE HELD DOWN THE APPROPRIATE ELEVATION TO ACCOUNT FOR TOPSOIL DEPTH. SEE LANDSCAPE SPECIFICATIONS FOR REQUIRED TOPSOIL CHARACTERISTICS.
 13. IN ALL PARKING LOT ISLANDS, THE GENERAL CONTRACTOR IS RESPONSIBLE TO REMOVE ALL DEBRIS, FRACTURE COSEEN SUBGRADE TO A MIN. 2" DEPTH, ADD TOPSOIL TO A 4"-6" BERM HEIGHT ABOVE ISLAND CURBING, REFER TO LANDSCAPE SPECIFICATIONS AND LANDSCAPE ISLAND DETAIL.
 14. PRIOR TO BEGINNING WORK, THE LANDSCAPE CONTRACTOR SHALL INSPECT THE SUBGRADE, GENERAL SITE CONDITIONS, VERIFY ELEVATIONS, UTILITY LOCATIONS, IRRIGATION, APPROVE TOPSOIL, PROVIDED BY THE GENERAL CONTRACTOR AND OBSERVE THE SITE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. NOTIFY THE GENERAL CONTRACTOR OF ANY UNSATISFACTORY CONDITIONS. WORK SHALL BE PROCEEDED UNTIL SUCH CONDITIONS HAVE BEEN CORRECTED AND ARE ACCEPTABLE TO THE LANDSCAPE CONTRACTOR.
 15. ANY DEVIATIONS FROM THE APPROVED SET OF PLANS ARE TO BE APPROVED BY THE LANDSCAPE ARCHITECT.
 16. LANDSCAPING SHALL BE INSTALLED IN CONFORMANCE WITH ANSI Z60.1 THE 'AMERICAN STANDARD FOR NURSERY STOCK' AND THE ACCEPTED STANDARDS OF THE AMERICAN ASSOCIATION OF NURSERMEN.
 17. EXISTING GRASS IN PROPOSED PLANTING AREAS SHALL BE KILLED AND REMOVED. HAND RAKE TO REMOVE ALL ROCKS AND DEBRIS LARGER THAN 1 INCH IN DIAMETER, PRIOR TO ADDING TOPSOIL AND PLANTING SHRUBS.
 18. SOIL TO BE TESTED TO DETERMINE FERTILIZER AND LIME REQUIREMENTS PRIOR TO LAYING SOIL.
 19. PLANTING HOLES TO BE DUG A MINIMUM OF TWICE THE WIDTH OF THE ROOT BALL. FOR BOTH SHRUB AND TREE, SET PLANT HOLE 2" ABOVE FINISH GRADE, BACKFILL PLANTING WITH TOPSOIL AND NATIVE EXCAVATED SOIL.
 20. SOIL TO BE DELIVERED FRESH (CUT LESS THAN 24 HOURS PRIOR TO ARRIVING ON SITE) LAID IMMEDIATELY, ROLLED, AND WATERED THOROUGHLY IMMEDIATELY AFTER PLANTING. EDGE OF SOIL AT PLANTING BEDS ARE TO BE "V" TRENCHED. SEE LANDSCAPE DETAILS.
 21. ANY EXISTING GRASS DISTURBED DURING CONSTRUCTION TO BE FULLY REMOVED, REGRADED AND REPLACED. ALL TREE MARKS AND INDICATORS TO BE REPAIRED.
 22. WATER THOROUGHLY TWICE IN FIRST 24 HOURS AND APPLY MULCH IMMEDIATELY.
 23. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS INSTALLED FOR TWO FULL YEARS FROM DATE OF ACCEPTANCE BY THE OWNER. ALL PLANTS SHALL BE ALIVE AND AT A NORMAL RATE OF GROWTH AT THE END OF THE GUARANTEE PERIOD. THE LANDSCAPE CONTRACTOR SHALL NOT BE RESPONSIBLE FOR ACTS OF GOD OR UNUSUAL, SEASONAL OR UNUSUAL, SEE LANDSCAPE SPECIFICATIONS FOR WARRANTY REQUIREMENTS/EXPECTATIONS.
 24. ANY PLANT THAT IS DETERMINED DEAD, IN AN UNHEALTHY, UNUSUAL CONDITION, LOST ITS SHAPE DUE TO DEAD BRANCHES, OR OTHER SYMPTOMS OF POOR, NON-NORMAL GROWTH, SHALL BE REPLACED BY THE LANDSCAPE CONTRACTOR. SEE LANDSCAPE SPECIFICATIONS FOR WARRANTY REQUIREMENTS/EXPECTATIONS.
 25. SITE TO BE IRRIGATED IN ALL PLANTING BEDS AND GRASS AREA BY AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM. SEE IRRIGATION PLAN L-201 FOR DESIGN. IRRIGATION ASBUILT SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT WITHIN 24 HOURS OF IRRIGATION INSTALL COMPLETION.
 26. STAKE ALL EVERGREEN AND DECIDUOUS TREES AS SHOWN IN THE PLANTING DETAIL AND AS PER THE LANDSCAPE SPECIFICATIONS.
 27. REMOVE STAKES AND GUINING FROM ALL TREES AFTER ONE YEAR FROM PLANTING.



PLANT LIST

Symbol	Botanical Name	Common Name	Qty.	Min. Size	Condition	Remarks	Genus %	Species %
CANOPY TREE								
Ap	<i>Acer palmatum</i> var. <i>atropurpureum</i> 'Bloodgood'	Blood Good Japanese Maple	1	2" Cal.	B&B	Matching	25%	3%
Ab	<i>Acer rubrum</i> 'Bowhall'	Bowhall Red Maple	4	2.5" Cal.	B&B	Matching	13%	13%
Ar	<i>Acer rubrum</i> 'Sunset'	Sunset Red Maple	3	2.5" Cal.	B&B	Matching	9%	9%
Co	<i>Celtis occidentalis</i>	Hackberry	2	2.5" Cal.	B&B	Matching	6%	6%
Ci	<i>Cladrasis lutea</i>	Yellowwood	4	2.5" Cal.	B&B	Matching	13%	13%
Gi	<i>Gleditsia f. nemris</i> 'Skyloke	Skyline Honeylocust	4	2.5" Cal.	B&B	Matching	13%	13%
La	<i>Liquidambar styraciflua</i> 'Silver King'	Silver King Sweetgum	5	2.5" Cal.	B&B	Matching	15%	15%
Ma	<i>Malus</i> 'Adirondack'	Adirondack Crabapple	2	2" Cal.	B&B	Matching	19%	6%
Mj	<i>Malus</i> 'Jarmir' PP-14337	Matinee Crabapple	4	2" Cal.	B&B	Matching	13%	13%
Zs	<i>Zelkova serrata</i> 'Green Vase'	Green Vase Zelkova	3	2.5" Cal.	B&B	Matching	9%	9%
		TOTAL	32				100%	100%
SHRUBS								
Bm	<i>Buxus</i> x 'Green Mountain'	Green Mountain Boxwood	6	30" H	B&B	Per Plan		
Bx	<i>Buxus</i> x 'Green Velvet'	Green Velvet Boxwood	39	18" H	B&B	3' o/c		
Hb	<i>Hydrangea paniculata</i> 'Bokatorch'	Magical Flame Hydrangea	41	15" H, No. 5	Cont.	3.5' o/c		
Hi	<i>Hydrangea paniculata</i> 'Limelight'	Limelight Hydrangea	16	15" H, No. 5	Cont.	3.5' o/c		
lc	<i>Ilex crenata</i> 'Beehive'	Beehive Japanese Holly	25	18" H	B&B	3' o/c		
lg	<i>Ilex glabra</i> 'Chamin'	Nordic Inkberry Holly	78	24" H	B&B	4' o/c		
jh	<i>Juniperus horizontalis</i> 'Blue Chip'	Blue Chip Juniper	35	15" H, No. 5	Cont.	5' o/c		
Sj	<i>Spiraea japonica</i> 'Goldmound'	Goldmound Spirea	42	No. 5, 18" H	Cont.	3' o/c		
To	<i>Thuja occidentalis</i> 'Tectony'	Tectony Arborvitae	5	6" H	B&B	4' o/c		
PERENNIAL/ORNAMENTAL GRASS								
Hs	<i>Hemerocallis</i> 'Stella d'Oro'	Stella d'Oro Daylily	58	No. 1	Cont.	1.5' o/c		
Lm	<i>Liriope muscari</i> 'Royal Purple'	Royal Purple Lily Turf	205	No. 1	Cont.	1.5' o/c		
Pv	<i>Panicum virgatum</i> 'Heavy Metal'	Heavy Metal Switchgrass	106	No. 2	Cont.	2' o/c		
Sh	<i>Sporobolus heterolepis</i>	Prairie Droppeds	29	No. 2	Cont.	2.5' o/c		



5200 Buffington Rd.
Atlanta, Georgia,
30349-2998

REV.	DATE	DESCRIPTION



THREE FULL WORKING DAYS BEFORE YOU DIG
CALL THE MGS OR SYSTEM AT
1-800-482-7171
OR CALL 482-7171
FREE FROM YOUR AT&T OR CELLULAR PHONE
THE MGS OR MEMBER UTILITIES WILL MARK THE APPROXIMATE
LOCATION OF THEIR UNDERGROUND PUBLIC UTILITY LINES AT NO
CHARGE.

20/06/19

CHICK-FIL-A
27750 NOWI RD.
NOWI, MICHIGAN

PLANTING PLAN

ISSUED FOR:
PERMIT
BD
CONSTRUCTION
RECORD

PROJECT MANAGER: J.L.
DESIGNER: JRA

JOB NO.
2018223.15

L-101

A1 PLANTING PLAN
1"=20'

Drawing Name: C:\2018\2018223\15\Task\Draws\MPG_Cons\2023\CA 2018223\15_Landscape_CDD.rvt
February 1, 2019 10:49 AM

ELEVATIONS



Chick-fil-A

Chick-fil-A
5200 Buffington Road
Atlanta, Georgia
30349-2998



GPD GROUP
PROFESSIONAL CORPORATION
626 SOUTH MAIN STREET,
SUITE 2031
AKRON, OH 44311
330.872.2100 FAX 330.872.2102



02/06/19

NOT FOR
CONSTRUCTION

CHICK-FIL-A
TWELVE OAKS

27750 NOVI RD.
NOVI, MI 48377

FSR#04367

BUILDING TYPE / SIZE: P12 L8
RELEASE: V2_18_12

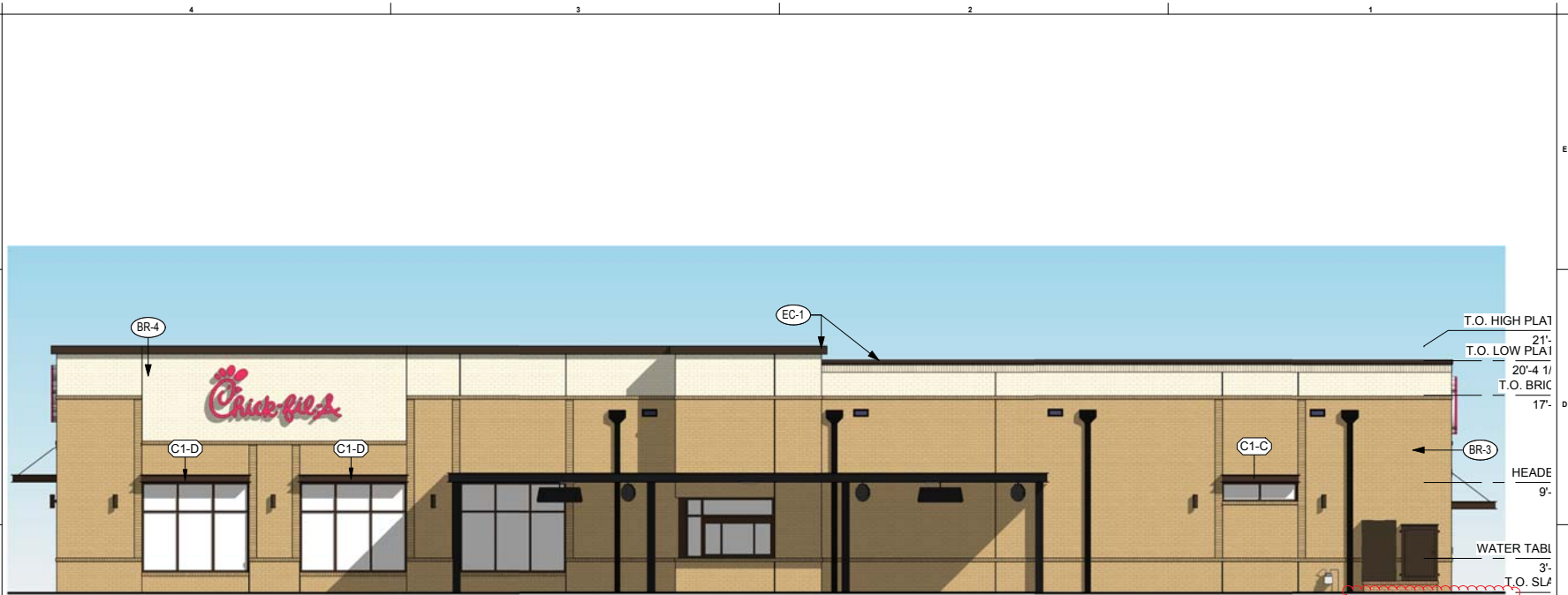
REVISION SCHEDULE
NO. DATE DESCRIPTION

FOR APPROVAL

CONSULTANT PROJECT # 3018233.10
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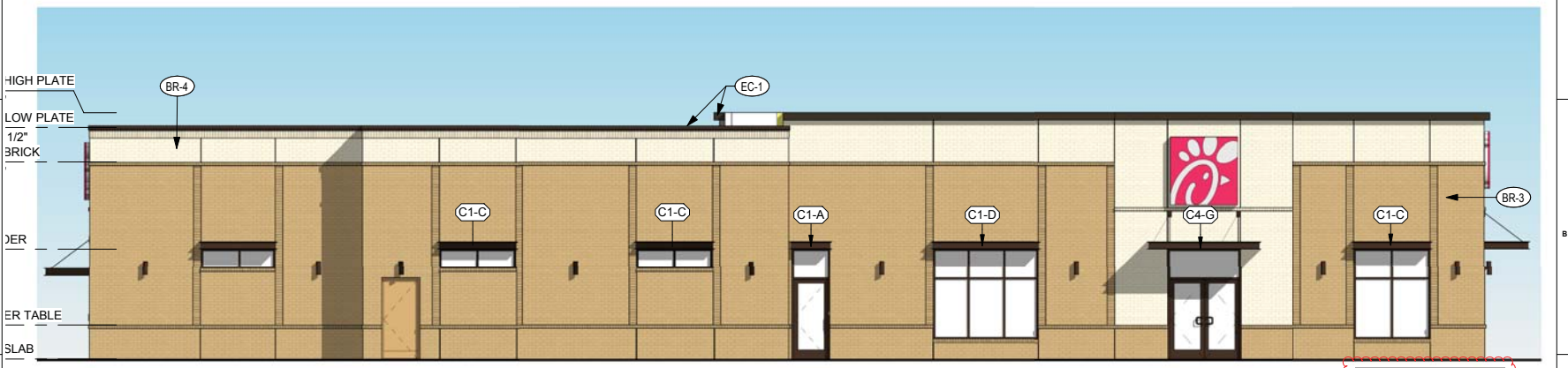
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SHEET
EXTERIOR ELEVATIONS

SHEET NUMBER
A-301



EXTERIOR ELEVATION
1/8" = 1'-0"

MATERIAL CALCULATIONS
BRICK = 88%
GLAZING = 8%
METAL = 4%



EXTERIOR ELEVATION
1/8" = 1'-0"

MATERIAL CALCULATIONS
BRICK = 83%
GLAZING = 9%
METAL = 8%

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Chick-fil-A

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NOT FOR CONSTRUCTION

CHICK-FIL-A
TWELVE OAKS

27750 NOVI RD.
NOVI, MI 48377

FSR#04367

BUILDING TYPE / SIZE: P12 L6
RELEASE: V2_18_12

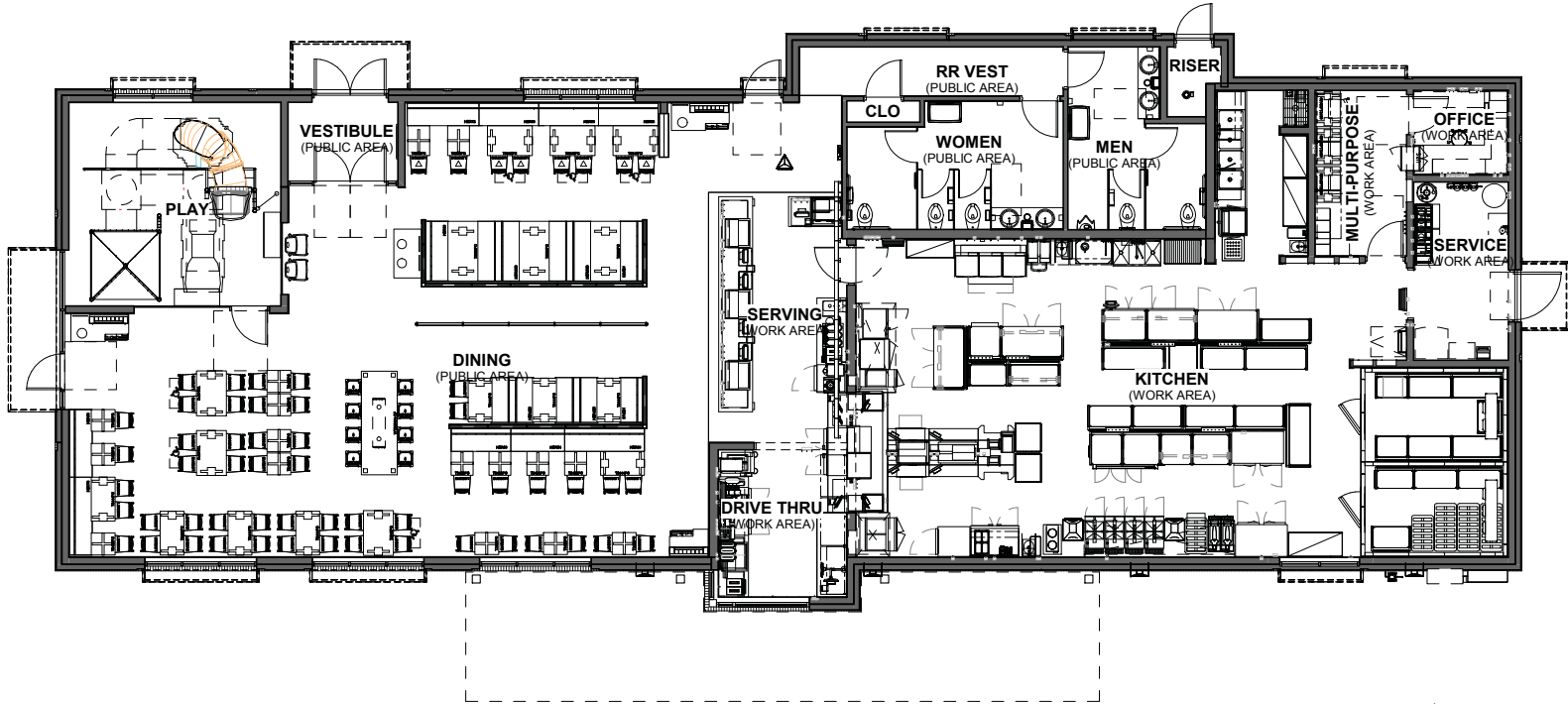
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NO. DATE DESCRIPTION

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FLOOR PLAN

SHEET NUMBER

A-201



FLOOR PLAN
N.T.S.

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02/06/19

NOT FOR CONSTRUCTION

CHICK-FIL-A
TWELVE OAKS

27750 NOVI RD.
NOVI, MI 48377

FSR#04367

BUILDING TYPE / SIZE: P12 L8
RELEASE: V2_18_12
REVISION SCHEDULE
NO. DATE DESCRIPTION

FOR APPROVAL

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SHEET: EXTERIOR ELEVATIONS

SHEET NUMBER
A-302

A301_ATTACHED CANOPY SCHEDULE

Mark	Description	Count	Overall Width	Overall Depth	Tie Back Mounting (Offset From Top)	Integral Lighting
C1-A	Exterior Canopy	1	3'-9"	1'-0"	0"	Yes
C1-C	Exterior Canopy	5	7'-1"	1'-0"	0"	No
C1-D	Exterior Canopy	3	9'-9"	1'-0"	0"	No
C4-B	Exterior Canopy	1	5'-9"	4'-0"	2'-6"	Yes
C4-G	Exterior Canopy	1	10'-0"	4'-0"	2'-6"	Yes
C4-H	Exterior Canopy	1	13'-9"	4'-0"	2'-6"	Yes
Grand total		12				

EXTERIOR FINISHES

EC-1
PREFINISHED METAL COPING
COLOR: DARK BRONZE

BR-4
BRICK VENEER
COLOR: V100
SIZE: MODULAR
MORTAR: ARGOS SAN TAN

PT-9
EXTERIOR PAINT
COLOR: DARK BRONZE
FINISH: SEMI-GLOSS

BR-3
BRICK VENEER
COLOR: CITADEL
SIZE: MODULAR
MORTAR: ARGOS SAN TAN

ST-1
STOREFRONT
COLOR: DARK BRONZE

MATERIAL CALCULATIONS
BRICK = 84%
GLAZING = 11%
METAL = 5%

MATERIAL CALCULATIONS
BRICK = 91%
GLAZING = 1%
METAL = 8%



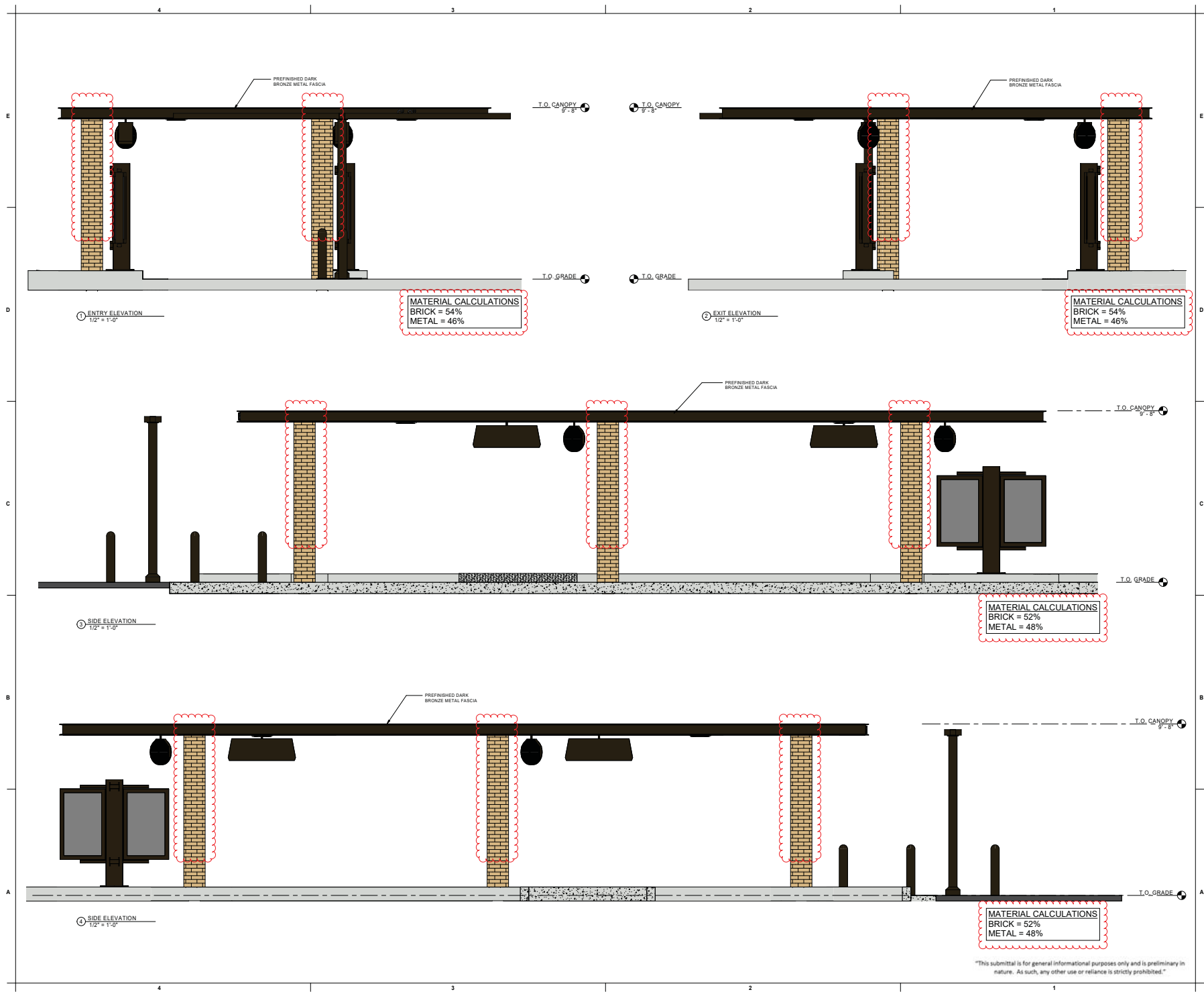
EXTERIOR ELEVATION
1/8" = 1'-0"



EXTERIOR ELEVATION
1/8" = 1'-0"

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Chick-fil-A
 5200 Buffington Road
 Atlanta, Georgia
 30349-2998



02/06/19

NOT FOR CONSTRUCTION

CHICK-FIL-A
TWELVE OAKS
 27750 NOVI RD.
 NOVI, MI 48377

FSR#04367
 BUILDING TYPE / SIZE: P12 L5 LRG-REV
 RELEASE: 02/01/2019
 REVISION SCHEDULE
 NO. DATE DESCRIPTION

FOR APPROVAL

CONSULTANT PROJECT #	2018023-19
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ORDER CANOPY ELEVATIONS

SHEET NUMBER
A-303

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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 Center (RC) to Regional Center 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 Center(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 Center(RC) to Regional Center 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

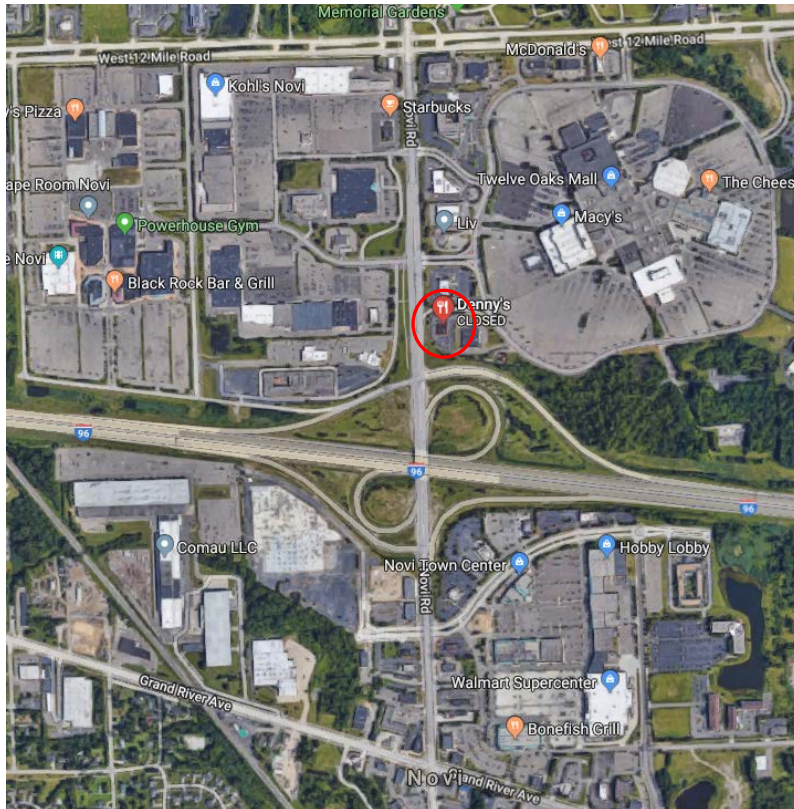
The property is currently zoned Regional Center. Existing building is considered a legal non-conforming structure and the parking lot does not meet the minimum Ordinance requirements for setbacks. Section 7.1.4. of our Zoning Ordinance restricts the redevelopment and/or alteration of non-conforming structures.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

Regional Center 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 Center 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.

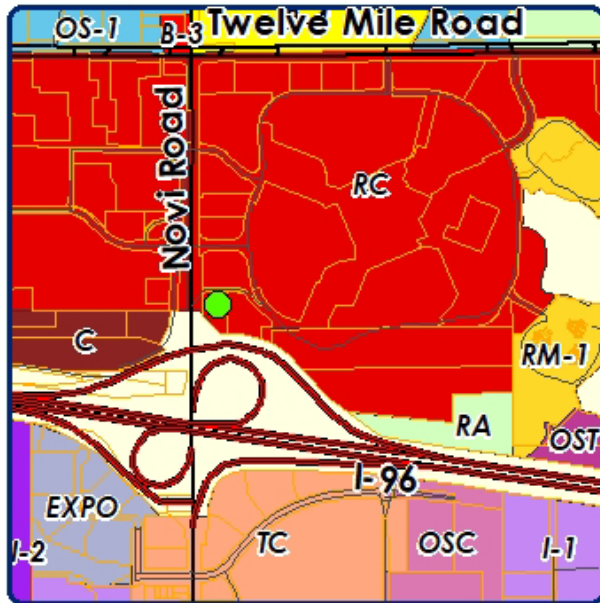
As noted in our Zoning Ordinance, the PD-2 Planned Development Option is intended to permit the limited application of (i) more extensive commercial uses in a district otherwise restricted to community and regional oriented shopping centers or (ii) transitional uses on the periphery of regional oriented 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 Center	Regional Commercial	Vacant building and parking lot
Northern Parcels (across Twelve Oaks Mall Drive)	Regional Center	Regional Commercial	Red Lobster Restaurant
Eastern Parcels	Regional Center	Regional Commercial	Laz-A-Boy furniture store
Western Parcels (across Novi Road)	Regional Center	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 Center (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

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

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

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

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.



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

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 Rechten, P.E.; Construction Engineer

PLANNING REVIEW: SITE PLAN



PLAN REVIEW CENTER REPORT

March 06, 2019

Planning Review

Chick-Fil-A

JSP 18-75

PETITIONER

GPD Group

REVIEW TYPE

Rezoning to PD-2, Preliminary and Final Site Plan

PROPERTY CHARACTERISTICS

Section	14	
Site Location	22-14-100-50; 27750 Novi Road; north of I-96, east of Novi Road	
Site School	Novi Community School District	
Current Zoning	Regional Center(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	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 applicant is proposing to demolish the existing vacant building (old Denny's restaurant) to develop a Chick-Fil-A Restaurant located the south east corner of Novi Road and Twelve Oaks 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 and a play area inside the building. The restaurant proposes 114 indoor seating and 16 outdoor seating.

RECOMMENDATION

Provided the applicant can get the necessary waivers/findings from the Planning Commission/City Council, approval of the **Rezoning from RC to RC with a PD-2, Preliminary Site Plan with PD-2 option and Special Land Use Permit is recommended.**

In its recommendation to the City Council, the Planning Commission will also need to consider the standards for Special Land Use consideration as well as the standards of the site plan review section of the Planned Development option.

PROJECT HISTORY

A pre-application meeting for this project was conducted on January 10, 2019.

PLANNED DEVELOPMENT OPTION CONDITIONS

Section 3.31.4 of the ordinance outlines the review procedures for Preliminary Site Plans using the PD-2 Option. This requires the Preliminary Site Plan to receive a recommendation for approval or denial from the Planning Commission with City Council ultimately approving or denying the proposed plan. It also outlines specific factors the Planning Commission and City Council shall consider in the review:

1. The plan meets all the requirements of Section 6.1 of this Ordinance for Preliminary Site Plans and the requirements set forth in the City's Site Plan and Development Manual. **The plan meets all the requirements except a couple minor deviations as noted in Landscape review letter, which staff recommends trying to minimize.**
2. The plan satisfies the intent of the Special Land Use provisions as stated in Section 6.1.2.c. **See the Special Land Use Considerations noted in this Plan Review Letter.**
3. The Community Impact Statement and Traffic Study are provided, regardless of site size, in accordance with the requirements set forth in the City's Site Plan and Development Manual. **The applicant has provided Community Impact Statement and Traffic Study as required.**
4. The plan satisfies the intent of this Section with respect to use of the land and principal and accessory use relationships within the site as well as with uses on adjacent sites.
5. That all existing or proposed streets, road, utilities and marginal access service drives, as are required, are correctly located on the site plan in accordance with the approved plans for these improvements. **See the attached Engineering and Traffic Review Letter for additional information.**
6. The plan meets all the applicable standards of this Ordinance relative to height, bulk and area requirements, building setbacks, off-street parking and preliminary site engineering requirements. **The plan is in general conformance with the code requirements. See the attached Plan Review Chart for additional information.**
7. That there exists a reasonable harmonious relationship between the location of buildings on the site relative to buildings on lands in the surrounding area; that there is a reasonable architectural and functional compatibility between all structures on the site and structures within the surrounding area to assure proper relationships between:
 - a. The topography of the adjoining lands as well as that of the site itself including any significant natural or manmade features. **No changes to existing site grading proposed**
 - b. The relationship of one building to another whether on-site or on adjacent land, i.e., entrances, service areas and mechanical appurtenances. **Additional information is requested with regards to at-grade transformer and rooftop equipment.**
 - c. The rooftops of buildings that may lie below street levels or from windows of higher adjacent buildings.
 - d. Landscape plantings, off-street parking areas and service drives on adjacent lands. **Landscape generally conforms to the requirements. See the Landscape Review Letter for additional information.**
 - e. Compliance with street, road and public utility layouts approved for the area. **See the Engineering and Traffic Review Letters for additional information.**
 - f. The architecture of the proposed building including overall design and façade materials used. Architectural design and façade material are to be complimentary to existing or proposed buildings within the site and the surrounding area. It is not intended that contrasts in architectural design and use of façade materials is to be discouraged, but care shall be taken so that any such contrasts will not be so out of character with existing building designs and façade materials so as to create an adverse effect on the stability and value of the surrounding area. **See the Façade Review Letter for additional information.**

Section 3.31.4.B indicates the City Council shall review the proposed plan considering the Planning Commission's recommendation and the requirements of Section 3.31.4.A. As part of its approval of the Preliminary Site Plan, the Council is permitted to impose conditions that are reasonably related to the purposes of this section and that will:

1. Insure that public services and facilities affected by a proposed land use or activity will be capable of accommodating increased services and facility loads caused by the land use or activity;
2. Protect the natural environment and conserving natural resources and energy;
3. Insure compatibility with adjacent use of land; and
4. Promote the use of land in a socially and economically desirable manner.

SPECIAL LAND USE CONSIDERATIONS

When the PD-2 Option is utilized, all uses fall under the Special Land Use requirements. Section 6.1.2.C of the Zoning Ordinance outlines specific factors the Planning Commission shall consider in the review and recommendation to City Council of the Special Land Use Permit request:

- i. Whether, relative to other feasible uses of the site, the proposed use will cause any detrimental impact on existing thoroughfares in terms of overall volumes, capacity, safety, vehicular turning patterns, intersections, view obstructions, line of sight, ingress and egress, acceleration/deceleration lanes, off-street parking, off-street loading/unloading, travel times and thoroughfare level of service.
- ii. Whether, relative to other feasible uses of the site, the proposed use will cause any detrimental impact on the capabilities of public services and facilities, including water service, sanitary sewer service, storm water disposal and police and fire protection to service existing and planned uses in the area.
- iii. Whether, relative to other feasible uses of the site, the proposed use is compatible with the natural features and characteristics of the land, including existing woodlands, wetlands, watercourses and wildlife habitats.
- iv. Whether, relative to other feasible uses of the site, the proposed use is compatible with adjacent uses of land in terms of location, size, character, and impact on adjacent property or the surrounding neighborhood.
- v. Whether, relative to other feasible uses of the site, the proposed use is consistent with the goals, objectives and recommendations of the City's Master Plan for Land Use.
- vi. Whether, relative to other feasible uses of the site, the proposed use will promote the use of land in a socially and economically desirable manner.
- vii. Whether, relative to other feasible uses of the site, the proposed use is
 - a. Listed among the provision of uses requiring special land use review as set forth in the various zoning districts of this Ordinance, and
 - b. Is in harmony with the purposes and conforms to the applicable site design regulations of the zoning district in which it is located.

ORDINANCE REQUIREMENTS

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance. **Please see the attached chart for information pertaining to ordinance requirements.** Items in **bold** below must be addressed and incorporated as part of the Final Site Plan submittal:

1. **Rezoning to PD-2 Option:** The property is currently zoned Regional Center. Existing building is considered a legal non-conforming structure and the parking does not meet the Ordinance requirements. 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 PD-2 option which provides a greater flexibility for redevelopment. The subject property should be rezoned from RC to RC with a PD-2 option. 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.

The rezoning request is reviewed under separate letter, which is attached to this review.

2. Studies: The applicant has submitted a Community Impact study, noise impact study, Traffic Impact study, Parking and Queuing study.
3. Minimum Parking required (Sec. 5.2.12): Minimum parking required for a sit-down restaurant is calculated at the rate of 1 space for every 2 employees, 1 space for every 2 customers per maximum occupancy including waiting areas. A minimum of 100 spaces are required and 65 spaces are provided. Our Traffic consultant provided two recommendations as part of the parking study review.
 - a. 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.
 - b. 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.**
4. Transformer Location: **There is a transformer indicated in the legend, but we are unable to find it on the plan. Please indicate the location, height and required screening to verify conformance**
5. Lighting and Photometric Plan: Additional information is required for these items. Refer to chart for other minor comments.
 - a. **Security Lighting (Sec. 5.7.3.H):** Lighting for security purposes shall be directed only onto the area to be secured.
 - b. **Building Lighting (Sec. 5.7.2.A.iii):** Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated, illuminance levels of walls and the aiming points of any remote fixtures.
- Plan Review Chart: Planning review chart provides additional comments and requests clarification for certain items. **Please address them in addition to the comments provided in this letter.**

DEVIATIONS FROM AREA, BULK, YARD, AND DIMENSIONAL REQUIREMENTS (SEC. 3.31.5.):

As part of approval of a Preliminary Site Plan, the City Council shall be authorized to grant deviations from the strict terms of the zoning ordinance governing area, bulk, yard, and dimensional requirements applicable to the property; provided, however, that such authorization to grant deviations shall be conditioned upon the Council finding:

- A. *That each zoning ordinance provision from which a deviation is sought would, if the deviation were not granted, prohibit an enhancement of the development that would be in the public interest;*
- B. *That approving the proposed deviation would be compatible with the existing and planned uses in the surrounding area;*
- C. *That the proposed deviation would not be detrimental to the natural features and resources of the affected property and surrounding area, or would enhance or preserve such natural features and resources;*
- D. *That the proposed deviation would not be injurious to the safety or convenience of vehicular or pedestrian traffic; and*

- E. *That the proposed deviation would not cause an adverse fiscal or financial impact on the City's ability to provide services and facilities to the property or to the public as a whole.*

The current site plan would require the following deviations from Ordinance requirements. The applicant has provided reasonable justification in the response letter as noted by staff comments in **bold**.

- i. Deviation to waive the required Rezoning Traffic study as a Traffic Impact Study is submitted that addresses the traffic impacts. **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.**
- 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; There is an existing freestanding restaurant within 295 feet. **It should be noted that the previous use for the current site was a free standing restaurant.**
- 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. **Fire has confirmed that it has access to all sides of the building and has no additional comments to the proposed layout. Traffic is in support of the layout based on the Queuing study findings.**
- 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 provided. **The applicant noted that there is a large area of green space at the corner of the site which pinches the site and restricts the building placement. Staff supports this deviation.**
- 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 provided.
- 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 provided. **This deviation is requested to allow drive-thru lanes within the parking setback.**
- vii. 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 is provided. **This deviation can be supported if the applicant can provide an agreement for shared parking/overflow parking on the adjacent property to the South.**
- 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 provided. **The applicant has provided truck turning diagrams for a dumpster truck, fire truck and the largest loading truck that accesses the site. Staff can support this deviation provided the loading and unloading times does not conflict with peak hour traffic**
- ix. Deviation from Section 4.19.2.F for allowing a dumpster in the exterior side yard instead of required rear yard. **Staff supports this deviation as the site has three street frontages limits the possibilities to conform.**
- 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. **Staff can support this deviation provided the dumpster pick up times does not conflict with peak hour traffic.**
- xi. **There are some other items noted in the Traffic review letter that would require deviations. However, staff recommends that the applicant revise the plan to conform.**
- xii. Landscape deviation from Section 5.5.3.B.ii and iii for insufficient greenbelt width along I-96 frontage. **Supported by staff.**
- xiii. Landscape deviation from Section 5.5.3.B.ii and iii for lack of berm or wall along entire frontage. **Not supported by staff.**
- xiv. Landscape deviation from Section 5.5.3.B.ii and iii for deficiency in greenbelt plantings (sub canopy trees).

- xv. 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 provided. **Not supported by staff.**
- xvi. Landscape deviation from Section 5.5.3.C. for deficiency in interior parking lot trees. 12 trees required, 9 trees provided. **Not supported by staff**
- xvii. Landscape deviation Section 5.5.3.C. for missing endcap island trees. **Not supported by staff.**
- xviii. Landscape deviation from Section 5.5.3.D. for providing less than 60% landscape along the façade facing road. *Supported by staff.*
- xix. Landscape deviation from Section 5.5.3.D. for proposing some of the required building foundation landscaping away from the building. **Supported by staff.**

OTHER REVIEWS

- a. Engineering Review: Engineering recommends approval of the Preliminary site plan, but requests a revised final site plan submittal.
- b. Landscape Review: Landscape recommends approval of the Preliminary site plan contingent on City Council approval of the deviations, but requests a revised final site plan submittal.
- c. Traffic Review (03-04-19): Traffic recommends approval of the Preliminary site plan, but requests a revised final site plan submittal.
- d. Traffic Impact Study Review (03-04-19): Traffic recommends approval.
- e. Parking and Queueing Study 03-04-19: Traffic recommends approval.
- f. Facade Review (02-28-19): Façade recommends approval.
- g. Fire Review: Fire is recommends approval with conditions.

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

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

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.
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

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

REVISED FINAL SITE PLAN SUBMITTAL

After receiving City Council approval, a revised submittal is required for final site plan approval. Engineering, Landscape and Traffic are currently not recommending approval for the final site plan. Fire does not recommend approval at this time. Please submit the following for reconsideration of final site plan approval.

1. Site plan revision application
2. Four copies of the revised drawings that addresses Engineering, Landscape and Traffic review comments
3. Response letter indicating how the comments are addressed

ELECTRONIC STAMPING SET SUBMITTAL AND RESPONSE LETTER

After receiving Final Site Plan approval, please submit the following for Electronic stamping set approval:

1. Plans addressing the comments in all of the staff and consultant review letters in PDF format.

2. Response letter addressing all comments in ALL letters and ALL charts and **refer to sheet numbers where the change is reflected.**

STAMPING SET APPROVAL

Stamping sets are still required for this project. After having received all of the review letters from City staff the applicant should make the appropriate changes on the plans and submit **10 size 24" x 36" copies with original signature and original seals**, to the Community Development Department for final Stamping Set approval.

STREET AND PROJECT NAME

Not Applicable

PRE-CONSTRUCTION MEETING

A Pre-Construction meeting is required for this project. Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued. **No work on the site may be commenced before a pre-construction meeting is held.** There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

CHAPTER 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

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.



Sri Ravali Komaragiri – Planner



PLANNING REVIEW CHART: RC with PD-2 Option

Review Date: January 10, 2019
Review Type: Rezoning/Preliminary/Final Site Plan
Project Name: JSP 18-75 Chick-Fil-A Drive-Thru
Plan Date: March 06, 2019
Prepared by: Sri Komaragiri, Planner
E-mail: skomaragiri@cityofnovi.org; **Phone:** (248) 735-5607

Items in **Bold** need to be addressed by the applicant with next submittal. Underlined items need to be addressed on the Stamping set submittal. **Bold and Underline** are noted as possible deviations from the Ordinance requirements.

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan <i>(adopted July 27, 2017)</i>	Regional Commercial	PD-2: Planned Development	No	<p>The application for rezoning shall be completed in accordance with the City's Site Plan and Development Manual.</p> <p>This would require Master Planning and Zoning Committee's input prior to Planning Commission's recommendation</p>
Area Study	None		NA	
Zoning <i>(Effective December 25, 2013)</i>	RC: Regional Center	RC with PD-2 Option	Yes	
Uses Permitted <i>(Sec 3.1.24.B & C)</i>	Sec 3.1.24.B Principal Uses Permitted. Sec 3.1.24.C Special Land Uses	Fast food drive-thru Permitted per conditions listed in 3.31	Yes?	<p>Subject to City Council approval upon Planning Commission's recommendation</p> <p>It requires a Special land use with a 15 day public hearing</p>
Phasing	Provide phases lines and detail description of activities in each phase	Phasing not proposed	NA	

Rezoning Document Requirements (SDM link: Site development Manual)

Item	Required Code	Proposed	Meets Code	Comments
Written Statement (<i>Site Development Manual</i>) <i>The statement should describe the following</i>	Potential development under the proposed zoning and current zoning	Not provided at this time	No	Provide the statement with the next submittal
Survey	Four copies of the engineering survey of the property to be rezoned	Provided	Yes	
Sign Location Plan (<i>Page 23,SDM</i>)	Per requirements listed in Site Plan Manual, Page 23 Installed within 15 days prior to public hearing Located along all road frontages	One is provided	No	Provide the proposed wording and font size for the sign. Refer to page 23 of site plan manual
Rezoning Traffic Impact Study (<i>Site development manual</i>)	A Rezoning Traffic Impact Study as required by the City of Novi Site Plan and Development Manual. Refer to Chapter 5	The applicant is currently working on the study	No	<u>A Rezoning Traffic study is waived as other related Traffic studies were submitted</u>
Community Impact Statement (<i>Sec. 2.2</i>)	<ul style="list-style-type: none"> - Over 30 acres for permitted non-residential projects - Over 10 acres in size for a special land use - All residential projects with more than 150 units - A mixed-use development, staff shall determine 	Required for PD-2 Option	No	Hours of operation Expected annual police and fire responses
Planned Development Site Plan Submittal Requirements (Sec. 3.31.4.A)				
Special Land Use (<i>Sec. 3.31.4.A.ii</i>)	Special Land use requirements listed in Sec. 6.1.2.C.	To be determined at the time of site plan review	Yes?	This would require a 15 day public hearing notice
Community Impact Statement (<i>Sec. 3.31.4.A.iii</i>)	Required according to site plan manual	Provided	Yes?	See above for comments
Traffic Study (<i>Sec. 3.31.4.A.iii</i>)	Required according to site plan manual	The applicant is currently working on the study	No	<u>A Rezoning Traffic study is waived as other related Traffic studies were submitted</u>

Item	Required Code	Proposed	Meets Code	Comments
Planning Commission Findings for Site plan review (Sec. 3.31.4.A)	The proposed site plan meets the intent of other items listed in Section	To be determined	TBD	
Use Conditions for Allowable uses under PD-2 Option (Sec. 3.31.7.B)				
Fast food drive-thru (Sec. 3.31.7.B.v.a)	When restaurants are independently freestanding uses and not attached to or otherwise clearly accessory to a principle use, they shall be located no closer than one-thousand (1,000) feet from any other such use on the same side of the street	Red Lobster appears to be within 2,95 feet	No	<u>This is considered a deviation. The existing use is also restaurant.</u>
Minimum parcel size (Sec. 3.31.7.B.v.b)	1.25 acres.	1.397 Acres	Yes	
Traffic Circulation (Sec. 3.31.7.B.v.c)	The site plan shall be designed to achieve traffic circulation features both within the site and in relation to access streets that assure safety and convenience of both vehicular and pedestrian traffic.	Traffic has noted some concerns in their review	Yes?	Refer to Traffic review for additional comments
Restaurant in the Character of a Fast Food Carryout, Drive-In, Fast Food Drive-Through, or Fast Food Sit Down (Sec. 4.40.)				
Noise Impact Statement (Sec. 4.40.1)	A noise impact statement is required subject to the standards of Sec. 5.14.10.B.	A noise impact study is provided	Yes	Study addresses all possible noise impacts and the noise levels are kept under Ordinance maximum.
Drive-through Lanes (Sec. 5.3.11)				
Drive-through Lanes Separation (Sec. 5.3.11.A,C)	Drive-through lanes shall be separate from the circulation routes & lanes necessary for ingress to & egress from the property	They are separated.	Yes	Refer to Traffic Review for further comments.
Drive-through setbacks (Sec. 5.3.11.A,B)	Drive through shall follow parking setback requirements and applicable parking lot landscaping requirements	Drive-through conforms to the parking setbacks	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Bypass Lane for Drive-through (Sec. 5.3.11.D)	Drive-through facilities shall provide 1 bypass lane, min. of 18 ft. in width, unless otherwise determined by the Fire Marshal	A partial by-pass lane is provided	No?	<u>This is considered a deviation.</u> Refer to Fire and Traffic comments. Notes from Traffic-Insert here
Width & Centerline Radius of Drive-through Lanes (Sec. 5.3.11.E,F,H)	Drive-through lanes shall have a minimum 9 ft. width, centerline radius of 25 ft. and a minimum length of 19 ft.	Complies	Yes	Per Traffic review
Drive-Thru Stacking Spaces (Sec. 5.3.11.I)	The distance between the order board and the pick-up window shall store four (4) vehicles, and four (4) vehicles shall be stored in advance of the menu board (not including the vehicles at the pick-up window and menu board).	Minimum stacking as required by code is proposed	Yes	Overflow queuing may conflict with parking spaces. Traffic recommends considering allocating those spaces as planned employee parking.
Drive-through Lane Delineated (Sec. 5.3.11.G)	Drive-through lanes shall be striped, marked, or otherwise delineated	Delineated with striping	Yes	
Height, bulk, density and area limitations (Sec 3.1.23.D)				
Frontage on a Public Street (Sec. 5.12) Access To Major Thoroughfare (Sec. 5.12)	Frontage on a Public Street is required.	The site has frontage and access to Novi Road	Yes	
Minimum Zoning Lot Size for each Unit in Acres (Sec 3.6.2.D)	Except where otherwise provided in this Ordinance, the minimum lot area and width, and the maximum percent of lot coverage shall be determined on the basis of off-street parking, loading, greenbelt screening, yard setback, or usable open space.		NA	
Minimum Zoning Lot Size for each Unit: Width in Feet (Sec 3.6.2.D)			NA	
Open Space Area	----	---	---	---
Maximum % of Lot Area Covered	(Sec 3.6.2.D)	8.2% 4,480 SF building	Yes	

Item	Required Code	Proposed	Meets Code	Comments
(By All Buildings)		60,853 SF lot		
Building Height (Sec. 3.20)	45 ft. or 3 stories whichever is less	21'-8" single story	Yes	
Outdoor Restaurants (Sec. 4.84)				
Accessory Use (Sec. 4.84)	Outdoor seating as an accessory use is allowed per section 4.84.	Outdoor seating for 16 people is proposed.	Yes	
Site Plan Review (Sec. 4.84.1)	If the seating area is proposed as part of a site plan application it shall require site plan review and approval by the Planning Commission	The seating will be reviewed along with the current site plan	Yes	
Building and fire codes (Sec. 4.84.1)	Outdoor seating areas shall also comply with all applicable building and fire codes	Will be reviewed with Outdoor seating permit	NA	
Timings (Sec. 4.84.2)	Permitted between March 1 st and November 30 th .	Note added to plan	Yes	
Pathway (Sec. 4.84.4)	Outdoor seating areas shall be located in a manner to maintain a minimum pathway width of six (6) feet (clear of structures such as light poles, trees and hydrants) along the sidewalk	6 feet clear space appears to be provided	Yes?	Barb, no 6 feet clear space???
Enclosure (Sec. 4.84.4)	It shall be enclosed where there is alcohol service.	Alcohol is not served at this location	NA	
Location (Sec. 4.84.5)	If located in public, ROW, then approval from all related agencies is required. Additional requirements may apply.	It is not located in Public-Right of way	NA	
Parking (Sec. 4.84.6)	For more than 20 seating, parking shall be calculated.	Additional parking not required; Outdoor seating for 16 people is proposed	NA	
Hours of Operation (Sec. 4.84.7)	Hours of operation same as inside restaurant.	Indicate hours of operation	Yes	
Building Setbacks (Sec 3.31.7.D)				
Front @ Novi Road (West)	50 ft.	Conforms	Yes	<u>This is considered a deviation, subject to City Council approval.</u>
Exterior side yard @ Twelve Oaks Mall Road (North)	50 ft.	Appears to conform	Yes?	

Item	Required Code	Proposed	Meets Code	Comments
Exterior side yard @ I-96 (South west)	50 ft.	32 ft.	No	
Exterior side yard @ I-96 (South)	50 ft.	Conforms	Yes	
Rear (East)	35 ft.	Conforms	Yes	
Parking Setback (Sec 3.31.7.D)				
Front @ Novi Road (West)	20 ft.	Conforms	Yes	<u>This is considered a deviation, subject to City Council approval.</u>
Exterior side yard @ Twelve Oaks Mall Road (North)	20 ft.	14.5 ft	No	
(South west)	20 ft.	9.3 ft Drive-thru lanes are in the minimum parking setback	NO	
Exterior side yard @ I-96 (South)	20 ft.	12.1 ft. Dumpster is within Parking setbacks	No	
Rear (East)	10 ft.	6 ft.	No	
Note To District Standards for RC district (Sec 3.6.2)				
Exterior Side Yard Abutting a Street (Sec 3.6.2.C)	All exterior side yards abutting a street shall be provided with a setback equal to front yard.	Does not comply. See proposed setbacks in the previous section	No	
Off-Street Parking in Front Yard (Sec 3.6.2.E)	Off-street parking is allowed in front yard.	Mostly proposed in rear yard	Yes	
Distance between buildings (Sec 3.6.2.H)	It is governed by sec. 3.8.2 or by the minimum setback requirements, whichever is greater.	One building	NA	
Wetland/Watercourse Setback (Sec 3.6.2.M)	A setback of 25ft from wetlands and from high watermark course shall be maintained.	No wetlands on site	NA	
Additional Building height (Sec 3.6.2.O)	Additional height up to 65 ft. may be allowed for properties within 1200 ft. from a freeway subject to additional conditions	Not applicable	NA	

Item	Required Code	Proposed	Meets Code	Comments
Parking setback screening (Sec 3.6.2.P)	Required parking setback area shall be landscaped per sec 5.5.3.	A landscape plan is provided.	Yes	Please refer to Landscape Review for additional information
Modification of parking setback requirements (Sec 3.6.2.Q)	The Planning Commission may modify parking setback requirements based on its determination according to Sec 3.6.2.Q.	Parking setbacks do not conform to the minimum required. There is not additional compensatory green space proposed	No	
Parking, Loading and Dumpster Requirements				
Number of Parking Spaces Sec. 5.2.12.C	Fast Food Restaurants 1 for 2 employees, plus 1 for every 2 customers allowed under maximum capacity (including waiting areas)	15 Employees 184 Maximum Occupancy No parking for outdoor seating (less than 20) Total Required: 8 + 92 = 100 Total Provided: 65	No	<u>This is considered a deviation</u> Based on parking study provided, it appears that a shared parking agreement with Lazyboy parking lot is warranted.
Parking Space Dimensions and Maneuvering Lanes (Sec. 5.3.2)	<u>90° spaces:</u> 9 ft. x 19 ft. parking spaces with 24 ft. drives	9 ft. x 19 ft. parking spaces with 24 ft. drives	Yes	
	<u>60° spaces:</u> 9 ft. x 18 ft. parking spaces with 18 ft. one-way drives	9 ft. x 18 ft. parking spaces with 18 ft. one-way drives		
	9 ft. x 17 ft. parking spaces along 7 ft. interior sidewalks, provided a 4 in. curb at these locations & along landscaping	9 ft. x 17 ft. parking spaces with 24 ft. drives		
Parking stall located adjacent to a parking lot entrance (public or private) (Sec. 5.3.13)	- shall not be located closer than twenty-five (25) feet from the street right-of-way (ROW) line, street easement or sidewalk, whichever is closer	Not Applicable	NA	
End Islands (Sec. 5.3.12)	- End Islands with landscaping and raised curbs are required at the end of all parking bays that abut traffic circulation aisles. - The end islands shall generally be at least 8 feet wide, have an outside radius of 15 feet, and be constructed 3' shorter than	End islands do not conform to code.	No	Check Traffic Review to confirm end islands meet code requirements.

Item	Required Code	Proposed	Meets Code	Comments
	the adjacent parking stall as illustrated in the Zoning Ordinance			
Barrier Free Spaces <i>Barrier Free Code</i>	For 51 to 75 spaces, 3 BF spaces are required	Three provided	Yes	
Barrier Free Space Dimensions <i>Barrier Free Code</i>	- 8' wide with an 8' wide access aisle for van accessible spaces - 5' wide with a 5' wide access aisle for regular accessible spaces	2 van accessible and 1 car accessible spaces proposed	Yes	
Barrier Free Signs <i>Barrier Free Code</i>	One sign for each accessible parking space.	Provided	Yes	
Minimum number of Bicycle Parking <i>(Sec. 5.16.1)</i>	Four (4) spaces	Bike racks proposed	Yes?	Indicate number of bike spaces under parking data
Bicycle Parking General requirements <i>(Sec. 5.16)</i>	No farther than 120 ft. from the entrance being served	Yes	Yes	
	When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations	It appears that 4 spaces are proposed		
	Spaces to be paved and the bike rack shall be inverted "U" design Shall be accessible via 6 ft. paved sidewalk	Inverted U rack design proposed		
Bicycle Parking Lot layout <i>(Sec 5.16.6)</i>	Parking space width: 6 ft. One tier width: 10 ft. Two tier width: 16 ft. Maneuvering lane width: 4 ft. Parking space depth: 2 ft. single, 2 ½ ft. double	None shown at this time	No?	
Loading Spaces Sec. 5.4.1	- Within the OS districts, loading space shall be provided in the rear yard or - in the case of a double frontage lot, in the interior side yard, - In the ratio of five (5) square feet per front foot of building up to a total area of three-hundred sixty (360) square feet per building.	360 SF of loading spaces proposed 2,110 Sf of loading space required	No	The applicant has provided truck turning diagrams for a dumpster truck, fire truck and the largest loading truck that accesses the site. <u>Staff can support this deviation provided the loading and unloading times does not conflict</u>

Item	Required Code	Proposed	Meets Code	Comments
				<u>with peak hour traffic</u>
Dumpster Sec 4.19.2.F	<ul style="list-style-type: none"> - Located in rear yard - Attached to the building or - No closer than 10 ft. from building if not attached - Not located in parking setback - If no setback, then it cannot be any closer than 10 ft., from property line. - Away from Barrier free spaces 	<p>Two dumpsters located in exterior side yard</p> <p>Away from the building</p> <p>Located within the 20 feet parking setback</p>	No	<p><u>A deviation for location and not meeting the minimum setback requirements is required.</u></p> <p><u>Staff can support this deviation provided the dumpster pick up times does not conflict with peak hour traffic</u></p>
Dumpster Enclosure Sec. 21-145. (c) Chapter 21 of City Code of Ordinances	<ul style="list-style-type: none"> - Screened from public view - A wall or fence 1 ft. higher than height of refuse bin - And no less than 5 ft. on three sides - Posts or bumpers to protect the screening - Hard surface pad. - Screening Materials: Masonry, wood or evergreen shrubbery 	<p>Elevations provided</p> <p>Full compliance</p>	Yes	Refer to Façade review for more details
Accessory Structures Sec. 4.19	One flagpole is proposed	It is located at a convenient distance from all public ROW's.	Yes	There is a transformer indicated in the legend, but we are unable to find it on the plan. Please indicate the location, height and required screening to verify conformance
Exterior lighting Sec. 5.7	Photometric plan and exterior lighting details needed at time of Final Site Plan submittal.	A lighting plan is provided at this time	Yes?	Refer to more comments about lighting on from Page 11
Roof top equipment and wall mounted utility equipment Sec. 4.19.2.E.ii	- All roof top equipment must be screened and all wall mounted utility equipment must be enclosed and integrated into the design and color of the building.	Not indicated on the plans. Noise impact statement refers to the roof top equipment	No	Refer to Façade review for more details

Item	Required Code	Proposed	Meets Code	Comments
Roof top appurtenances screening	Roof top appurtenances shall be screened in accordance with applicable facade regulations, and shall not be visible from any street, road, or adjacent property.			
Non-Motorized Facilities				
Article XI. Off-Road Non-Motorized Facilities	A 6 foot sidewalk is required along collector and arterial roads Building exits must be connected to sidewalk system or parking lot.	A six foot concrete sidewalk is proposed along Novi Road	Yes	
Pedestrian Connectivity	Assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets	A sidewalk connection from building to proposed public sidewalk is proposed	Yes	
Other Requirements				
Design and Construction Standards Manual	Land description, Sidwell number (metes and bounds for acreage parcel, lot number(s), Liber, and page for subdivisions).	Provided	Yes	
General layout and dimension of proposed physical improvements	Location of all existing and proposed buildings, proposed building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private).	Mostly provided	Yes?	Refer to all review for additional information requested
Economic Impact	- Total cost of the proposed building & site improvements - Number of anticipated jobs created (during construction & after building is occupied, if known)	Building Cost: \$900,000 65-95 new jobs (part time and full time employees) 75-85 construction jobs	Yes	
Development/ Business Sign &	- Signage if proposed requires a permit.	Signage information included, but not	NA	Business signage information has been

Item	Required Code	Proposed	Meets Code	Comments
Street addressing	- The applicant should contact the Building Division for an address prior to applying for a building permit.	reviewed at this time Two wall signs and one monument signs are allowed. The applicant is proposing four wall signs.		forwarded to Ordinance Department. A formal sign permit application is required for a complete review. Please contact Ordinance department at 248-735-5678 for more details
Project and Street naming	Some projects may need approval from the Street and Project Naming Committee.	Not applicable	NA	
Property Split	The proposed property split must be submitted to the Assessing Department for approval.	No property splits proposed.	NA	
Lighting and Photometric Plan (Sec. 5.7)				
Intent (Sec. 5.7.1)	Establish appropriate minimum levels, prevent unnecessary glare, reduce spillover onto adjacent properties, & reduce unnecessary transmission of light into the night sky.	A lighting plan is provided	Yes	
	Site plan showing location of all existing & proposed buildings, landscaping, streets, drives, parking areas & exterior lighting fixtures.			
Security Lighting (Sec. 5.7.3.H) Lighting for security purposes shall be directed only onto the area to be secured.	- All fixtures shall be located, shielded, and aimed at the areas to be secured. - Fixtures mounted on the building and designed to illuminate the facade are preferred.	Unable to determine	No?	Please indicate hours of operation and the lights which will be turned off after hours for security purposes
Building Lighting (Sec. 5.7.2.A.iii)	Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated, illuminance levels of walls and the aiming points of any remote fixtures.	Not provided	No	Provide photometrics on building
Lighting Plan (Sec.5.7.A.2)	Specifications for all proposed & existing lighting fixtures.	Provided	Yes	

Item	Required Code	Proposed	Meets Code	Comments								
	Photometric data	Provided	Yes									
	Fixture height	25 feet	Yes									
	Mounting & design	Provided	Yes									
	Glare control devices	Full-cut off	Yes									
	Type & color rendition of lamps	LED	Yes									
	Hours of operation	Not indicated	No									
	Photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties.											
Maximum Height (Sec. 5.7.3.A)	Height not to exceed maximum height of zoning district (or 25 ft. where adjacent to residential districts or uses.	25 feet	Yes	Note says unless otherwise determined for height. Please confirm the height								
Standard Notes (Sec. 5.7.3.B)	<ul style="list-style-type: none"> - Electrical service to light fixtures shall be placed underground - Flashing light shall not be permitted - Only necessary lighting for security purposes & limited operations shall be permitted after a site's hours of operation 											
Average Light level ratio (Sec.5.7.3.E)	Average light level of the surface being lit to the lowest light of the surface being lit shall not exceed 4:1.	2.7:1	Yes									
Type of lamps (Sec. 5.7.3.F)	Use of true color rendering lamps such as metal halide is preferred over high & low pressure sodium lamps.	LED	Yes									
Min. Illumination (Sec. 5.7.3.k)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Parking areas: 0.2 min</td> <td rowspan="5" style="vertical-align: middle;">Meets the minimum</td> <td rowspan="5" style="vertical-align: middle;">Yes</td> <td rowspan="5"></td> </tr> <tr> <td>Loading & unloading areas: 0.4 min</td> </tr> <tr> <td>Walkways: 0.2 min</td> </tr> <tr> <td>Building entrances, frequent use: 1.0 min</td> </tr> <tr> <td>Building entrances, infrequent</td> </tr> </table>	Parking areas: 0.2 min	Meets the minimum	Yes		Loading & unloading areas: 0.4 min	Walkways: 0.2 min	Building entrances, frequent use: 1.0 min	Building entrances, infrequent			
Parking areas: 0.2 min	Meets the minimum	Yes										
Loading & unloading areas: 0.4 min												
Walkways: 0.2 min												
Building entrances, frequent use: 1.0 min												
Building entrances, infrequent												

Item	Required Code	Proposed	Meets Code	Comments
	use: 0.2 min			
Max. Illumination adjacent to Non-Residential (Sec. 5.7.3.K)	When site abuts a non-residential district: - Maximum illumination at the property line shall not exceed 1 foot candle.	Less than 1 fc		
Cut off Angles (Sec. 5.7.3.L)	When adjacent to residential districts: - All cut off angles of fixtures must be 90°. - Maximum illumination at the property line shall not exceed 0.5 foot candle.	Does not abut residential	NA	

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4 and 5 of the zoning ordinance for further details
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

ENGINEERING REVIEW



PLAN REVIEW CENTER REPORT

March 8, 2019

Engineering Review

Chick-Fil-A
JSP18-0075

Applicant

Novi Real Estate Group, LLC

Review Type

Combined Preliminary and Final Site Plan

Property Characteristics

- Site Location: East of Novi Road, North of I-96
- Site Size: acres
- Plan Date: 02/06/2019
- Design Engineer: GPD Group

Project Summary

- Construction of an approximately 4,840 square-foot fast food restaurant and associated parking. Site access would be provided via two private entrances on Twelve Oaks Mall Road.
- Water service would be provided by an 8-inch extension from the existing 8-inch water main along the east side of Novi Road. A 2-inch domestic lead and a 6-inch fire lead would be provided to serve the building, along with an additional hydrant.
- Sanitary sewer service would be provided by a 6-inch extension from the existing 6-inch sanitary sewer east of the development.
- Storm water would be collected by a single storm sewer collection system and discharged to a regional detention basin.

Recommendation

Approval of the Preliminary Site Plan is recommended and approval of the final site plan is not recommended.

Comments:

The Preliminary Site Plan meets the general requirements of Chapter 11 of the Code of Ordinances, the Storm Water Management Ordinance and the Engineering Design Manual with the following exceptions, which can be addressed at revised Final Site Plan submittal:

General

1. Provide a minimum of two ties to established section or quarter section corners.
2. Revise the plan set to reference at least **one City established benchmark**. An interactive map of the City's established survey benchmarks can be found under the 'Map Gallery' tab on www.cityofnovi.org. (The two closest benchmarks are 1522 and NOVI 8 according to the map.)
3. Provide a note on the plans that all work shall conform to the current City of Novi standards and specifications.
4. Provide the City's standard detail sheets for water main (5 sheets-rev. 02/16/2018), sanitary sewer (3 sheets- rev. 02/16/2018), storm sewer (2 sheets-rev. 02/16/2018), and paving (2 sheets-rev. 03/05/2018) at the time of the printed Stamping Set submittal. These details can be found on the City's website at this location: <http://cityofnovi.org/Government/City-Services/Public-Services/Engineering-Division/Engineering-Standards-and-Construction-Details.aspx>
5. An updated Non-domestic User Survey form shall be submitted to the City so it can be forwarded to Oakland County.
6. Provide a traffic control sign table listing the quantities of each sign type proposed for the development. Provide a note along with the table stating all traffic signage will comply with the current MMUTCD standards.
 - a. Traffic signs in the RCOC right-of-way will be installed by RCOC.
7. Provide a note that compacted sand backfill (MDOT sand class 2) shall be provided for all utilities within the influence of paved areas, and illustrate on the profiles.
8. Provide a construction materials table on a Utility Plan listing the quantity and material type for each utility (water, sanitary and storm) being proposed.
9. Provide a utility crossing table indicating that at least 18-inch vertical clearance will be provided, or that additional bedding measures will be utilized at points of conflict where adequate clearance cannot be maintained.
10. Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Division for review.
11. Show the locations of all light poles and label them on the utility plan.

Water Main

12. Provide a profile for all proposed water main 8-inch and larger.
13. Provide a separate domestic lead and 6-inch fire lead for the building with a unique **shut-off valve** for each. Shut off valves must be located at the main within water main easement.
14. Thrust blocks are general not allowed as method of restraint, unless found necessary.
15. Relocation of the water main as shown will require coordination with impacted adjacent City water connections. Contact the Engineering department for further coordination.
16. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (06/12 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Division for review, assuming no further design changes are anticipated. Utility plan sets shall include **only** the cover sheet, any applicable utility sheets, and the standard detail sheets.

Sanitary Sewer

17. Provide a sanitary sewer basis of design for the development on the utility plan sheet. The City's Sewer Unit Factor Chart is attached.
18. Note on the construction materials table that 6-inch sanitary leads shall be a minimum SDR 23.5, and mains shall be SDR 26.
19. Provide a note on the Utility Plan that sanitary leads will be buried at least 5 feet deep where under the influence of pavement.
20. Illustrate all pipes intersecting with manholes on the sanitary profiles.

Storm Sewer

21. Label all inlet storm structures on the profiles. Inlets are only permitted in paved areas and when followed by a catch basin within 50 feet.
22. Label the 10-year HGL on the storm sewer profiles, and ensure the HGL remains at least 1-foot below the rim of each structure.
23. Illustrate all pipes intersecting storm structures on the storm profiles.
24. Provide a schedule listing the casting type and other relevant information for each proposed storm structure on the utility plan. Round castings shall be provided on all catch basins except curb inlet structures.

Storm Water Management Plan

25. The Storm Water Management Plan for this development shall be designed in accordance with the Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual.
26. On a sheet or sheets titled "Storm Water Management Plan" (SWMP), provide supporting calculations for the runoff coefficient determination in each drainage area. Include a map showing how the parcel was divided up into individual drainage areas.

27. A runoff coefficient of 0.35 shall be used for all turf grass lawns (mowed lawns) and 0.95 for pavement and roofs.
28. Provide a 20-foot wide access easement for maintenance over the pretreatment structure.

Paving & Grading

29. Detectable warning plates are required at all barrier free ramps, hazardous vehicular crossings and other areas where the sidewalk is flush with the adjacent drive or parking pavement. The barrier-free ramps shall comply with current MDOT specifications for ADA Sidewalk Ramps. Provide the latest version of the MDOT standard detail for detectable surfaces.
30. Provide a note on the Grading Plan stating that the proposed pathway within the road right-of-way shall match existing grades at both ends. Proposed sidewalk should terminate where it provides connectivity to the site, rather than including a stub to the south.
31. 6-inch curb height must be provided at all drive aisles and 19-foot parking spaces. Revise grading accordingly.
32. The transition from 4-inch to 6-inch curb should occur along the length of 17-foot parking space. Revise notes and grading accordingly.
33. Provide at least 3-foot of buffer distance between the sidewalk and any fixed objects, including hydrants. Include a note on the plan where the 3-foot separation cannot be provided.
34. The City standard straight-faced curb (MDOT F-4 curb detail) shall be provided. Revise details accordingly.
35. Provide a line designation representing the effective 19-foot stall length for 17-foot perimeter stalls.
36. Provide City Standard Paving Details and remove any conflicting information.
37. The end islands shall conform to the City standard island design, or variations of the standard design, while still conforming to the standards given in Section 2506 of Appendix A of the Zoning ordinance (i.e. 2' minor radius, 15' major radius, minimum 8' wide, 3' shorter than adjacent 19' stall).
38. Revise plans to ensure all end islands are 3 feet shorter than adjacent parking spaces.

Soil Erosion and Sediment Control

39. A SESC permit is required. A full review has not been completed at this time. The review checklist detailing all SESC requirements is attached to this letter. Please address the comments below and submit a SESC permit application under separate cover. The application can be found on the City's website at <http://cityofnovi.org/Reference/Forms-and-Permits.aspx>.

Off-Site Easements

40. Any off-site utility easements anticipated must be executed **prior to final approval of the plans**. If you have not already done so, drafts of the easements and a recent title search shall be submitted to the Community

Development Department as soon as possible for review, and shall be approved by the Engineering Division and the City Attorney prior to executing the easements.

The following must be submitted with the revised Final Site Plan:

41. A letter from either the applicant or the applicant's engineer must be submitted with the revised Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved. **Additionally, a statement must be provided stating that all changes to the plan have been discussed in the applicant's response letter.**
42. An itemized construction cost estimate must be submitted to the Community Development Department for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. **The estimate must be itemized** for each utility (water, sanitary, storm sewer), on-site paving (square yardage), right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pre-treatment structure and restoration).

The following must be submitted with the Stamping Set:

(Please note that all documents must be submitted together as a package with the Stamping Set submittal with a legal review transmittal form that can be found on the City's website. Partial submittals will not be accepted.)

43. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement (SDFMEA), as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department. Once the agreement is approved by the City's Legal Counsel, this agreement will then be sent to City Council for approval/acceptance. The SDFMEA will then be recorded at the office of the Oakland County Register of Deeds. This document is available on our website.
44. A draft copy of the 20-foot wide easement for the water main to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.
45. A draft copy of the 20-foot wide easement for the sanitary sewer and monitoring manhole to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.

The following must be addressed prior to construction:

46. A pre-construction meeting shall be required prior to any site work being started. Please contact Sarah Marchioni in the Community Development Department to setup a meeting (248-347-0430).


47. A City of Novi Grading Permit will be required prior to any grading on the site. This permit will be issued at the pre-construction meeting (no application required). No fee is required for this permit.
48. Material certifications must be submitted to Spalding DeDecker for review prior to the construction of any onsite utilities. Contact Ted Meadows at 248-844-5400 for more information.
49. Construction inspection fees in amount that is to be determined must be paid to the Community Development Department.
50. Legal escrow fees in an amount that is to be determined must be deposited with the Community Development Department. All unused escrow will be returned to the payee at the end of the project. This amount includes engineering legal fees only. There may be additional legal fees for planning legal documents.
51. A storm water performance guarantee in an amount that is to be determined (equal to 120% of the cost required to complete the storm water management facilities) as specified in the Storm Water Management Ordinance must be posted at the Community Development Department.
52. Water and Sanitary Sewer Fees must be paid prior to the pre-construction meeting. Contact the Water & Sewer Division at 248-347-0498 to determine the amount of these fees.
53. A street sign financial guarantee in an amount that is to be determined (\$400 per traffic control sign proposed) must be posted at the Community Development Department. Signs must be installed in accordance with MMUTCD standards.
54. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department, Building Division (248-347-0430) for forms and information. The financial guarantee and inspection fees will be determined during the SESC review.
55. A permit for water main construction must be obtained from the MDEQ. This permit application must be submitted through the Engineering Division after the water main plans have been approved. Please submit the cover sheet, overall utility sheet, standard details and plan/profile sheets applicable to the permit.
56. An inspection permit for the sanitary sewer tap must be obtained from the Oakland County Water Resource Commissioner (OCWRC).

Prior to preparing stamping sets, the Applicant is advised to provide any revised sheets directly to the Engineering Division for an informal review and approval.

To the extent this review letter addresses items and requirements that require the approval of or a permit from an agency or entity other than the City, this review shall

not be considered an indication or statement that such approvals or permits will be issued.

Please contact Kate Richardson at (248) 347-0586 with any questions.



Kate Richardson, EIT
Plan Review Engineer

cc: Sri Komaragiri, Community Development
Angela Sosnowski, Community Development
Tina Glenn, Treasurers
Kristin Pace, Treasurers
Ben Croy, PE, Water and Sewer
Darcy Rechten, PE, Engineering
George Melistas, Engineering
T. Meadows, T. Reynolds,; Spalding DeDecker

LANDSCAPE REVIEW



PLAN REVIEW CENTER REPORT

February 12, 2019

Preliminary/Final Site Plan - Landscaping

Chick-Fil-A

Review Type

Combined Preliminary/Final Landscape Review

Job

JSP18-0075

Property Characteristics

- Site Location: 27750 Novi Road
- Site Acreage: 1.4 acres
- Site Zoning: RC
- Adjacent Zoning: RC
- Plan Date: 2/6/2019

Ordinance Considerations

This project was reviewed for conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed and incorporated as part of the revised Preliminary/Final Site Plan submittal. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review and the accompanying Landscape Chart are summaries and are not intended to substitute for any Ordinance.

Recommendation

This project is **recommended for approval of the Preliminary Site Plan, contingent on the granting of the landscape waivers, most of which are not supported by staff. It is not recommended for Final Site Plan approval.** Please revise the site and utility layouts to allow for more of the required trees to be planted, and provide the required trees.

LANDSCAPE WAIVERS REQUIRED FOR CURRENT LAYOUT:

1. Insufficient greenbelt width along I-96 frontage. *Supported by staff.*
2. Lack of berm or wall along entire frontage. *Not supported by staff.*
3. Deficiency in greenbelt plantings (subcanopy trees). *Not supported by staff.*
4. Deficiency in perimeter parking lot canopy trees. *Not supported by staff.*
5. Deficiency in interior parking lot trees. *Not supported by staff.*
6. Missing endcap island trees. *Not supported by staff.*
7. Less than 60% of building facing road is landscaped. *Supported by staff.*
8. Some building foundation landscaping area is not at building. *Supported by staff.*

Ordinance Considerations

Existing Soils (Preliminary Site Plan checklist #10, #17)

Provided.

Existing and proposed overhead and underground utilities, including hydrants. (LDM 2.e.(4))

1. Provided.
2. **Please clearly show all underground utility lines on the landscape plan to help avoid and resolve tree/utility conflicts.**

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2))

1. Existing landscape trees are located and identified.
2. **Please identify trees south of site (not just size) as evergreen, canopy or ornamental.**
3. **Please revise the tree protection fencing detail to show fence located at Critical Root Zone (1' beyond dripline).**

Adjacent to Residential - Buffer (Zoning Sec. 5.5.3.B.ii and iii)

Property is not adjacent to Residential.

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. No berm or screening wall is provided (the wall is required for drive-throughs). **A landscape waiver is required for this deviation from the ordinance.** *It is not supported by staff.*
2. The required number of canopy trees is provided.
3. None of the required subcanopy trees are provided. **A landscape waiver is required for this deviation from the ordinance.** *It is not supported by staff.*
4. **Please see the Landscape Chart for a detailed discussion.**
5. There is a 95' easement extending beyond the property line, into the required greenbelt. **A license agreement may be required as noted in Engineering review letter for installing trees within the easement.**

Street Tree Requirements (Zoning Sec. 5.5.3.E.i.c and LDM 1.d.)

1. 4 street trees are required along Novi Road and 4 are provided.
2. **Please replace the Bowhall Maples with a tree that meets the city requirements for mature height and canopy width.**
3. No street trees are required along the I-96 frontage but a cluster of existing trees in the right-of-way already exists.
4. **Please verify, through contact with the Road Commission for Oakland County that the Novi street trees can be planted within the right-of-way. If they don't allow the street trees to be planted there, please provide us with a copy of their decision.**

Parking Lot Landscaping (Zoning Sec. 5.5.3.C.)

1. Based on the vehicular use areas, 2,355 sf of island area and 12 trees are required. Only 1,954 sf and 9 trees are provided. **These deficiencies require landscape waivers.** *These are not supported by staff as modifications to the layout and utility layout would allow for most of the deficiencies to be eliminated.*
2. **See the Landscape Chart for a detailed discussion of the parking lot landscaping deficiencies.**

Parking Lot Perimeter Canopy Trees (Zoning Sec. 5.5.3.C.(3) Chart footnote)

1. Based on the parking lot perimeter, 24 deciduous canopy trees are required. 13 canopy trees and 6 subcanopy trees are provided.
2. **A Planning Commission landscape waiver must be requested for the parking lot trees that aren't provided.** *This waiver request would not be supported by staff as their appears to be sufficient room for all of the trees.*

Loading Zone screening (Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)

No loading zone screening is required as part of this project as the dumpster enclosure and greenbelt plantings will provide sufficient screening from I-96 and Novi Road.

Building Foundation Landscape (Zoning Sec 5.5.3.D.)

1. Based on the building perimeter, 2,240sf of landscape area is required at the building foundation. 2,389sf are provided but only about 37% is located at the building, with the

rest provided in the central island and other landscape areas in the general vicinity of the building.

2. **This variance in the location of the foundation landscaping requires a landscape waiver.** *It would be supported by staff as the other areas add appeal to the general site and the drive-through screening will also help to add curb appeal to the site.*

Plant List (LDM 2.h. and t.)

1. Provided
2. The tree diversity meets the requirements of Landscape Design Manual Section 4.
3. 7 of 19 species used (37%) are native to Michigan. **Please revise the plant list to include species native to Michigan for at least 50% of the species used.**

Planting Notations and Details (LDM)

1. **Please add the notes called for on the Landscape Chart on the plans.**
2. Details are provided.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 1.d.(3))

No above-ground detention basin is provided so no detention landscaping is required.

Irrigation (LDM 1.a.(1)(e) and 2.s)

1. The proposed landscaping must be provided with sufficient water to become established and survive over the long term.
2. Please provide an irrigation plan or note how this will be accomplished if an irrigation plan is not provided.

Proposed topography. 2' contour minimum (LDM 2.e.(1))

Provided.

Snow Deposit (LDM.2.q.)

Provided.

Corner Clearance (Zoning Sec 5.9)

Provided.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or rmeader rmeader@cityofnovi.org.



Rick Meader – Landscape Architect

LANDSCAPE REVIEW SUMMARY CHART

Review Date: February 12, 2019
Project Name: JSP18 – 0075: Chick-Fil-A
Plan Date: February 6, 2019
Prepared by: Rick Meader, Landscape Architect E-mail: rmeader@cityofnovi.org;
 Phone: (248) 735-5621

Items in **Bold** need to be addressed by the applicant before approval of the Preliminary Site Plan. Underlined items need to be addressed for Final Site Plan.

Please use the Current Ordinance and Landscape Design Manual when modifying the Landscape plan. They can be found at:

LANDSCAPE WAIVERS REQUIRED FOR CURRENT LAYOUT:

1. Insufficient greenbelt width along I-96 frontage. *Supported by staff.*
2. Lack of berm or wall along entire frontage. *Not supported by staff.*
3. Deficiency in greenbelt plantings (subcanopy trees). *Not supported by staff.*
4. Deficiency in perimeter parking lot canopy trees. *Not supported by staff.*
5. Deficiency in interior parking lot trees. *Not supported by staff.*
6. Missing endcap island trees. *Not supported by staff.*
7. Less than 60% of building facing road is landscaped. *Supported by staff.*
8. Most of building foundation landscaping area is not at building. *Supported by staff.*

Item	Required	Proposed	Meets Code	Comments
Landscape Plan Requirements (LDM (2))				
Landscape Plan <i>(Zoning Sec 5.5.2, LDM 2.e.)</i>	<ul style="list-style-type: none"> ▪ New commercial or residential developments ▪ Addition to existing building greater than 25% increase in overall footage or 400 SF whichever is less. ▪ 1" =20' minimum with proper North. Variations from this scale can be approved by LA ▪ Consistent with plans throughout set 	Scale 1" =20'	Yes	
Project Information <i>(LDM 2.d.)</i>	Name and Address	Yes	Yes	
Owner/Developer Contact Information <i>(LDM 2.a.)</i>	Name, address and telephone number of the owner and developer or association	Yes	Yes	
Landscape Architect contact information <i>(LDM 2.b.)</i>	Name, Address and telephone number of RLA	Yes	Yes	

Item	Required	Proposed	Meets Code	Comments
Sealed by LA. (LDM 2.g.)	Requires original signature	Copied seal & signature	Yes	<u>Need original for Final Site Plans</u>
Miss Dig Note (800) 482-7171 (LDM.3.a.(8))	Show on all plan sheets	Yes	Yes	
Zoning (LDM 2.f.)	Include all adjacent zoning	<u>Parcel:</u> RC <u>North, East, West:</u> RC <u>South:</u> I-96 ROW	No	Please show zoning of adjacent parcels on landscape plan.
Survey information (LDM 2.c.)	<ul style="list-style-type: none"> ▪ Legal description or boundary line survey ▪ Existing topography 	Alta Survey Sheet 1	Yes	
Existing plant material Existing woodlands or wetlands (LDM 2.e.(2))	<ul style="list-style-type: none"> ▪ Show location type and size. Label to be saved or removed. ▪ Plan shall state if none exists. 	<ul style="list-style-type: none"> ▪ Existing trees are shown on Alta Survey, Sheet L-100 ▪ There are no woodlands or regulated trees on the site. 	Yes	Please identify existing trees south of site as canopy, ornamental or evergreen if species can't be determined. (On Google Maps, it appears to be a mix of evergreens and ornamentals).
Soil types (LDM.2.r.)	<ul style="list-style-type: none"> ▪ As determined by Soils survey of Oakland county ▪ Show boundaries 	Yes – on Sheet L-100	Yes	
Existing and proposed improvements (LDM 2.e.(4))	Existing and proposed buildings, easements, parking spaces, vehicular use areas, and R.O.W	Yes	Yes	
Existing and proposed utilities (LDM 2.e.(4))	<ul style="list-style-type: none"> • Overhead and underground utilities, including hydrants • Show all light posts on landscape plan. 	<ul style="list-style-type: none"> • Storm structures are shown, but not utility lines • Per the note, there are no overhead utility lines on the site. • Light posts are provided. 	No	<ol style="list-style-type: none"> 1. Please clearly show all existing and proposed utility lines and structures on landscape plan (Sheet L-101) so tree/utility conflicts can be detected and resolved. 2. It appears that some utility lines could be re-aligned to allow more required trees to be planted, such as in the endcaps in the eastern bays, and the endcap just east of the building. Please adjust the utility layouts to allow required trees to be

Item	Required	Proposed	Meets Code	Comments
				planted.
Proposed grading. 2' contour minimum (LDM 2.e.(1))	Provide proposed contours at 2' interval	<ul style="list-style-type: none"> Proposed contours are provided on landscape plan. No berms are proposed. 	Yes	
Snow deposit (LDM.2.q.)	Show snow deposit areas on plan	Yes	Yes	
LANDSCAPING REQUIREMENTS				
Parking Area Landscape Requirements LDM 1.c. & Calculations (LDM 2.o.)				
General requirements (LDM 1.c)	<ul style="list-style-type: none"> Clear sight distance within parking islands No evergreen trees 	Yes	Yes	
Name, type and number of ground cover (LDM 1.c.(5))	As proposed on planting islands	Liriope or other landscaping is proposed on interior islands, lawn around perimeter.	Yes	
General (Zoning Sec 5.5.3.C.ii)				
Parking lot Islands (a, b. i)	<ul style="list-style-type: none"> A minimum of 200 SF to qualify A minimum of 200sf unpaved area per tree planted in an island 6" curbs Islands minimum width 10' BOC to BOC 	Interior islands are provided, but most have insufficient width and/or area per the requirements.	No	<ol style="list-style-type: none"> For the central island, please calculate the area of the western and southern "lobes" separate from the rest of the island as they are nearly completely separate from the rest of the island so many roots wouldn't be able access the interior. There should be a tree in both of those lobes. They probably have to be increased in width and/or area and to provide the proper spacing from the hydrant in the southern lobe. Please increase width and/or area of all islands as necessary to meet requirements by modifying the parking lot layout. All endcap islands

Item	Required	Proposed	Meets Code	Comments
				<p>need to have deciduous canopy trees in them and be 200sf, and 10 feet wide.</p> <p>4. Landscape waivers are required for all required area and interior trees that are not provided. They are not supported by staff.</p>
Curbs and Parking stall reduction (c)	Parking stall can be reduced to 17' and the curb to 4" adjacent to a sidewalk of minimum 7 ft.	All perpendicular spaces are 17 feet long where they can be shortened.	Yes	
Contiguous space limit (j)	Maximum of 15 contiguous spaces	12 is maximum bay length	Yes	
Plantings around Fire Hydrant (d)	<ul style="list-style-type: none"> No plantings with matured height greater than 12' within 10 ft. of fire hydrants or other utility structures. Trees should also be placed at least 5 feet from underground utility lines. 	No trees are planted near hydrants.	Yes	<p>1. No new or existing plantings are shown near existing hydrants.</p> <p>2. The internal endcap island with the hydrant should have a tree planted in it, at least 10 feet from the hydrant. As noted above, a landscape waiver is required to not provide required endcap trees. It would not be supported by staff.</p>
Landscaped area (g)	Areas not dedicated to parking use or driveways exceeding 100 sq. ft. shall be landscaped	Yes	Yes	
Clear Zones (LDM 2.3.(5))	25 ft corner clearance required. Refer to Zoning Section 5.5.9	NA – entry does not come off a road		
Category 1: For OS-1, OS-2, OSC, OST, B-1, B-2, B-3, NCC, EXPO, FS, TC, TC-1, RC, Special Land Use or non-residential use in any R district (Zoning Sec 5.5.3.C.iii)				
A = Total square footage of vehicular use areas up to 50,000sf x 7.5%	<ul style="list-style-type: none"> A = x sf * 7.5 % = A sf 31,404 * 7.5% = 2355 sf 	1,954 sf		
B = Total square footage of additional paved vehicular use	<ul style="list-style-type: none"> B = x sf * 1% = B sf (xxx – 50000) * 1% = xxx sf 	NA		

Item	Required	Proposed	Meets Code	Comments
areas (not including A or B) over 50,000 SF) x 1 %				
Category 2: For: I-1 and I-2 (Zoning Sec 5.5.3.C.iii)				
A. = Total square footage of vehicular use area up to 50,000 sf x 5%	$A = x \text{ sf} * 5\% = A \text{ sf}$	NA		
B = Total square footage of additional paved vehicular use areas over 50,000 SF x 0.5%	$B = 0.5\% \times 0 \text{ sf} = B \text{ SF}$	NA		
All Categories				
C = A+B Total square footage of landscaped islands	$2355 + 0 = 2355 \text{ SF}$	1,954 sf	No	<ol style="list-style-type: none"> 1. Please label 2 "lobes" of central island with minimal connection to the main island with their area in SF, ending at their necks. 2. Please provide areas that qualify per minimum (200sf per tree, 10 ft wide) for all trees counting toward the requirement. 3. A landscape waiver is requested for the site's interior area shortage. <i>The waiver request is not supported by staff.</i>
D = C/200 Number of canopy trees required	$2355/200 = 12 \text{ Trees}$	9 trees	No	<ol style="list-style-type: none"> 1. Please add all required trees in interior islands and endcap islands that meet spatial requirements. 2. A landscape waiver is requested for the site's interior trees shortage. <i>The waiver request is not supported by staff.</i>
Perimeter Green space	<ul style="list-style-type: none"> ▪ 1 Canopy tree per 35 lf ▪ $828 \text{ LF}/35 = 24 \text{ trees}$ 	<u>19 trees</u> <ul style="list-style-type: none"> • 13 canopy trees • 6 subcanopy trees 	No	<ol style="list-style-type: none"> 1. All perimeter trees should be canopy trees with a minimum mature height of 30

Item	Required	Proposed	Meets Code	Comments
				feet and canopy of 20 feet. Please replace the crabapples along the east side with canopy trees. 2. A landscape waiver is necessary for any required trees that can't be planted. This waiver is not supported by staff. 3. There is no perimeter landscape area requirement so that hatching can be removed.
Accessway perimeter	<ul style="list-style-type: none"> ▪ 1 canopy tree per 35 lf on each side of road, ▪ The 828LF figure above includes the access ways' perimeters 			
Parking land banked	NA	None		
Berms, Walls and ROW Planting Requirements				
Berms				
<ul style="list-style-type: none"> ▪ All berms shall have a maximum slope of 33%. Gradual slopes are encouraged. Show 1ft. contours ▪ Berm should be located on lot line except in conflict with utilities. ▪ Berms should be constructed with 6" of top soil. 				
Residential Adjacent to Non-residential (Sec 5.5.3.A) & (LDM 1.a)				
Berm requirements (Zoning Sec 5.5.A)	Site is not adjacent to residentially-zoned property so no berm is required.	No berm is existing or proposed.	Yes	
Planting requirements (LDM 1.a.)	LDM Novi Street Tree List	NA		
Adjacent to Public Rights-of-Way (Sec 5.5.B) and (LDM 1.b)				
Berm requirements (Zoning Sec 5.5.3.A.(5))	<ul style="list-style-type: none"> • A landscaped berm a minimum of 3 feet high with a 2 foot wide crest is required along all Novi Road and I-96 frontage as drive-thru lane or parking are along the entire frontage. • An ornamental brick wall may be used in place of the berm along all drive-thru or 	A hedge (mixture of hollies, hydrangeas, boxwoods and arborvitae) is proposed along entire drive-thru frontage.	No	1. A landscape waiver is requested to not provide the required berm or wall. The justification for not providing the berm is that there is not sufficient room for it. 2. Please provide justification for why the wall cannot be provided. In the letter it states that the

Item	Required	Proposed	Meets Code	Comments
	parking lot areas.			<p>berm and wall can't be provided due to existing utility mains and grading conditions. It is not clear that these prevent the installation of the wall. Please further demonstrate that the wall can't be built. At this time, the waiver request is not supported by staff.</p> <p>3. If only a hedge is proposed, it must provide 80% opacity in the winter and 90% opacity in the summer.</p>
Cross-Section of Berms (LDM 2.j)				
Slope, height and width	<ul style="list-style-type: none"> ▪ Label contour lines ▪ Maximum 33% ▪ Min. 3 feet flat horizontal area ▪ Minimum 3 feet high ▪ Constructed of loam with 6' top layer of topsoil. 	NA		
Type of Ground Cover		NA		
Setbacks from Utilities	Overhead utility lines and 15 ft. setback from edge of utility or 20 ft. setback from closest pole	NA		
Walls (LDM 2.k & Zoning Sec 5.5.3.vi)				
Material, height and type of construction footing	Freestanding walls should have brick or stone exterior with masonry or concrete interior	No walls are proposed.		
Walls greater than 3 ½ ft. should be designed and sealed by an Engineer		No details provided		
ROW Landscape Screening Requirements (Sec 5.5.3.B. ii)				
Greenbelt width (2)(3) (5)	Adj to Parking: 20 ft. Not adj to Pkg: 25 ft	<u>Novi Rd:</u> 22 ft <u>I-96:</u> 8-24 ft	<u>Novi Rd:</u> Yes <u>I-96:</u> No	A landscape waiver is required for the lack of greenbelt depth facing

Item	Required	Proposed	Meets Code	Comments
				I-96. This waiver request is supported by staff as there is a lot of room in the right-of-way before the I-96 exit ramp. It does leave much less room for the required greenbelt landscaping, however.
Min. berm crest width	2 ft	None	No	A landscape waiver is requested for the lack of berm. As a wall is also not proposed, this waiver request is not supported by staff.
Minimum berm height (9)	3 ft	None	No	
3' wall	(4)(7)	None		
Canopy deciduous or large evergreen trees Notes (1) (10)	<u>Adjacent to parking:</u> 1 tree per 35 lf (frontage along driveway at north does not need to be included as it is not a public right-of-way) ▪ 444/35 = 13 trees	<u>14 trees</u> • 2 existing trees/4 credits • 10 new trees (double-counted as greenbelt trees – allowed)	Yes	<ol style="list-style-type: none"> It appears that there is an access easement for Novi Road that extends into the property, occupying most of the greenbelt. Please contact the Road Commission for Oakland County for a decision by them on whether the required greenbelt plantings can be planted as proposed. If they can't, please provide a copy of their letter or email with that decision. If the required plantings can't be planted per the RCOC, a landscape waiver will be required but it would be supported by staff.
Sub-canopy deciduous trees Notes (2)(10)	<u>Adjacent to parking:</u> 1 tree per 20lf ▪ 444/20 = 22 trees	0 trees	No	<ol style="list-style-type: none"> Please provide all of the required trees. A landscape waiver is necessary if all required trees are not provided. It would

Item	Required	Proposed	Meets Code	Comments
				<i>not be supported by staff.</i>
Canopy deciduous trees in area between sidewalk and curb <i>(Novi Street Tree List)</i>	Parking & No Parking: 1 tree per 45 lf <u>Novi Road:</u> ▪ 170/45 = 4 trees <u>I-96 frontage:</u> ▪ No trees necessary in MDOT ROW.	<u>Novi Road:</u> 4 trees <u>I-96 Frontage:</u> 13 existing evergreen trees	<u>Novi:</u> Yes <u>I-96:</u> Yes	If the Road Commission for Oakland County does not allow some or all of the street trees they do not have to be planted but a copy of the RCOC decision must be provided to the city.
Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d (2)				
Refer to Planting in ROW, building foundation landscape, parking lot landscaping and LDM				
Screening of outdoor storage, loading/unloading <i>(Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)</i>	Must be screened from view from Novi Road and I-96	<ul style="list-style-type: none"> • Loading zone is provided at south end of building • Screening is provided by the hedge screening the drive-thru lane, perimeter trees and the dumpster enclosure 	Yes	
Transformers/Utility boxes <i>(LDM 1.e from 1 through 5)</i>	<ul style="list-style-type: none"> ▪ A minimum of 2ft. separation between box and the plants ▪ Ground cover below 4" is allowed up to pad. ▪ No plant materials within 8 ft. from the doors 	An electrical box is indicated in the island along the eastern bay. No screening the height of the box is proposed – only low junipers.	No	Please screen the box per the city standard detail.
Building Foundation Landscape Requirements (Sec 5.5.3.D)				
Interior site landscaping SF	<ul style="list-style-type: none"> ▪ Equals to entire perimeter of the building x 8 with a minimum width of 4 ft. ▪ A: 280 lf x 8ft = 2240 SF 	<u>A: 2389 sf</u> <ul style="list-style-type: none"> • 881sf adj to bldg. • 1508sf not adj to bldg 	Yes/No	A landscape waiver is required for the area not provided at the building. <i>As the extra landscaping adds extra appeal to the site, this waiver is supported by staff.</i>
<i>Zoning Sec 5.5.3.D.ii. All items from (b) to (e)</i>	If visible from public street a minimum of 60% of the exterior building perimeter should be covered in green space	90/197 lf (46%) of perimeter visible from I-96 exit or Novi Road has green space at the foundation.	No	A landscape waiver is required for deficiency in coverage. <i>As the hedge (or wall) along the drive-thru will also shield the foundation from the roads, this waiver is supported by</i>

Item	Required	Proposed	Meets Code	Comments
				staff.
Detention/Retention Basin Requirements (Sec. 5.5.3.E.iv)				
Planting requirements (Sec. 5.5.3.E.iv)	<ul style="list-style-type: none"> ▪ Clusters shall cover 70-75% of the basin rim area ▪ 10" to 14" tall grass along sides of basin ▪ Refer to wetland for basin mix 	No detention basin exists on the site so no landscaping is provided.		If any above-ground detention basin is required it needs to be landscaped per the ordinance.
Phragmites Control (Sec 5.5.6.C)	<ul style="list-style-type: none"> ▪ Any and all populations of Phragmites australis on site shall be included on tree survey. ▪ Treat populations per MDEQ guidelines and requirements to eradicate the weed from the site. 	A note indicates that there is no Phragmites on the site.	Yes	
LANDSCAPING NOTES, DETAILS AND GENERAL REQUIREMENTS				
Landscape Notes – Utilize City of Novi Standard Notes				
Installation date (LDM 2.i. & Zoning Sec 5.5.5.B)	Provide intended date range between Mar 15 and Nov 15	No	No	Please add note
Maintenance & Statement of intent (LDM 2.m & Zoning Sec 5.5.6)	<ul style="list-style-type: none"> ▪ Include statement of intent to install and guarantee all materials for 2 years. ▪ Include a minimum one cultivation in June, July and August for the 2-year warranty period. 	Note regarding 2-year warranty is provided.	Yes/No	Please add note regarding cultivation
Plant source (LDM 2.n & LDM 3.a.(2))	Shall be northern nursery grown, No.1 grade.	No	No	Please add note
Irrigation plan (LDM 2.s.)	A fully automatic irrigation system or a method of providing sufficient water for plant establishment and survival is required on Final Site Plans.	No	No	<ol style="list-style-type: none"> 1. <u>Please add irrigation plan or information as to how plants will be watered sufficiently for establishment and long-term survival.</u> 2. <u>If xeriscaping is used, please provide information about plantings included.</u>
Other information (LDM 2.u)	Required by Planning Commission	NA		

Item	Required	Proposed	Meets Code	Comments
Establishment period (Zoning Sec 5.5.6.B)	2 yr. Guarantee	Yes	Yes	
Approval of substitutions. (Zoning Sec 5.5.5.E)	City must approve any substitutions <u>in writing</u> prior to installation.	No	No	Please add note
Plant List (LDM 2.h.) – Include all cost estimates				
Quantities and sizes	Refer to LDM suggested plant list	Yes	Yes	
Root type		Yes	Yes	
Botanical and common names		Yes	Yes	<ol style="list-style-type: none"> Currently, 7 of 19 species used (37%) are native to Michigan. Please increase that number to at least 50% of the species used. (www.michiganflora.net is good source to determine if a tree is native to Michigan). Please replace the Bowhall Maple with a tree that has a minimum mature height of at least 30 feet and mature width of at least 20 feet. Please be sure all species used are hardy in our growth zone, and are salt tolerant where necessary.
Type and amount of lawn		Yes	Yes	
Cost estimate (LDM 2.t)		For all new plantings, mulch and sod as listed on the plan	No	No
Planting Details/Info (LDM 2.i) – Utilize City of Novi Standard Details				
Canopy Deciduous Tree	Refer to LDM for detail drawings	Yes	Yes	
Evergreen Tree		NA	NA	
Multi-stem Tree		NA	NA	
Shrub		Yes	Yes	
Perennial/ Ground Cover		Yes	Yes	

Item	Required	Proposed	Meets Code	Comments
Tree stakes and guys. (Wood stakes, fabric guys)		Yes	Yes	
Tree protection fencing	Located at Critical Root Zone (1' outside of dripline)	Yes	Yes	Please revise detail and notes to indicate fence should be at 12" beyond dripline.
Other Plant Material Requirements (LDM 3)				
General Conditions (LDM 3.a)	Plant materials shall not be planted within 4 ft. of property line	Yes	Yes	Please add note near property lines stating this.
Plant Materials & Existing Plant Material (LDM 3.b)	Clearly show trees to be removed and trees to be saved.	Yes	Yes	
Landscape tree credit (LDM3.b.(d))	<ul style="list-style-type: none"> Substitutions to landscape standards for preserved canopy trees outside woodlands/ wetlands should be approved by LA. Refer to Landscape tree Credit Chart in LDM 	2 saved greenbelt 8" trees for 4 credits	Yes	
Plant Sizes for ROW, Woodland replacement and others (LDM 3.c)	2.5" canopy trees 6' evergreen trees	Yes	TBD	
Plant size credit (LDM3.c.(2))	NA	No		
Prohibited Plants (LDM 3.d)	No plants on City Invasive Species List	None are proposed	Yes	
Recommended trees for planting under overhead utilities (LDM 3.e)	Label the distance from the overhead utilities	No overhead lines are on site		
Collected or Transplanted trees (LDM 3.f)		None		
Nonliving Durable Material: Mulch (LDM 4)	<ul style="list-style-type: none"> Trees shall be mulched to 3" depth and shrubs, groundcovers to 2" depth Specify natural color, finely shredded hardwood bark mulch. Include in cost estimate. Refer to section for additional information 	Yes	Yes	

Item	Required	Proposed	Meets Code	Comments
<p>NOTES:</p> <ol style="list-style-type: none"><li>1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.<li>2. The section of the applicable ordinance or standard is indicated in parenthesis. For the landscape requirements, please see the Zoning Ordinance landscape section 5.5 and the Landscape Design Manual for the appropriate items under the applicable zoning classification.<li>3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.				

TRAFFIC REVIEW



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

Project name:
 JSP18-75 Chick-Fil-A Preliminary/Final Traffic Review

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
 Rechten, Hannah Smith, Kate Richardson

Memo

Subject: JSP18-75 Chick-Fil-A Preliminary/Final Traffic Review

The preliminary and final site plan was reviewed to the level of detail provided and AECOM **recommends preliminary plan approval** and **final plan denial** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City.

GENERAL COMMENTS

1. The applicant, Novi Real Estate Group, is proposing a 4,990 SFT Chick-Fil-A drive-through restaurant on the southeast corner of Twelve Oaks Mall Road and Novi Road.
2. Twelve Oaks Mall Rd is a private roadway.
3. The parcel is currently zoned RC.
4. Summary of traffic-related waivers/variances:
 - a. The applicant is currently proposing fewer parking spaces than required. Please see the parking and queueing study review letter for comments on the study.
 - b. The applicant has indicated that not all of the parking end islands can meet the standard requirements.

TRAFFIC IMPACTS

1. AECOM has done the following initial trip generation calculations for the proposed development:

ITE Code: 934 (Fast-Food Restaurant with Drive-Through Window)
 Development-specific Quantity: 4,990 square feet
 Zoning Change: N/A

Trip Generation Summary				
	Estimated Trips	Estimated Peak-Direction Trips	City of Novi Threshold	Above Threshold?
AM Peak-Hour Trips	201	102	100	Yes

PM Peak-Hour Trips	163	85	100	No
Daily (One-Directional) Trips	2350	N/A	750	Yes

2. The number of trips exceed the City’s threshold of more than 750 trips per day and 100 trips per the AM peak hour. AECOM recommends performing the following traffic impact study in accordance with the City’s requirements.
3. The applicant has submitted a TIS. Please see the TIS review letter for more information.

Trip Impact Study Recommendation	
Type of Study:	Justification
Traffic Impact Study	Exceeds 2 of the 3 thresholds for daily trips.

EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s).

1. The applicant is connecting to two existing driveways on the north and south side of the site. The applicant has indicated a width of 25.2’ for the north entrance and 25.5’ for the south entrance.

INTERNAL SITE OPERATIONS

The following comments relate to the on-site design and traffic flow operations.

1. General Traffic Flow
 - a. The applicant has indicated a 360 SFT proposed loading zone on the southeast side of the building which does not appear to meet City size requirements. The applicant should refer to Section 5.4.2 of the City’s Zoning Ordinance to ensure compliance with City standards.
 - i. The applicant has indicated the largest size vehicle expected to use the loading zone and provided truck travel patterns throughout the site to confirm accessibility to/from the loading zone, as applicable.
 - ii. **The proposed loading zone does not meet the minimum required for RC zoned areas, which is 10 SFT for each front foot of building.**
 - b. The applicant has indicated 24’ aisles throughout the site, which is consistent with the City’s standard.
 - c. The applicant has included dimensions for the radii and should also include the width of the proposed end islands throughout the site to review accessibility and compliance with City requirements as stated in Section 5.3.12 of the Zoning Ordinance.
 - i. Note that all end islands adjacent to a travel way shall be constructed three (3) feet shorter than the adjacent parking space.
 - ii. The end island outside radii is required to be a minimum of 15’.
 - iii. **If the standards cannot be met, a waiver will be required from the City.**
 - d. The applicant indicated a trash receptacle location on the south side site.
 - i. The applicant has confirmed that the trash receptacle is accessible by trash collection vehicles via turning movement paths.
 - ii. The proposed location of the trash receptacle would interfere with the drive-thru, when in use. The applicant has indicated that the trash receptacle will not be serviced during peak drive-thru hours.

- e. The applicant has indicated two-way operations up to the point of the drive-thru entrance. The two drive-thru lanes are marked as 10' lanes, but the applicant has not provided a width for the eastbound lane.
- f. The applicant is proposing drive-through lanes on the west side of the site. The stacking spaces are in compliance with Section 5.3.11.I of the City's Zoning Ordinance.
 - i. Per Section 5.3.11.D of the City's Zoning Ordinance, drive-through facilities shall provide one bypass lane that shall be a minimum of 18' wide. The area where the two lanes of vehicles reduces to one lane does not appear to meet this requirement. **The applicant should add dimensions to the plans to indicate the 18' width.**
 - ii. The applicant has indicated 12' wide drive through lanes, which is in compliance with City ordinances.
 - iii. The applicant has indicated the centerline radius of the drive-through lane, which complies with Section 5.11.F of the City's Zoning Ordinance that requires a 25' centerline radius.
 - iv. The applicant should dimension the rectangular stacking space indicators to ensure that are 19' in length in order to be in compliance with Section 5.11.H of the City's Zoning Ordinance.

2. Parking Facilities

- a. The applicant is proposing 65 parking spaces, including three (3) handicap parking spaces; however, the applicant has indicated on the plans that 100 parking spaces are required for the development. The applicant should refer to Section 5.2.12 of the City's Zoning Ordinance as well as the Planning Review Letter for parking quantity requirements. A parking and queueing study was submitted by the applicant. Please see the parking and queueing study review letter for more information.
 - i. The applicant should note that the ordinance requires 1 parking space for each 2 total employees.
- b. The applicant has ensured that there are no more than 15 parking spaces adjacent to each other without an island, which is in compliance with the City requirements.
- c. The applicant has generally proposed 9' wide parking spaces.
- d. The applicant has indicated 18' long parking spaces along the north side of the site at 60° and 19' spaces throughout the rest of the site at 0°.
- e. The applicant has indicated the number of spaces and location of the bicycle parking.
 - i. **The applicant should include the layout of the bicycle parking to ensure compliance with Figure 5.16.6 of the City's Zoning Ordinance.**
 - ii. **Note that a 6' accessible route is required from the adjacent street to the bicycle parking facilities. The proposed sidewalk in front of the bicycle rack is 5'.**
 - iii. **Note that the bike rack detail shown on sheet C-500 indicates a 35" height which does not match the 36" requirement per Section 5.16.5.B of the City's Zoning Ordinance.**

3. Sidewalk Requirements

- a. The applicant is generally proposing 5' wide sidewalks throughout the site, which is in compliance with City standards.
 - i. Sidewalks adjacent to a 19' parking space require a 6" curb. The grading plans indicate both 4" and 6" curbs at the 19' parking spaces.
- b. The applicant has labeled sidewalk ramps on the plans and included ramp details.

SIGNING AND STRIPING

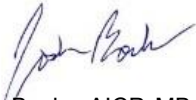
- 1. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). The following is a discussion of the proposed signing and striping.
 - a. The applicant should provide a signing quantities table in future submittals. Any signs not proposed on the site should be removed from the "Sign Legend".
 - b. The "\$250 Fine" R7-1101 sign is not required and could be removed.
 - c. The "Van Accessible" plaque should be denoted as R7-8P and not D9-6P.
 - d. The "Pedestrian Crosswalk" sign should include the applicable MMUTCD designation.

- e. The "Do Not Enter" sign symbol shown at the exit for the drive-through should be rotated to face oncoming traffic.
2. The applicant should provide the following notes and details related to the proposed signing.
 - a. Single signs with nominal dimensions of 12" x 18" or smaller in size shall be mounted on a galvanized 2 lb. U-channel post. Multiple signs and/or signs with nominal dimension greater than 12" x 18" shall be mounted on a galvanized 3 lb. or greater U-channel post as dictated by the weight of the proposed signs.
 - b. The applicant should indicate a bottom height of 7' from final grade for all signs installed.
 - c. The applicant should indicate that all signing shall be placed 2' from the face of the curb or edge of the nearest sidewalk to the near edge of the sign.
 - d. Traffic control signs shall use the FHWA Standard Alphabet series.
 - e. Traffic control signs shall have High Intensity Prismatic (HIP) sheeting to meet FHWA retroreflectivity requirements.
3. The applicant has provided a detail for the proposed international symbol for the accessibility pavement markings.
4. The applicant has indicated pavement marking arrows and "Drive Thru" text throughout the site and provided details as well.
5. The applicant has provided details on the proposed crosswalk markings on sheet C-403.

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

Sincerely,

AECOM



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



Patricia Thompson, EIT
Traffic Engineer



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 10th, 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 10th.
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. 28th 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 26th from 12:00 pm to 2:00 pm.
 - b. Weekday Midday and Evening data collection was done on Tuesday, February 5th 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 5th.

PARKING DEMAND

1. Parking quantities were collected on 15 minute intervals during the analysis periods. In the report, the applicant provides average and 95th 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 95th 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 95th 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

FAÇADE REVIEW



February 28, 2019

City of Novi Planning Department
 45175 W. 10 Mile Rd.
 Novi, MI 48375- 3024

Façade Review Status Summary:
Approved, Section 9 Waiver Not Required

Re: **FACADE ORDINANCE REVIEW Preliminary & Final Site Plan**
Chick-Fill-A, JSP18-75
 Façade Region: 1, Zoning District: RC

Dear Ms. McBeth;

The following is the Façade Review for the above referenced project based on the drawings prepared by GPD Group, dated 2/1/19. The percentages of materials proposed for each façade are as shown on the table below. The maximum and minimum percentages required by Ordinance Section 5.15 are shown in the right hand column. Materials that are in noncompliance with the Ordinance, if any, are identified in bold.

Building	East (12-Oaks)	West (Novi Rd.)	North	South	Ordinance Maximum (Minimum)
Brick	90%	94%	93%	92%	100% (30% Minimum)
Metal	10%	6%	7%	8%	50%

Canopy	East	West	North	South	Ordinance Maximum (Minimum)
Brick	52%	52%	54%	54%	100% (30% Minimum)
Metal	48%	48%	46%	46%	50%

Recommendation – As shown above the building is constructed primarily of Brick and is full compliance with the Façade Ordinance. The photographic samples of the materials shown on sheet A-302 do not adequately indicate the proposed colors (the sheet was printed in B&W). Therefore a sample board as required by Section 5.15.4.D should be provided prior to the Planning Commission meeting. The dumpster detail shown on sheet A-103 indicates that the exterior walls are constructed of Brick to match the primary building. The canopy shown on sheet A-303 indicates that the columns will be fully enclosed in Brick. The Brick used on the canopy is not identified as to color; it is assumed this brick will likewise match the primary building. The canopy is in full compliance with Section 5.15.12 of the Façade Ordinance which requires that not less than 30% of the canopies façade be a material matching the primary building. All components of the application are therefore in full compliance with the Façade Ordinance.

Notes to the Applicant:

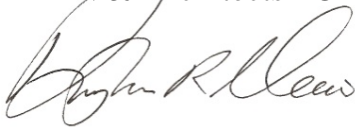
1. It should be noted that all roof top equipment must be concealed from view from all vantage points both on-site and off-site using extended parapets or roof screens constructed of materials in compliance with the Façade Ordinance.

2. It should be noted that all proposed signs are not regulated by the Façade Ordinance and must comply with the City's Sign Ordinance.

4. Inspections – The Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board (in this case the adjacent existing material) will be compared to materials to be installed. It is the applicant's responsibility to request the inspection of each façade material at the appropriate time. Inspections may be requested using the Novi Building Department's Online Inspection Portal with the following link. Please click on "Click here to Request an Inspection" under "Contractors", then click "Façade". <http://www.cityofnovi.org/Services/CommDev/OnlineInspectionPortal.asp>.

If you have any questions regarding this review, please do not hesitate to call.

Sincerely,
DRN & Architects PC



Douglas R. Necci, AIA

FIRE REVIEW



February 13, 2019

TO: Barbara McBeth- City Planner
Sri Ravali Komaragiri- Plan Review Center
Lindsay Bell-Plan Review Center
Hannah Smith-Planning Assistant

CITY COUNCIL

Mayor
Bob Gatt

Mayor Pro Tem
Dave Staudt

Andrew Mutch

Laura Marie Casey

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City Manager
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**Director of Public Safety
Chief of Police**
David E. Molloy

Director of EMS/Fire Operations
Jeffery R. Johnson

Assistant Chief of Police
Erick W. Zinser

Assistant Chief of Police
Scott R. Baetens

RE: Chick-Fil-A

PSP# 18-0202

PSP# 19-0026

Project Description:

Build a 4990 S.Q.F.T. fast food restaurant off the ring road for Twelve Oaks Mall.

Comments:

- **All** fire hydrants **MUST** in installed and operational prior to any building construction begins.
- **CORRECTED 2/13/19 KSP-MUST** add a fire hydrant to the site plan. Distance is greater than 300' from fire hydrant to fire hydrant. **(City of Novi Ordinance 11-68(F)(1)(c)).**
- **CORRECTED 2/13/19 KSP-MUST** provide additional access (fire lane access) around the building on the south east side of the structure. **(IFC 503.1.1(2) IFC 503.1.1(3))**
- **All** water-main sizes **MUST** be put on the plans for review.
- On plan #L-100, **FDC** location **MUST** be free of landscaping obstructions for 3' in all directions. Landscape prints) show obstructions at FDC location.

Recommendation:

Approved with conditions

Sincerely,

A handwritten signature in black ink, appearing to read "KSP", with a horizontal line extending to the right.

Kevin S. Pierce-Fire Marshal
City of Novi – Fire Dept.

cc: file

Novi Public Safety Administration
45125 Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

WRITTEN STATEMENT



520 South Main Street, Suite 2531
Akron, Ohio 44311

Phone 330.572.2100
www.gpdgroup.com

February 6, 2019
Job # 2018223.15



Ms. Sri Komaragiri
Planner
City of Novi
45175 Ten Mile Road,
Novi, MI 48375

**RE: Chick-Fil-A: Written Statement
27750 Novi Road, Novi, MI 48377
Parcel Number 22-14-100-050**

Dear Ms. Sri Komaragiri:

As required in the Planning Review Comments, included is the Written Statement for the proposed Chick-Fil-A restaurant and drive-thru at 27750 Novi Road. Previously the site and existing building served as a Denny's restaurant and is currently a vacant building. The overall feel of the site will be similar to its previous restaurant uses and fit within the overall character of Twelve Oaks Mall.

The proposed Chick-Fil-A restaurant will demolish the existing building and reconfigure the existing parking lot. Chick-Fil-A's new building is proposed to be 4,990 SF with 114 indoor seats and 16 outdoor seats. There is also a drive-thru lane with 22 car stack. With 60% of the customers with the drive-thru and 40% using the dining room. The restaurant and drive-thru are anticipated to be open for breakfast, lunch and dinner Monday through Saturday, and closed on Sundays.

The existing zoning is RC: Regional Commercial, which allows restaurants. The proposed use is RC with PD-2 Planned Department Overlay. The overlay district was created in the recent past is this site is required to rezone accordingly. A fast-food restaurant with drive-thru is required to obtain special use approval in the overlay district. Such uses are supported elsewhere in the Twelve Oaks Mall vicinity. McDonald's is nearby and has a double drive-thru at the southwest corner of West 12 Mile Road and Twelve Oaks Mall Road, which is also adjacent to one of the Twelve Oaks Mall entrances.

It should be noted the proposed Chick-Fil-A drive thru and vehicle entry/exit are only accessible from the Twelve Oaks Mall Road, meaning there is no direct access from Novi Road. A proposed sidewalk on Novi Road and pedestrian access between the building and sidewalk are shown on the enclosed site plan. The proposed layout supports both the sit-down and drive-thru use.

If you require any additional information, please contact the project coordinator at 330.572.2211 or via email at jlyons@gpdgroup.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Josh Lyons", written in a cursive style.

Josh Lyons,
Project Manager



COMMUNITY IMPACT STATEMENT



520 South Main Street, Suite 2531
Akron, Ohio 44311

Phone 330.572.2100
www.gpdgroup.com

February 6, 2019
Job # 2018223.15



Ms. Sri Komaragiri
Planner
City of Novi
45175 Ten Mile Road,
Novi, MI 48375

**RE: Chick-Fil-A: Community Impact Statement
27750 Novi Road, Novi, MI 48377
Parcel Number 22-14-100-050**

Dear Ms. Sri Komaragiri:

As required in the Application for Site Plan Approval and Land Use Approval, this letter serves as the Community Impact Statement for the proposed Chick-Fil-A restaurant and drive-thru. The proposed restaurant is located at 27750 Novi Road. Previously the site and existing building served as a Denny's restaurant and is currently a vacant building. The overall feel of the site will be similar to its previous restaurant uses and fit within the overall character of Twelve Oaks Mall.

The proposed Chick-Fil-A restaurant will demolish the existing building and reconfigure the existing parking lot. Chick-Fil-A's new building is proposed to be 4,990 SF with 114 indoor seats and 16 outdoor seats. There is also a drive-thru lane with 22 car stack. The restaurant and drive-thru are anticipated to be open for breakfast, lunch and dinner Monday through Saturday, and closed on Sundays. Hours of operation will be finalized by Chick-Fil-A and provided under separate cover. Chick-Fil-A anticipates 65-95 new jobs that are a mix between part time and full time employees to run the restaurant. Additionally, 75-85 construction jobs.

The existing zoning is RC: Regional Commercial, which allows restaurants. The proposed use is RC with PD-2 Planned Department Overlay. The fast-food drive-thru use requires special use approval. Such uses are supported elsewhere in the Twelve Oaks Mall vicinity. McDonald's is nearby and has a drive-thru at the southwest corner of West 12 Mile Road and Twelve Oaks Mall Road.

The overall site is 60,853+/- SF and only accessible from the Twelve Oaks Mall Road, meaning there is no direct access from Novi Road. The new development requires new water service connections for the 6" fire line and 2" domestic. The fire line serves the proposed fire hydrant. Additionally, the 6" sanitary sewer will be a new connection into the manhole near the northeast corner of the property.

Environmental factors and impacts of the proposed Chick-Fil-A are minimal as the site is already equipped to serve a commercial use. The natural features of the developed site are unknown, however the proposed site will match the features of the adjacent Mall. There are no

unusual topography, habitat areas, wetlands, woodlands or historic trees onsite. Additionally, since the site was previously developed there will be no major impacts on the local wildlife. This location and adjacent properties are already commercialized.

Recognized Environmental Concerns (RECs), including consideration of vapor migration were not identified in connection with this site. The Phase 1 may be submitted upon request. Additionally, the proposed restaurant will not operate with chemicals requiring the need for a PIPP plan. There are no underground storage tanks proposed onsite, accept for the required underground water quality and grease trap. Both will follow local standards and will be approved by the appropriate jurisdictions for design conformities.

Social impacts of developing the site into a Chick-Fil-A are positive. Chick-Fil-A's have a community vibe providing a place for families to gather in the play area as well as providing support for the local community. Each Chick-Fil-A operator gets to make a positive impact in their own special way. This could be by awarding scholarships, supporting group and school fundraisers, hosting events and more.

The construction of a new Chick-Fil-A does not displace any existing uses or occupants as the existing site is currently a vacant building. The Traffic Impact Study is included in this report and concludes to have no additional impact and will not degrade the Novi Road/West Oaks Drive Twelve Oaks Drive South intersection. There are no anticipated permanent pollution increase to construct and operate the proposed Chick-Fil-A.

The proposed site amenities are an improvement to the already developed lot. Public sidewalk is proposed within Novi Road right-of-way, with connection to the Chick-Fil-A building pad.

Social impacts to the overall Twelve Oaks Mall is positive. The Mall does not own the property, but will conduct a separate review of the plans. The Mall has received a copy of the included site plans, building elevations and traffic study. This review will help start an advantageous relationship between both entities. The easements needed for cross access and utility purposes will help keep the relationship with the Mall in good standing.

As requested, the following information will be provided by Chick-Fil-A and provided under separate cover.

- Finalized Hours of Operation
- Expected annual number of police responses for the proposed development.
- Expected annual number of fire responses for the proposed development.
- Peak hour demand for Water
- Minimum and Maximum operating pressures for building water system

If you require any additional information, please contact the project coordinator at 330.572.2211 or via email at jlyons@gpdgroup.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'J Lyons', written in a cursive style.

Josh Lyons,
Project Manager



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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

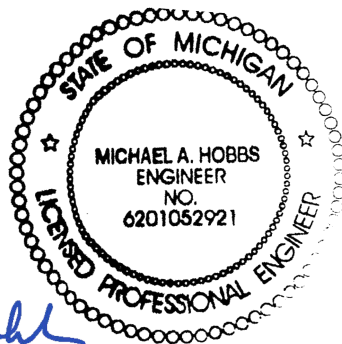
Prepared By:

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

January 2019

Engineer's Seal

Prepared By:



Handwritten signature of Michael A. Hobbs in blue ink.

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

January 24, 2019

Date



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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, 10th 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, 10th 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)
Novi Road / West Oaks Drive / Twelve Oaks Drive South								
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>
Intersection Total	B	18.0	D	51.5	C	20.6	D	51.6

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)
One-Way Mall Drive (EB) / Commercial Drive #1								
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
Twelve Oaks Mall Perimeter Road / Twelve Oaks Drive South								
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
Intersection Total	A	8.5	B	12.0	A	9.2	B	13.5
Twelve Oaks Mall Perimeter Road / One-Way Mall Drive (EB)								
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
Twelve Oaks Mall Perimeter Road / Commercial Drive #2								
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.

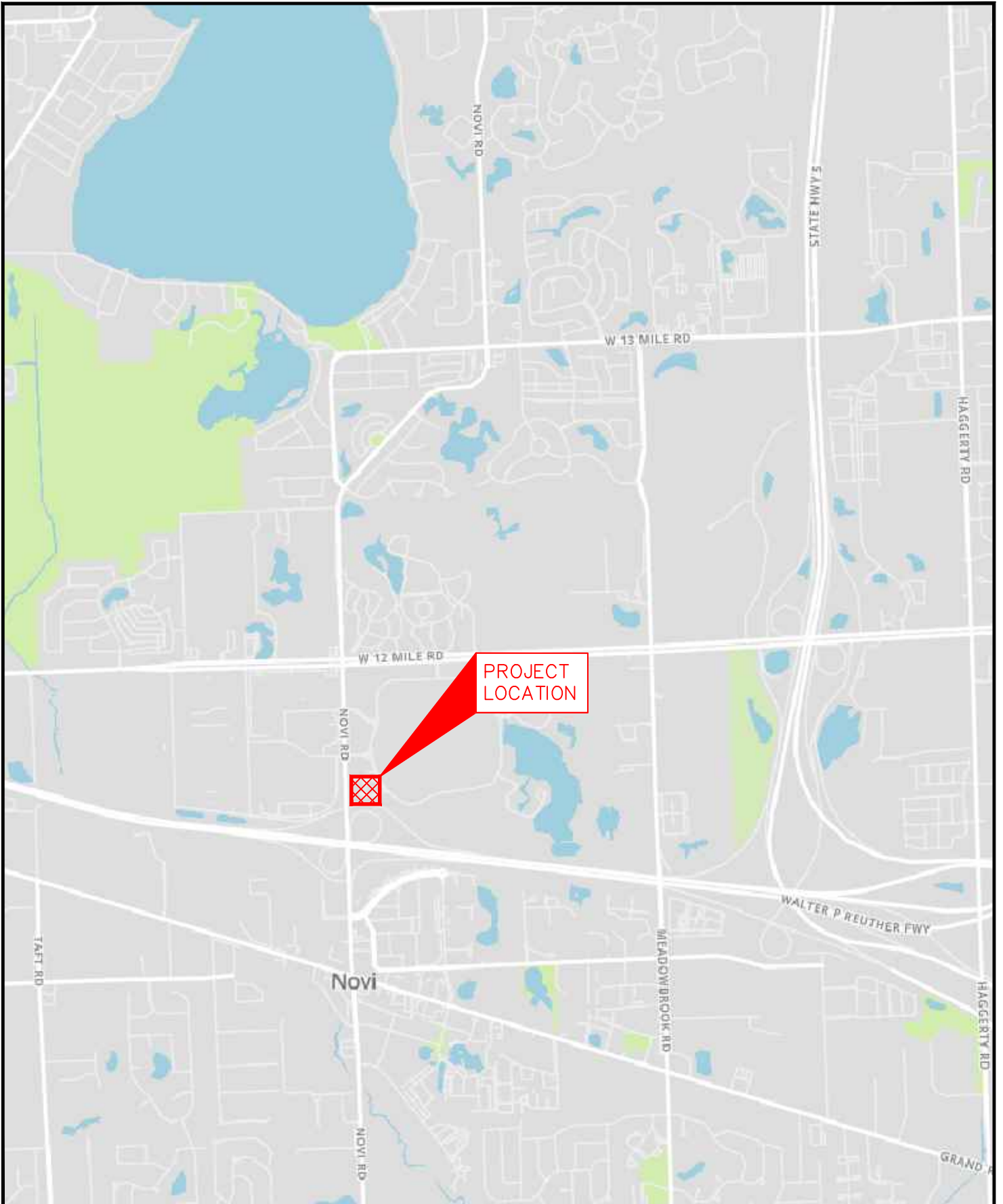
In Summary,

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_MN\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



TECHNICIAN: DDOBROSKY

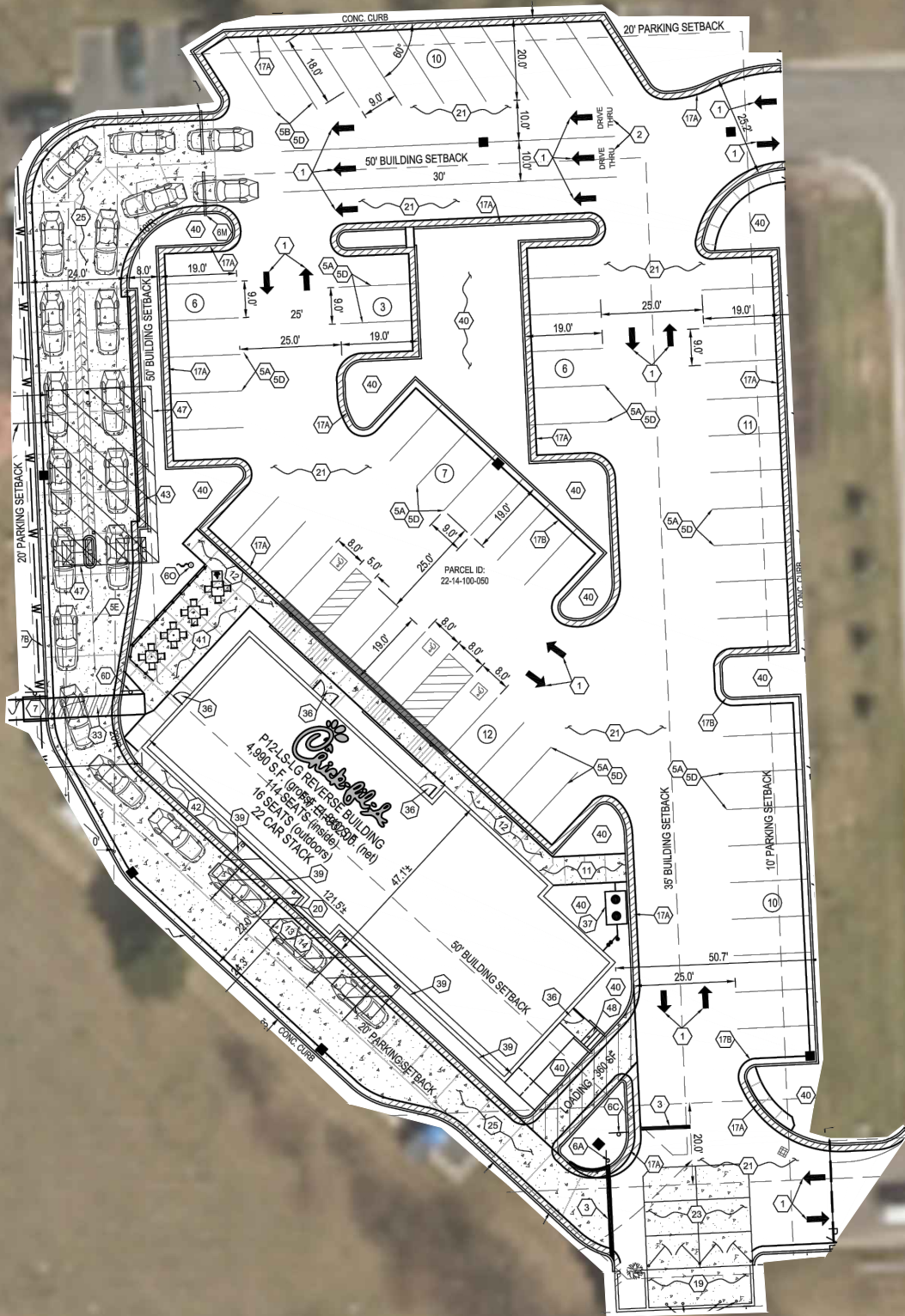


FIGURE 3

PRELIMINARY SITE PLAN

JANUARY 2019

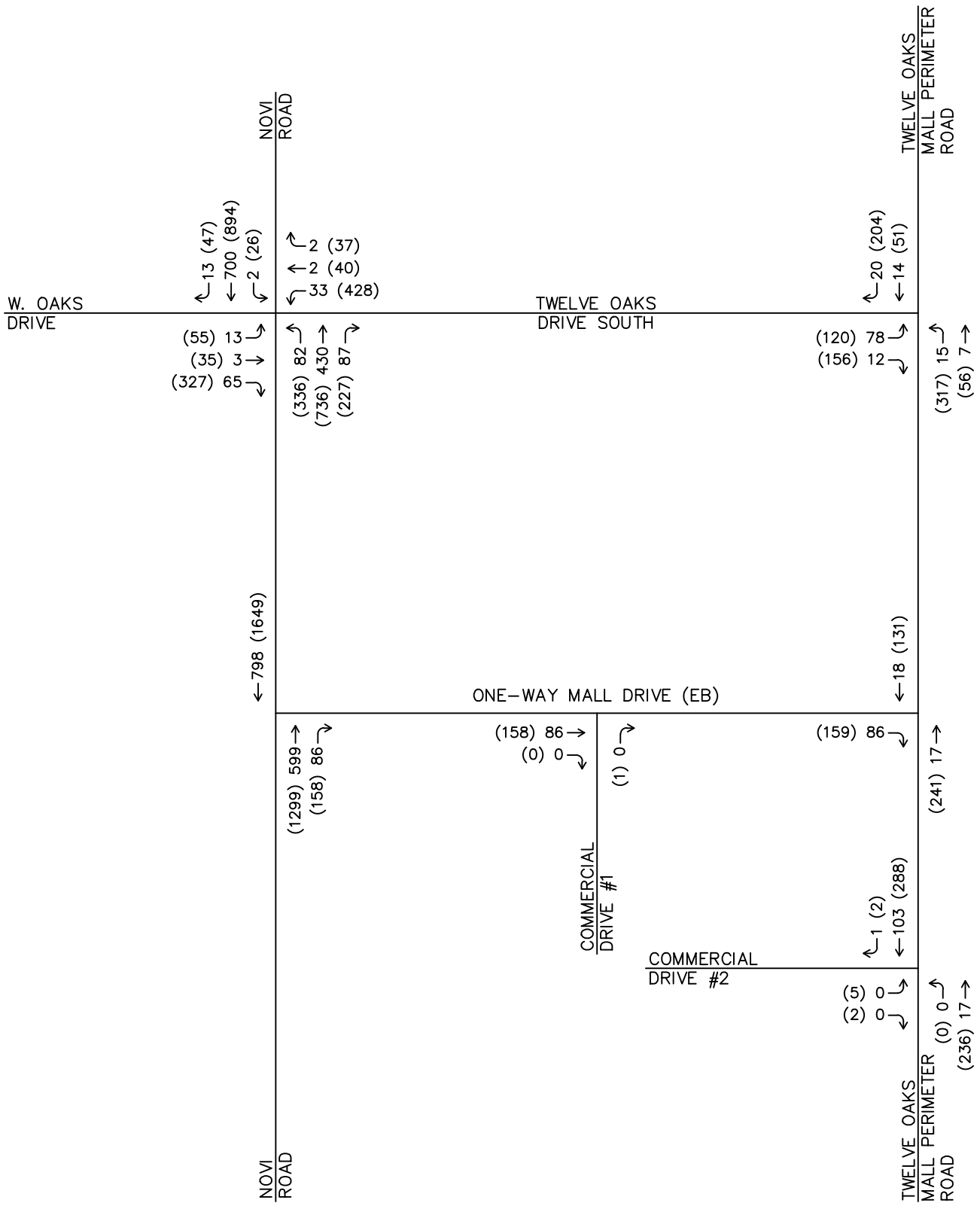


N.T.S.



CAD FILE: G:\2018\20180223\15 TWELVE OAKS, MN\TRAFFIC\FIGURES\3, FIGURE 3 PRELIMINARY SITE PLAN.DWG
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 TECHNICIAN: DDOMBROSKY

CAD FILE: G:\2018\201823\15_TWELVE_OAKS_MALL\TRAFFIC\FIGURES\4_FIGURE_4_2019_'NO-BUILD'_VOLUMES.DWG
 DATE: 1/18/2019 TIME: 10:17:44 AM



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

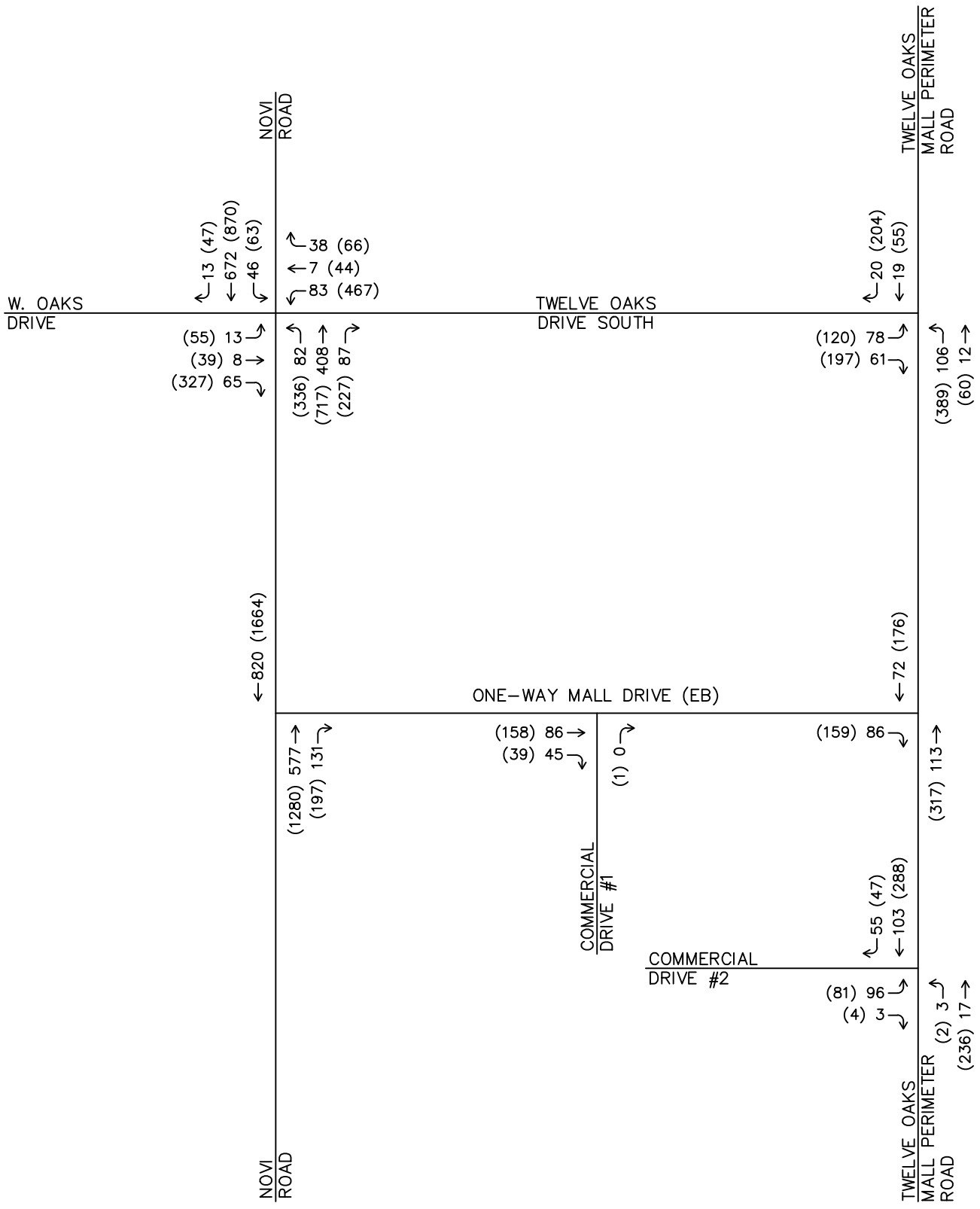


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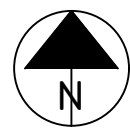
FIGURE 4
 OPENING YEAR 2019
 'NO-BUILD'
 TRAFFIC VOLUMES
 JANUARY 2019



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



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



N.T.S.

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



TECHNICIAN: DDOMBROSKY

**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
Total	8	586	0	0	594	2	1	12	0	15	62	357	54	0	473	62	2	0	0	64	1146
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
Total	13	700	2	0	715	2	2	33	0	37	87	430	82	0	599	65	3	13	0	81	1432
*** 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
Total	45	818	20	0	883	36	39	426	0	501	259	675	328	0	1262	331	39	53	0	423	3069
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
Total	52	894	24	1	971	33	35	424	1	493	186	736	339	0	1261	333	27	46	0	406	3131
Grand Total	118	2998	46	1	3163	73	77	895	1	1046	594	2198	803	0	3595	791	71	112	0	974	8778
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.

Traffic Data Collection, LLC

www.tdccounts.com

Phone: 586.786-5407

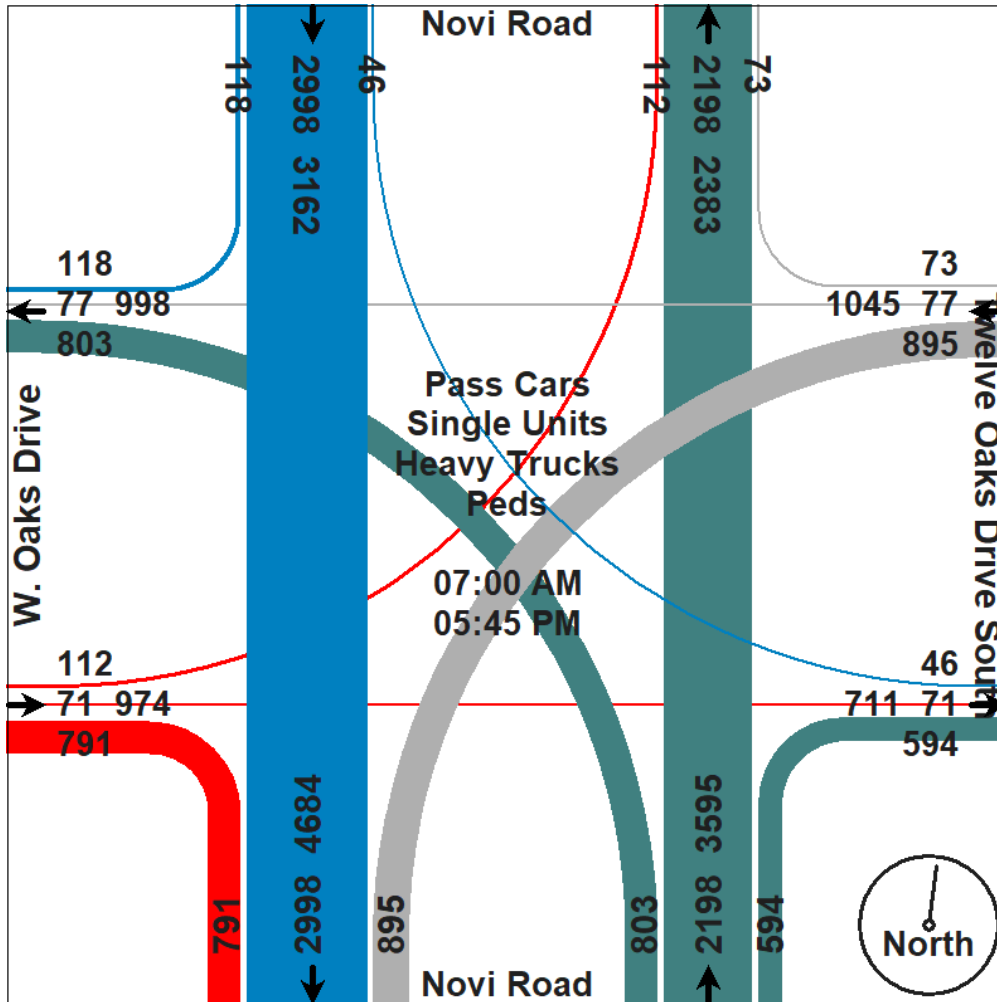
Traffic Study Performed For:

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 : 2



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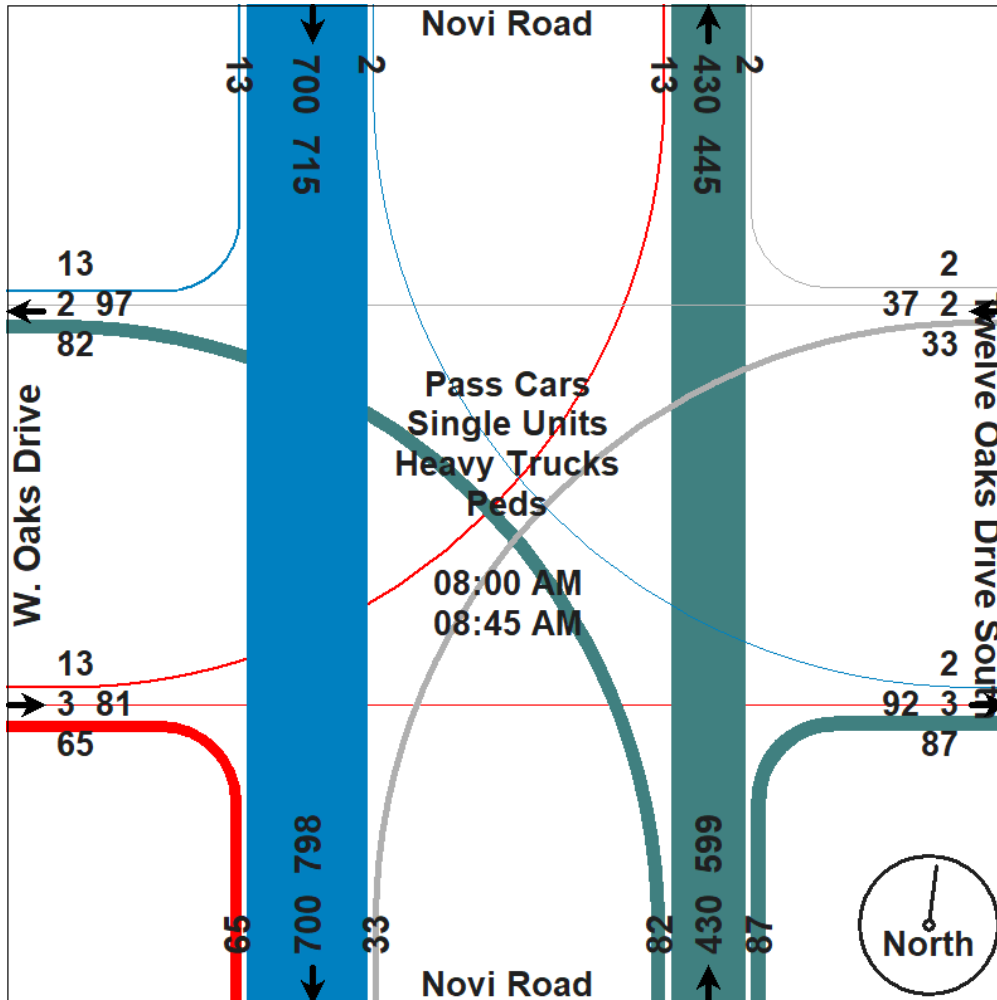
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File Name : TMC_1 Novi & Twelve Oaks_S_1-10-19
Site Code : TMC_1
Start Date : 1/10/2019
Page No : 3

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



Traffic Data Collection, LLC

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Phone: 586.786-5407

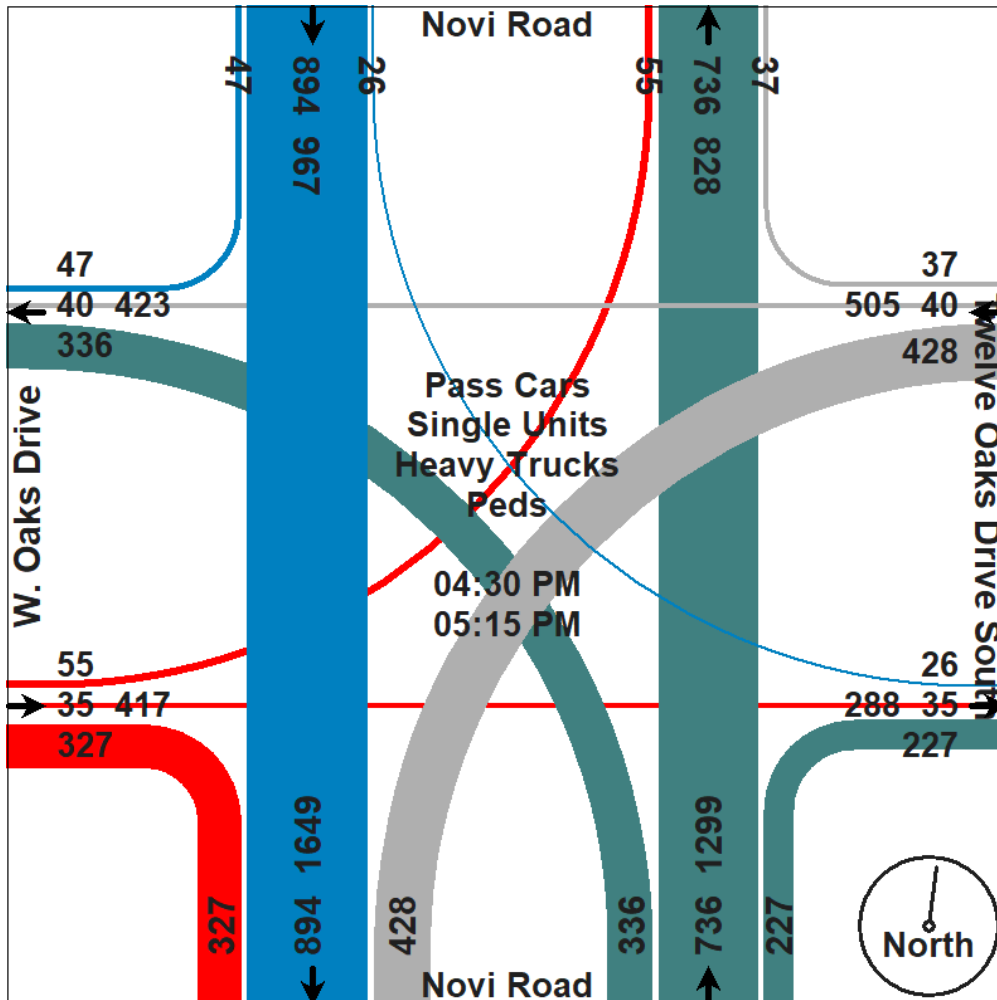
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File Name : TMC_1 Novi & Twelve Oaks_S_1-10-19
Site Code : TMC_1
Start Date : 1/10/2019
Page No : 4

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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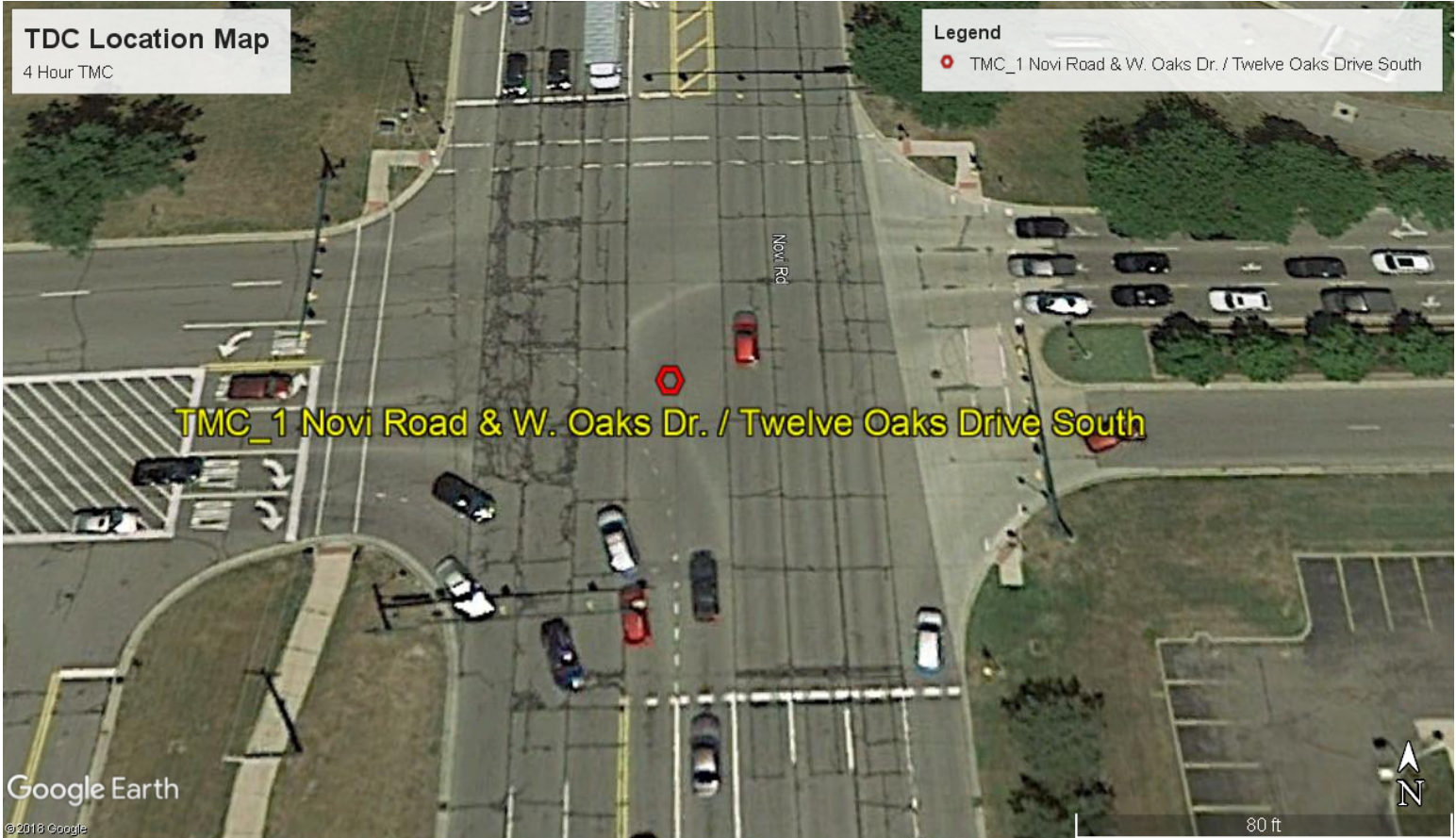
Traffic Study Performed For:
GPD Group



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 : 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
Total	7	8	15	4	8	12	5	60	65	92
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	20	14	34	7	15	22	12	78	90	146
*** 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
Total	190	38	228	69	318	387	159	150	309	924
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
Total	195	51	246	47	297	344	134	102	236	826
Grand Total	412	111	523	127	638	765	310	390	700	1988
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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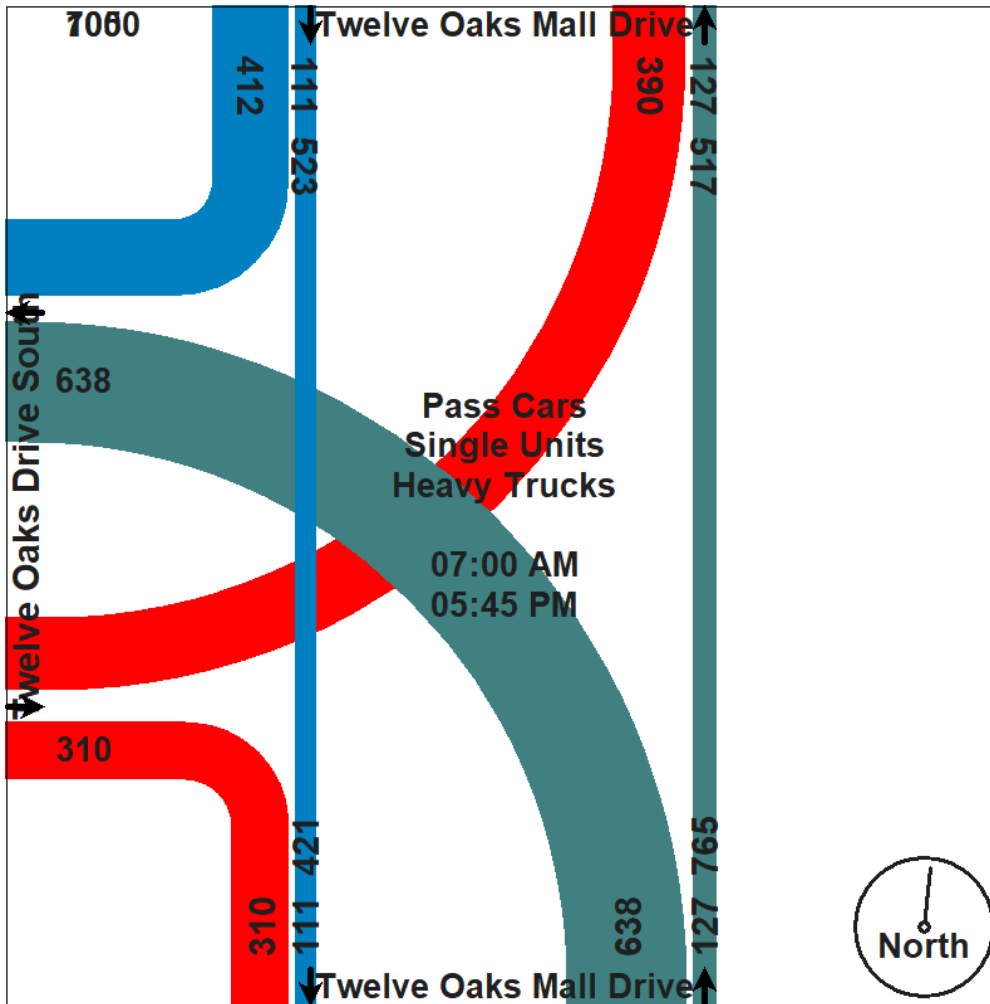
Traffic Study Performed For:

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 : 2



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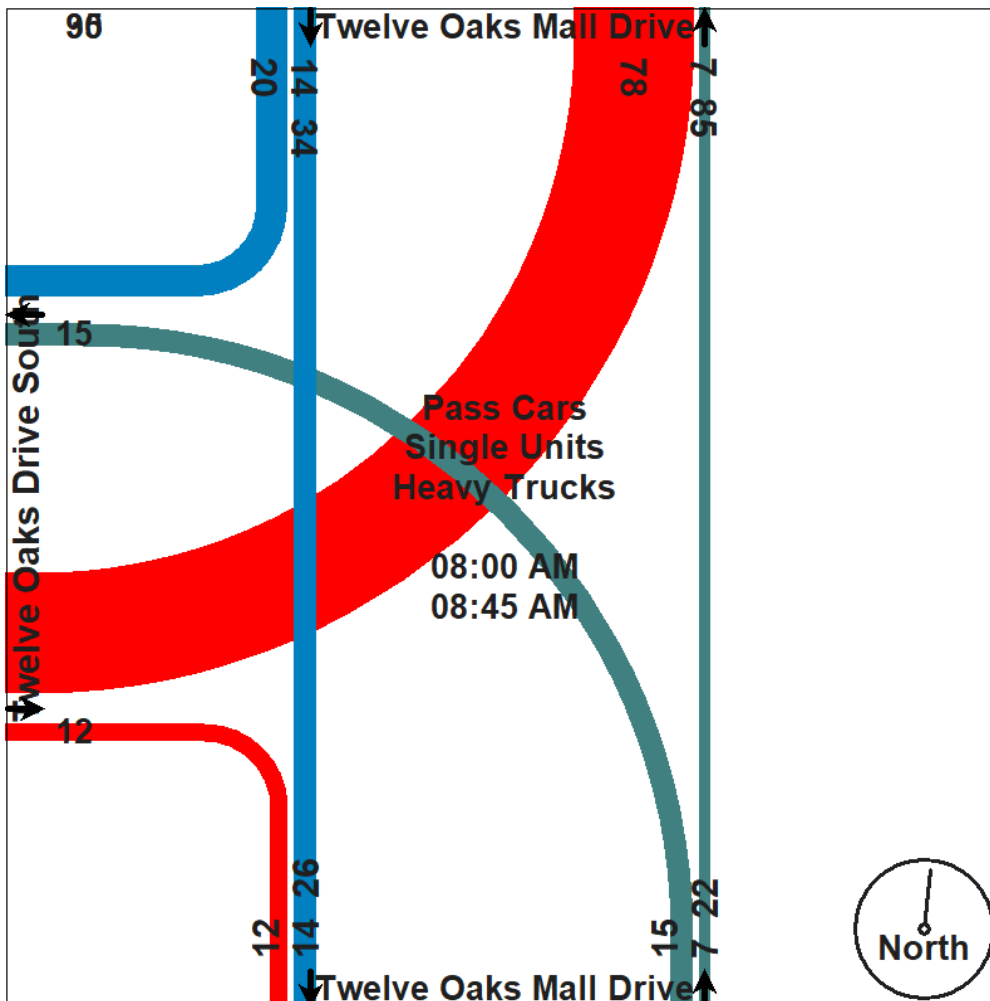
GPD Group



Project: Novi Traffic Impact Study
Study: 4 Hr. Video Turning Movement Count
Weather: Sunny/Cldy, Dry Deg's 30's
Count By 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 : 3

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 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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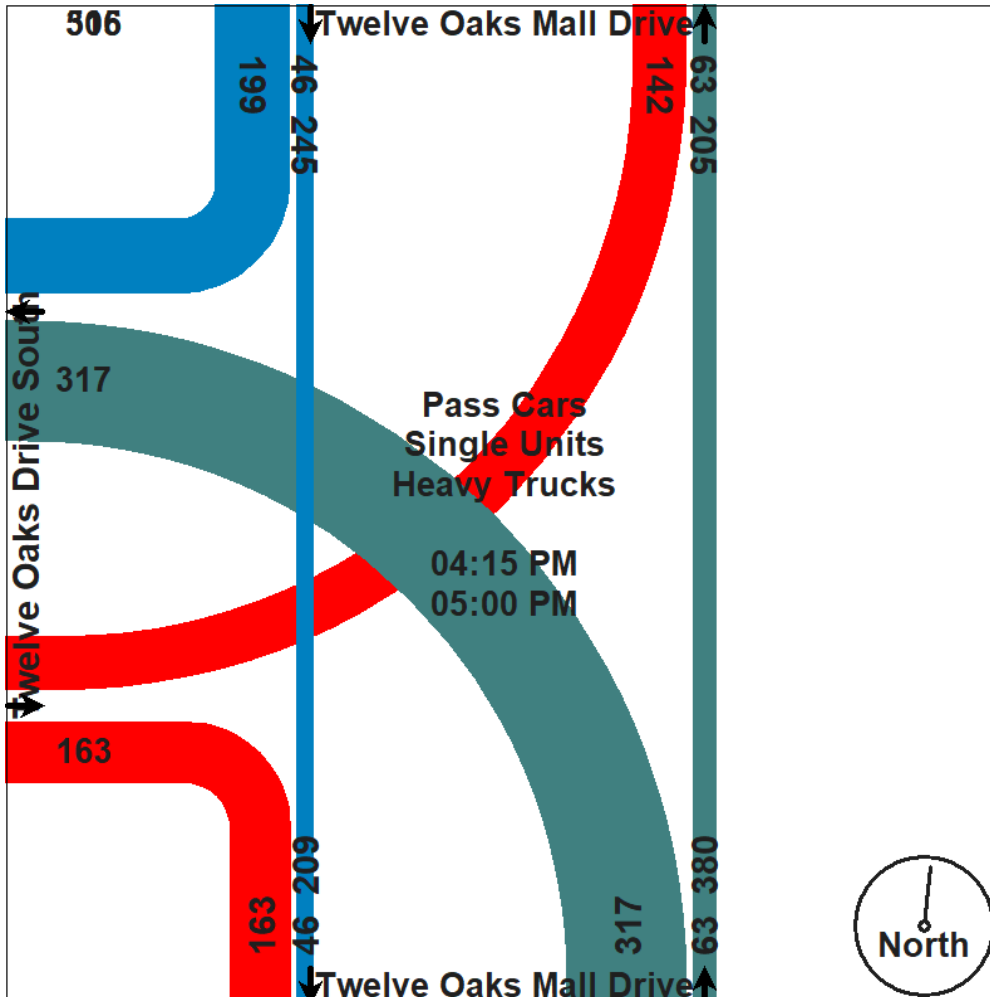
Traffic Study Performed For:
GPD Group



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
Total	0	0	0	0	0	0	0	57	57	57
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
Total	0	0	0	0	0	0	0	86	86	86
*** 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
Total	0	0	0	1	0	1	0	160	160	161
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	0	0	0	1	0	1	0	188	188	189
Grand Total	0	0	0	2	0	2	0	491	491	493
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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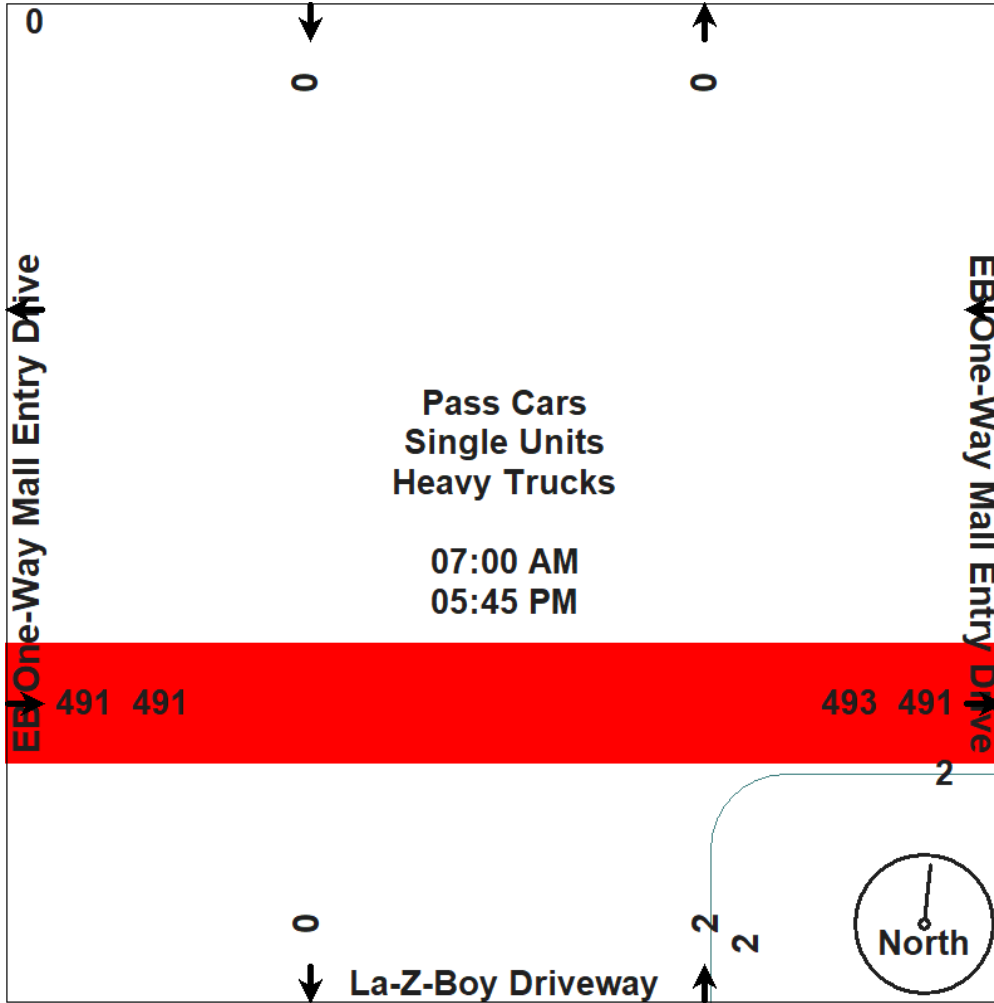
Traffic Study Performed For:

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
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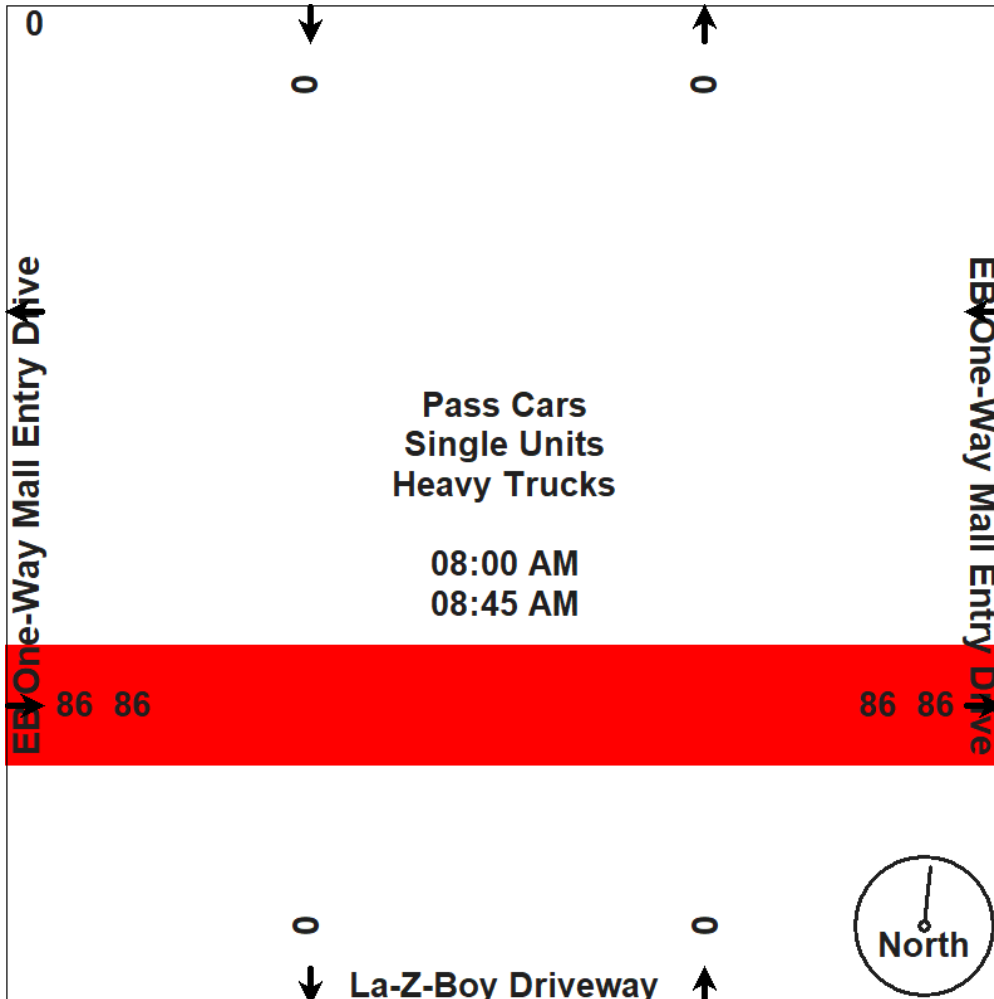
Traffic Study Performed For:
GPD Group



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	33	33	33
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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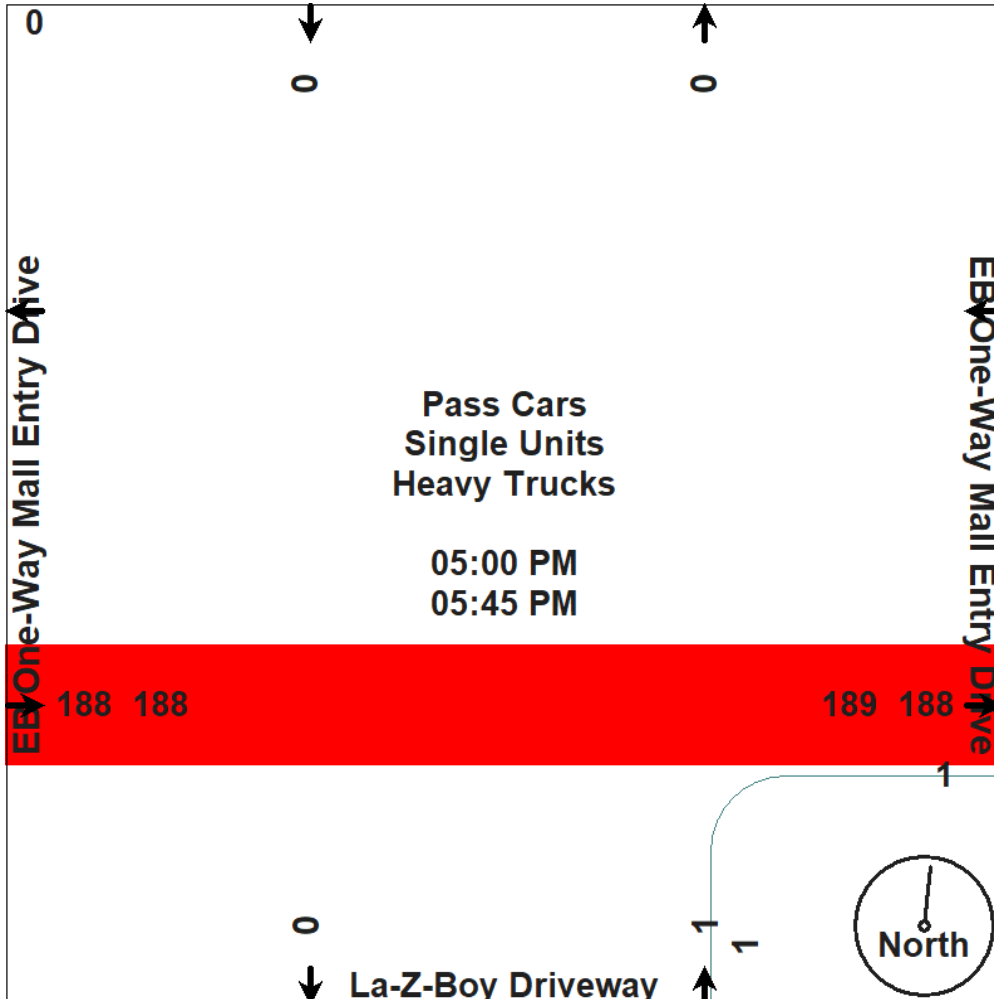
Traffic Study Performed For:
GPD Group



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:

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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
Total	1	61	62	10	0	10	3	0	3	75
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	1	103	104	17	0	17	0	0	0	121
*** 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
Total	5	287	292	252	0	252	1	3	4	548
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
Total	2	301	303	212	0	212	2	4	6	521
Grand Total	9	752	761	491	0	491	6	7	13	1265
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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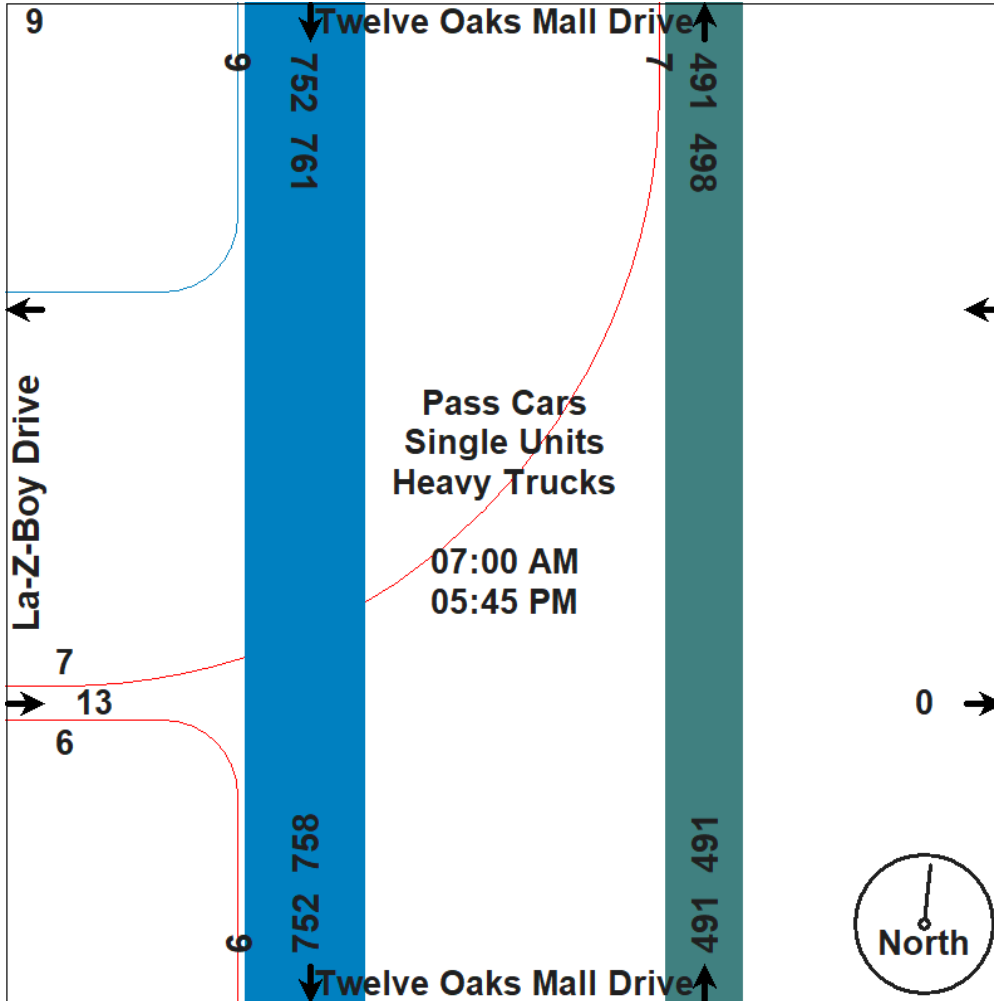
Phone: 586.786-5407

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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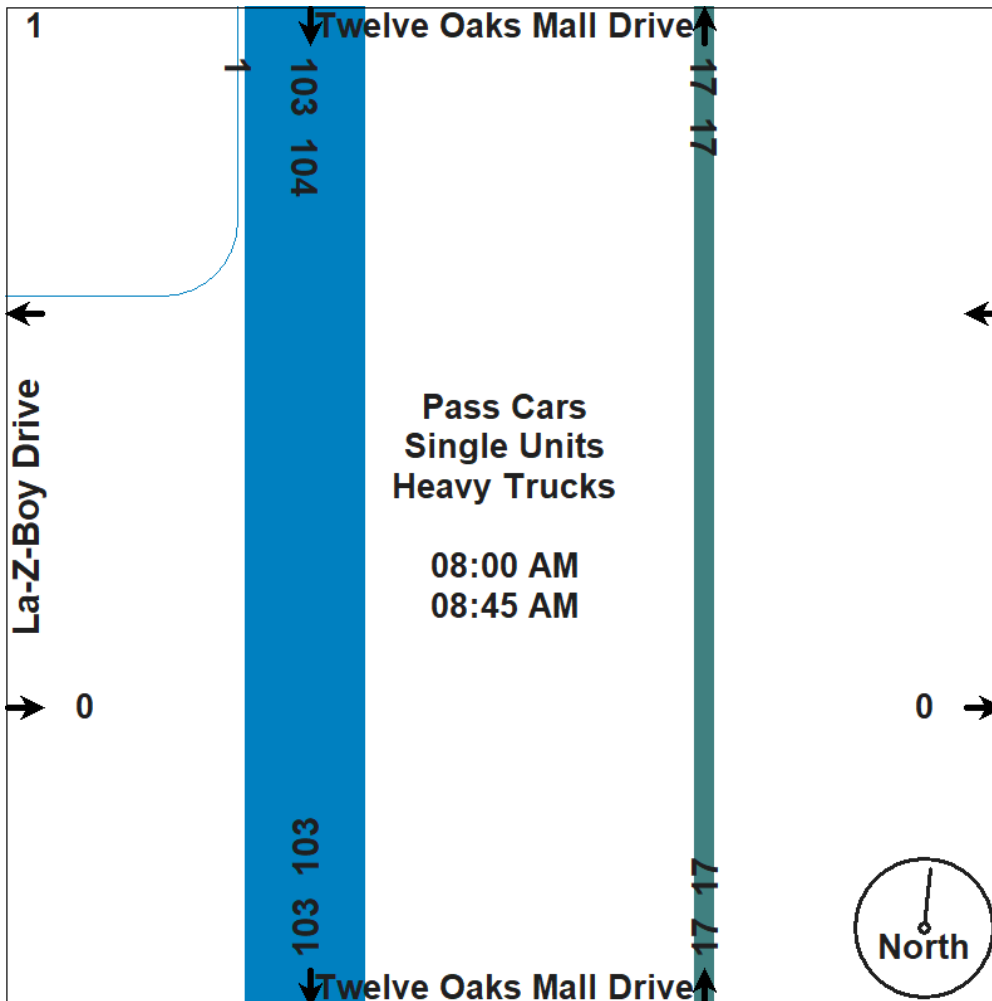
Traffic Study Performed For:
GPD Group



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



Traffic Data Collection, LLC

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Phone: 586.786-5407

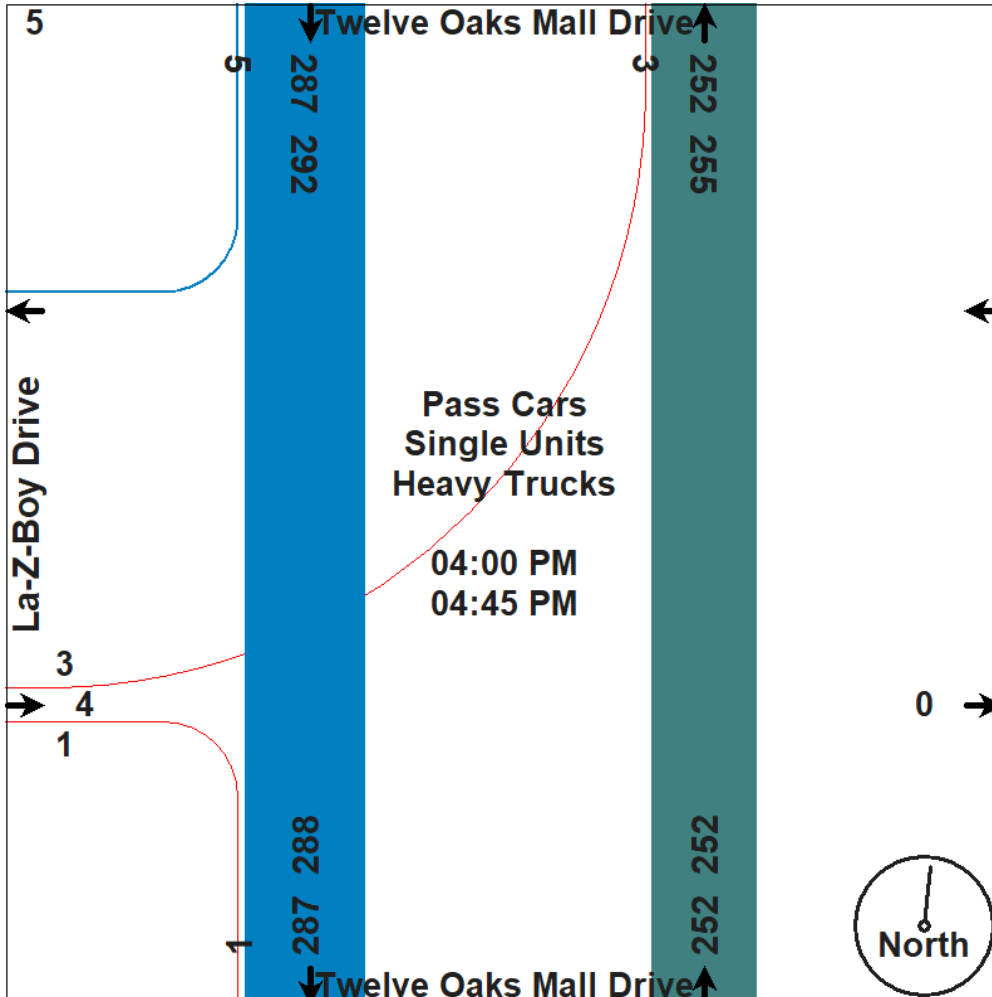
Traffic Study Performed For:
GPD Group



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 : 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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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 : 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

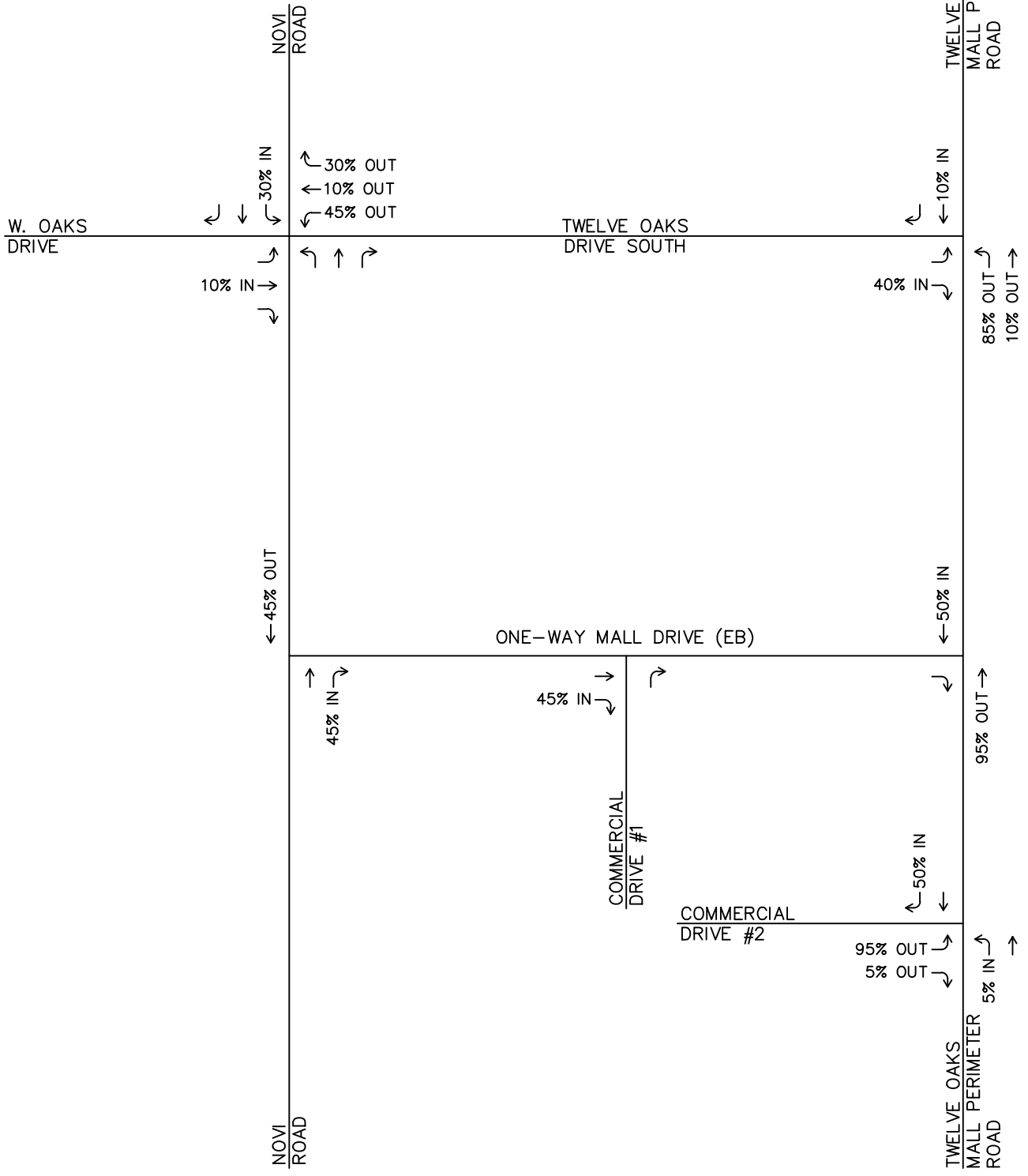
Entering Trip Percentage: 52%
Exiting Trip Percentage: 48%

Entering Primary Trips: 43
Exiting Primary Trips: 39

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

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

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N.T.S.

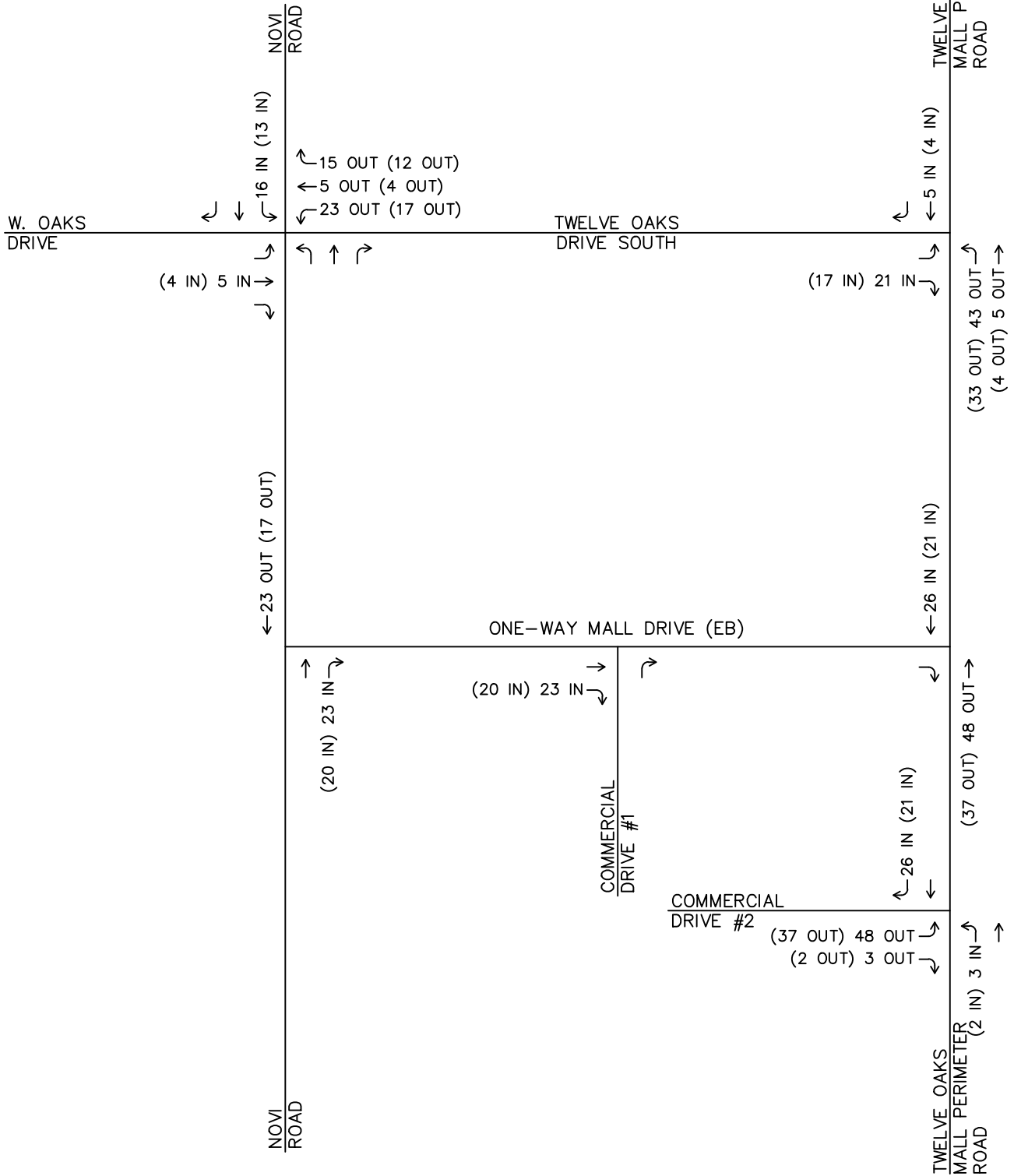
APPENDIX C

PRIMARY SITE TRIP DISTRIBUTION

JANUARY 2019



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N.T.S.

APPENDIX C

PRIMARY SITE TRIP ASSIGNMENT

JANUARY 2019



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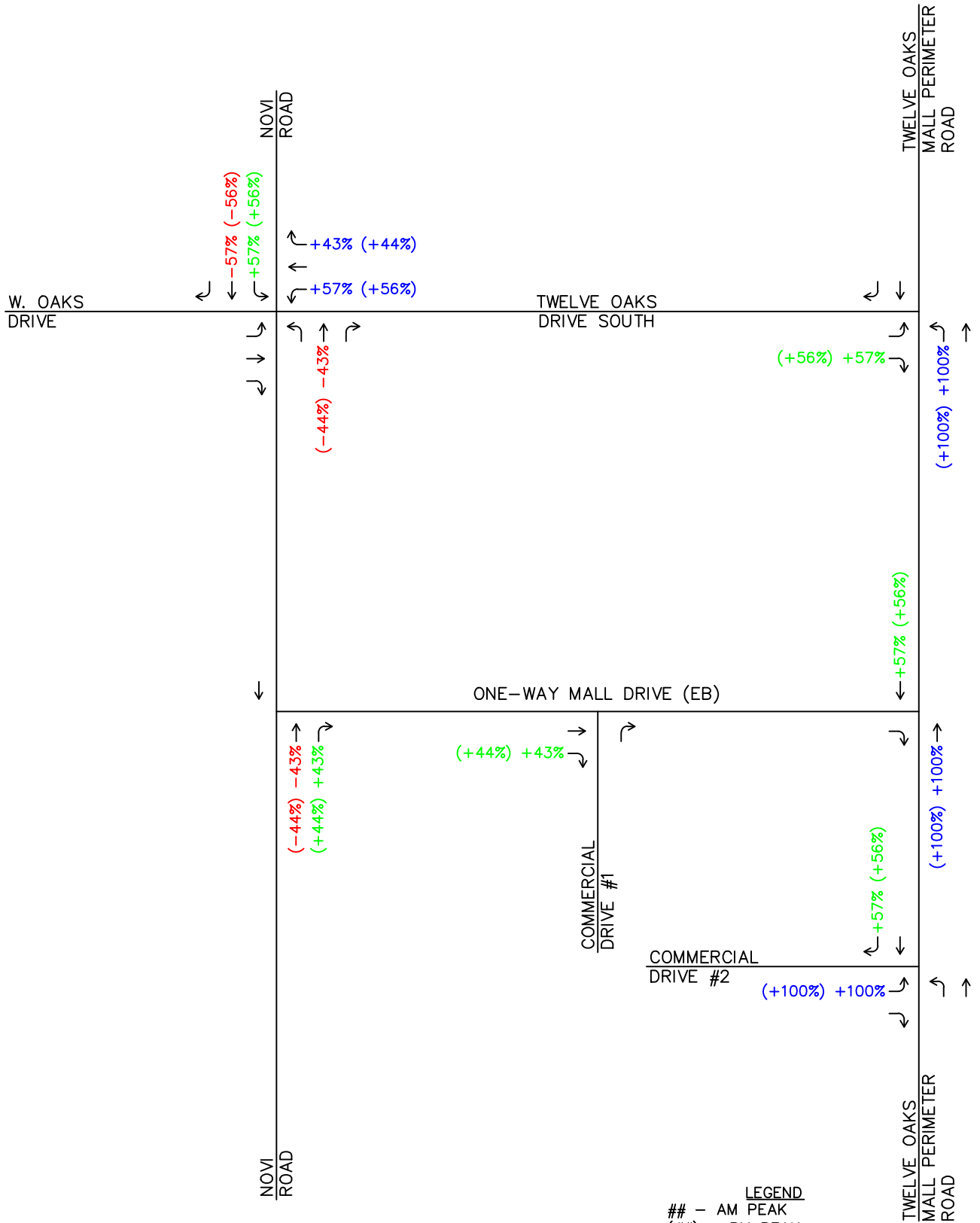
APPENDIX C

PASS-BY TRIP DISTRIBUTION

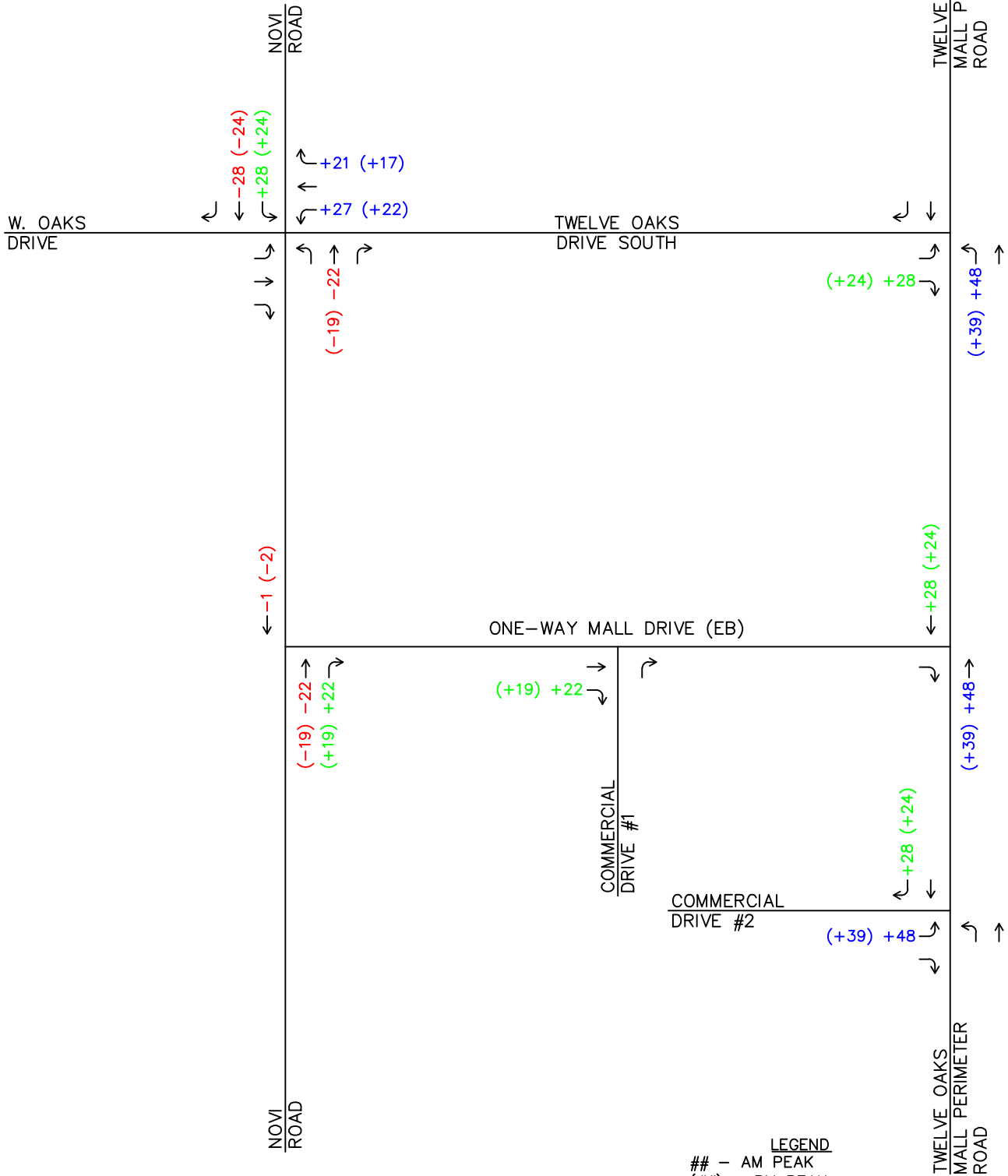
JANUARY 2019



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



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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 ASSIGNMENT

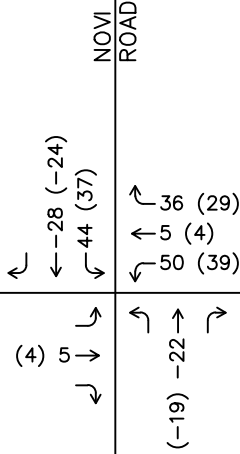
JANUARY 2019



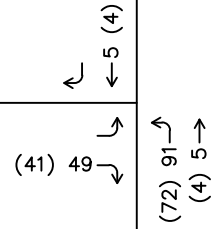
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 DATE: 1/19/2019 TIME: 10:25:39 AM
 TECHNICIAN: DDOMBROSKY

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 →

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	
Timer	1	2	3	4	5	6	7	8				
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				
Intersection Summary												
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	-
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				
Intersection Summary												
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			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
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					
Intersection Summary						
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	T			T		
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	
Timer	1	2	3	4	5	6	7	8				
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				
Intersection Summary												
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	A					
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				
Intersection Summary												
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	TT			TT	TT	
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 ²
28th Street and East Beltline Grand Rapids, MI	4,850	59 ¹	10
M-6 and Kalamazoo Avenue Gaines Township, MI	4,877	80	8
US-131 and 54th Street Wyoming, MI	4,971	64 ¹	12

¹ Additional shared parking spaces available with adjacent retail sites

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

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

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

³ Weekday data for the 54th 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. 28th STREET & EAST BELTLINE, GRAND RAPIDS, MI



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



FIGURE 3. US-131 & 54th 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 ¹	
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
95th Percentile	20
Average	9

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
95th Percentile	64
Average	50

¹Number 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 ¹	
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
95th Percentile	8
Average	4

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
95th Percentile	50
Average	38

¹Number 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 ¹	
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
95th Percentile	16
Average	12

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
95th Percentile	77
Average	71

¹Number 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 ¹	
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
95th Percentile	5
Average	2

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
95th Percentile	54
Average	41

¹Number 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 ¹	
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
95th Percentile	10
Average	3

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
95th Percentile	55
Average	38

¹Number 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 ¹	
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
95th Percentile	5
Average	1

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
95th Percentile	62
Average	52

¹Number 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 ¹	
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
95th Percentile	9
Average	4

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
95th Percentile	58
Average	46

¹Number of vehicles after the order kiosk, not including the vehicle at the kiosk

NOISE IMPACT STUDY



2018-167
February 1, 2019

Mr. Joshua Lyons
Project Manager
GDP Group
520 South Main Street, Suite 2531
Akron, OH 44311

Subject: **Restaurant Community Impact Study of Noise Levels**
re: Chick-fil-A – 27750 Novi Road
Novi, MI

Dear Mr. Lyons:

At your request and authorization, Kolano and Saha Engineers, Inc. (K&SE) has conducted an investigation to evaluate the community noise impact expected from the operation of the proposed referenced restaurant. This includes building mechanical equipment, drive-thru intercom system, and delivery vehicles. As part of this evaluation, we predicted sound levels for the various noise sources based on geometric divergence (the decrease of sound as it moves away from the source). This type of prediction was selected for this evaluation due to no residential properties being nearby and the relatively low sound levels expected from the restaurant operation. This evaluation was conducted referencing the noise limits established by the City of Novi Ordinance.

Proposed Site

The location of the proposed Chick-fil-A restaurant is at the southeast corner of Novi Road and Twelve Oaks Mall Road. The location is also directly north of the west bound I-96 exit ramp for Novi Road. All adjacent land uses are commercial in nature. Adjacent properties include restaurants and retail stores. No properties of a sensitive nature are located near the proposed restaurant. The City of Novi noise code limits for commercial receiving land use apply at all respective property lines. **Exhibit 1** provides an aerial view of the site with the proposed building, drives and parking lot overlaid and adjacent property uses.

Sound level predictions were based on the location of property lines, mechanical equipment, drive-thru intercom and loading area, as well as manufacturer noise data and K&SE sound data for various elements that are expected to create noise at the proposed restaurant. The following documents were utilized for the predictions:

- GDP Group Drawings: Chick-fil-A – Novi; Site Plan, Mechanical Roof Plan, Rooftop and Mechanical Equipment.
- Sound power data provided for the proposed rooftop air handling units and exhaust fans provided by Lennox and Loren Cook.

City of Novi Noise Code

The City of Novi Code, Zoning Ordinance, *Section 5.14 Performance Standards, Subsection 10 Noise*, restricts property line noise levels to 75dB(A) daytime and 70dB(A) nighttime for business and commercial zones. Daytime is defined as 7AM – 10PM with Nighttime occupying 10PM – 7AM.

The restaurant may be open for day and nighttime hours. Additionally, deliveries are expected early in the morning sometimes prior to 7AM. It is expected that the roof top mechanical equipment may operate 24 hours a day to maintain building environmental conditions. Based on this, the 70 dB(A) noise limit will apply at the nearest locations of impact.

Geometric Divergence Noise Prediction

Sound is a physical phenomenon that can be readily predicted with reasonable accuracy. In order to evaluate the sounds created from the proposed restaurant and determine the maximum sound expected at the adjacent properties, we calculated the geometric divergence (reduction of sound as it travels outdoors away from the noise source) for sources at the nearest points of potential impact. The nearest locations of potential noise impact are the furniture store directly adjacent to the east and the restaurant across Twelve Oaks Road to the north.

Building Rooftop Mechanical Equipment

Building mechanical systems primarily consist of roof top air handling units and kitchen exhaust fans located at various points on the roof of the restaurant. The closest point of potential impact is to the east at the adjacent furniture store approximately 100 feet away. Sound level data used for these mechanical systems comes from the unit manufacturers. Our modeling assumes a worst case scenario with all units operating simultaneously at nighttime on a continuous basis. The predicted sound levels and calculations are provided in **Exhibit 2**. The predicted sound level for the rooftop mechanical equipment is expected to be below all applicable ordinance noise limits.

Drive-Thru Intercom & Delivery Trucks Operating on Site

The restaurant is expected to have drive-thru service along the west side of the site. At this location, the drive-thru intercommunication terminals will be approximately 180 feet from the restaurant to the north which is expected to be the nearest potential impact location.

Additionally, the restaurant is expected to receive deliveries at various times during the day and early mornings, potentially prior to 7AM. Large box trucks and semi-trucks are expected make regular deliveries of food and supplies. Trucks are expected to park along the east and/or southeast side of the building during loading/unloading operations. In these locations the trucks are expected to be 60 feet away from the furniture store to the east, which is the nearest potential impact location.

The predicted sound levels and calculations for these activities are provided in **Exhibit 3**. The predicted sound level for the drive-thru intercom and truck delivery operations are expected to be below all applicable ordinance noise limits.

Conclusions

Based on the findings of our study and under proper management, we expect the proposed Chick-fil-A restaurant to be in compliance with the City of Novi ordinance noise criteria. Furthermore, the operations and noise created from the restaurant are expected to be consistent with the surrounding area and have a similar noise profile.

Mr. Lyons, we hope this summary of our investigation is informative and helpful. Should you need additional information regarding this work or additional assistance, don't hesitate to ask.

Sincerely,
KOLANO AND SAHA ENGINEERS, INC.



Darren Brown, P.E.
INCE Board Certified
Consultant

EXHIBIT 1

PROPOSED LOCATION FOR A CHICK-FIL-A RESTAURANT
SHOWING EXISTING ADJACENT COMMERCIAL PROPERTIES

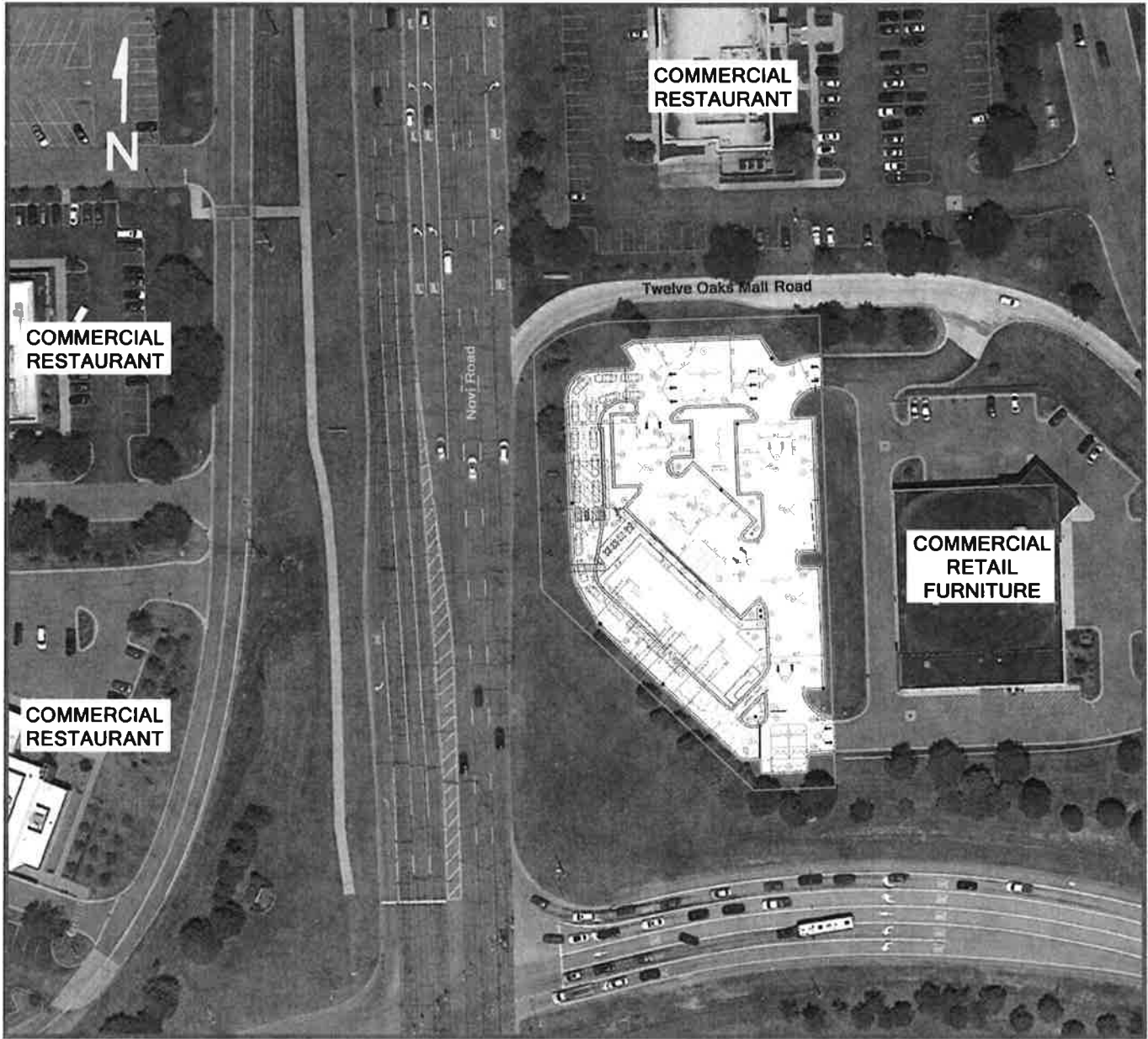


EXHIBIT 2

SOUND LEVEL PREDICTIONS FOR THE PROPOSED CHICK-FIL-A ROOF TOP MECHANICAL EQUIPMENT

Roof Top Equipment	Desc.	Manufacturer	Model	CFM	ESP	RPM	Overall Sound Power Level - dB(A)	Nearest Noise Impact Location	Distance (Ft.)	Noise Reduction from Geometric Divergence - dB	Sound Level at Nearest Impact Location - dB(A)
Exhaust Fan 1	RT Exhaust Fan	Loren Cook	150 CPS	1700	0.75	1240	75	Furniture Store; east	100	-38	37
Exhaust Fan 2	RT Exhaust Fan	Loren Cook	150 CPS	1505	0.95	1240	74	Furniture Store; east	100	-38	36
Exhaust Fan 3	RT Exhaust Fan	Loren Cook	ACED-90C15DH	300	0.38	1300	66	Furniture Store; east	100	-38	28
Air Conditioning Unit 1	Gas Fired RTU	Lennox	LGH300S4B	9500			94	Furniture Store; east	100	-38	56
Air Conditioning Unit 2	Gas Fired RTU	Lennox	LGH120H4B	3000			88	Furniture Store; east	100	-38	50
Air Conditioning Unit 3	Gas Fired RTU	Lennox	LGH240H4B	6000			94	Furniture Store; east	100	-38	56

Combined Sound Level of all Mechanical Equipment Operating Simultaneously

60

SOUND LEVEL PREDICTIONS FOR THE PROPOSED CHICK-FIL-A DRIVE-THRU INTERCOM AND TRUCK LOADING OPERATIONS

Restaurant Activity	Overall Sound Power Level - dB(A)	Nearest Noise Impact Location	Distance (Ft.)	Noise Reduction from Geometric Divergence - dB	Sound Level at Nearest Impact Location - dB(A)
Drive-Thru Intercom	88	Restaurant; north	180	-43	45
Delivery (Semi) Truck Idle	96	Furniture Store; east	60	-34	62
Delivery (Semi) Truck Loading	102	Furniture Store; east	60	-34	68

MASTER PLANNING AND ZONING COMMITTEE MINUTES



MASTER PLAN AND ZONING COMMITTEE
City of Novi Planning Commission
March 13, 2019 at 6:00 p.m.
Novi Civic Center – Council Conference Room
45175 W. Ten Mile, Novi, MI 48375
(248) 347-0475
DRAFT MINUTES

CALL TO ORDER

The meeting was called to order at 6:06 p.m.

1. Roll Call

Present: Member Avdoulos, Chair Pehrson
Not Present: Member Anthony

Staff Present: Barb McBeth, Sri Komaragiri, Tom Schultz, Hannah Smith

2. Approval of Agenda

Motion to approve by Member Avdoulos, seconded by Member Pehrson.

3. Approval of January 23, 2019 Master Plan and Zoning Committee meeting minutes

Motion to approve made by Member Avdoulos, seconded by Member Pehrson.

4. Audience Participation and Correspondence

There was no audience participation or correspondence.

5. Discussion Items

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

Review and provide comments on the rezoning request for a 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).

Planner Komaragiri explained that the proposed use is well accepted, but this is coming before the Committee to consider the location. The proposed site is a small lot, which comes with challenges. The site is currently zoned RC, Regional Commercial, and a drive-thru is not allowed there, but can be allowed with a PD-2 Option. This was done on the other side of the road.

City Planner McBeth added that a lot of the outlots around the mall have the PD-2 Option in place, this one does not. Planner Komaragiri said all areas along Twelve Mile have it, but this site on Novi Road does not. The Conference District on the opposite side of the road has a PD-2 Option, as well.

Planner Komaragiri explained that this is a small site with very small space to develop. The Denny's that was on this site is considered legal non-conforming because of parking and the building. Chick-Fil-A wants to do a drive-thru on the site but cannot fall within the legal non-conforming use because of the use and the proposed relocation

of the building. The PD-2 Option allows rezoning and site plan to be done as one application, so there is the benefit that when the rezoning request comes in, there is a site plan as well.

Multiple traffic studies were conducted since traffic is a big issue based on the location of this site, including a Trip Generation Study and a Queuing Study since more stacking may be required. The studies reflect that what the applicant is proposing is sufficient but there is a possibility for the overflow of stacking. A Parking Study was also done because the applicant is proposing less than what is required, and our Traffic consultant has suggested that they work with La-Z-Boy for potential cross-access parking in case overflow parking is needed.

There were concerns with not having a bypass lane but the applicant worked with the Fire Marshal to provide ultimate means so that Fire will have access from all sides of the building as needed. This would still require a deviation for lack of bypass lane. They would have a contingency plan for emergency situations in the drive-thru.

The project would need multiple landscape waivers. But the major issues to consider are the use, the potential lack of parking, etc. There are no natural features on the site. Their Façade is in full compliance.

Jason Hill, with Chick-Fil-A, said we chose this site because of the great location and exposure being right at the interchange, it has great access, great synergy with the mall, and the demographics here are perfect. The size of the site is large enough to accommodate our site plan usually, but size and access points together create a challenge. In trying to balance what we need for operations and what is required from the Ordinance, this is the best layout we could fit for the plan.

Because of popularity, our drive-thru is about 60% of our business so that's obviously an important part. Chick-Fil-A is constantly trying to improve how that works, and part of that is having team members outside. So some team members will be outside with iPads so the drive-thru process is faster. There are dedicated areas where team members will be, and we've started doing canopies with heaters and fans to provide protection for our members as well as the cars in the drive-thru. There is also a canopy at the pick-up window with a bypass lane for Fire.

Chair Pehrson asked about site access and egress. Would cars come in by Red Lobster and go to either drive-thru or to parking, is it forced that cars go out to La-Z-Boy? I am concerned with the traffic flow going onto the ring road being forced to turn right there instead of being able to turn left to get back out to Novi Road. The stacking and the egress point are the only concerns I have.

Mr. Hill said I don't know if there are any alternatives to that, we could look into putting up signage.

Member Avdoulos said for the Planning Commission, I would suggest having a larger site plan with a layout showing the ingress and egress and flow of the site. The larger picture like that is the first thing I look at before looking into the details. It would also be helpful to show the canopies so that people can understand the size of those.

Chair Pehrson asked that if this site is similar in size to others, are the parking numbers the same as other locations?

Planner Komaragiri said based on the parking data, there may be a need for overflow parking at peak times.

City Planner McBeth asked in ranking store volumes, where Chick-Fil-A would expect this one to fall?

Mr. Hill said right now, we are expecting it to be about average.

Chair Pehrson said deviations are the natural course of a new use coming into an existing site that is non-conforming, but a lot of deviations can cause opposition at Planning Commission. It would be helpful if you could explain the deviations up front when you go to Planning Commission.

Planner Komaragiri said there are a couple of Landscape deviations so there is less green space, but so that they have more parking.

City Planner McBeth said this is not a PRO, but it's a PD-2 Option. So with that, all deviations can be built into the agreement instead of having to go to the ZBA. It would be a recommendation to City Council.

Chair Pehrson said this site and use would be getting rid of something that's been vacant and putting something in its place that is upscale and trendy. People will want to come to this site and it will bring people to the City to come here. It's just an awkward site. We'd suggest that you approach La-Z-Boy to discuss shared parking if you haven't already.

City Planner McBeth said we were wondering about the Red Lobster for shared parking, as well.

Chair Pehrson said they get very busy there and the parking lot is often filled up.

Chair Pehrson said I don't think we would have a problem recommending approval for this and moving forward with it, as far as this Committee is concerned. There are other properties in the area with the PD-2, so it is not anything new. Traffic just may pose an issue.

Member Avdoulos agreed and said there will be concerns about traffic and circulation. The brand is recognizable and I think the size is ok, but I'd just suggest you bring forward the ingress and egress issues when this goes to the Planning Commission.

Planner Komaragiri said so the biggest issues are the parking deviations, landscaping which they've made progress on with our Landscape Architect, and the ingress and egress issues. Those are things the Planning Commission will look at.

6. Adjourn

Motion to adjourn made by Member Avdoulos, seconded by Member Pehrson.
Meeting adjourned at 6:50 p.m.

APPLICANTS RESPONSE LETTER



520 South Main Street, Suite 2531
Akron, Ohio 44311

Phone 330.572.2100
www.gpdgroup.com

April 1, 2019
2018223.19

City of Novi, Michigan
Sri Ravali Komaragiri
Planner
45175 Ten Mile Road
Novi, Michigan 48375

**RE: Chick-Fil-A Review Response Letter
27750 Novi Road Novi, MI**

Dear Mr. Komaragiri,
GPD is in receipt of the response letter dated March 6, 2019 for the above-referenced project. We are addressing each comment as follows:

1. **PLANNING REVIEW COMMENTS:**

a. Zoning and Use Requirements that don't meet code:

- i. MASTER PLAN: The application for rezoning shall be completed in accordance with the City's Site Plan and Development Manual. This would require Master Planning and Zoning Committee's input prior to Planning Commission's recommendation.
Response: Noted.
- ii. USES PERMITTED: Meets code, but is subject to City Council approval upon Planning Commission's recommendation. It requires a Special land use with a 15 day public hearing.
Response: Noted.
- iii. WRITTEN STATEMENT (Site Development Manual): Provide the statement with the next submittal.
Response: The written statement will be updated to note the wavier requested and circulation information.
- iv. SIGN LOCATION PLAN: Provide the proposed wording and font size for the sign. Refer to page 23 of site plan manual.
Response: Information was submitted by email, approved and the signs to be erected by 4/1/19.
- v. REZONING TRAFFIC IMPACT STUDY: A Rezoning Traffic study is waived as other related Traffic studies were submitted.
Response: Noted.
- vi. COMMUNITY IMPACT STATEMENT: Hours of operation expected annual police and fire responses.
Response: Noted.

- b. Planned Development Site Plan Submittal Requirements that don't meet code:
 - i. SPECIAL LAND USE & COMMUNITY IMPACT STATEMENT: Both meet code, but this would require a 15 day public hearing notice.
Response: Noted.
 - ii. TRAFFIC STUDY: A Rezoning Traffic study is waived as other related Traffic studies were submitted.
Response: Noted.
- c. Use Conditions for Allowable uses under PD-2 Option that don't meet code:
 - i. FAST FOOD DRIVE-THRU: This is considered a deviation from the ordinance requirements. The existing use is also restaurant.
Response: Please see the included list with waiver requests.
 - ii. TRAFFIC CIRCULATION: Meets code, but refer to Traffic review for additional comments.
Response: Noted.
- d. Drive-through Lanes that don't meet code:
 - i. DRIVE-THROUGH LANES SEPARATION: Meets code, but refer to Traffic Review for further comments.
Response: Noted.
 - ii. BYPASS LANE FOR DRIVE-THROUGH: This is considered a deviation from the ordinance requirements. Refer to Fire and Traffic comments.
Response: Please see the included list with waiver requests.
 - iii. DRIVE-THRU STACKING SPACES: Meets code, but overflow queuing may conflict with parking spaces. Traffic recommends considering allocating those spaces as planned employee parking.
Response: The site plan was adjusted to allocate the parking in question for employees.
- e. Building Setbacks that don't meet code:
 - i. EXTERIOR SIDE YARD @ I-96 (southwest): Meets code, but this is considered a deviation from the ordinance requirements, subject to City Council approval.
Response: A large area of green space existing at the corner of the site at the intersection of I-96 and Novi Road. This area pinches down the site and makes the building placement difficult to accommodate an isolated drive-through from the parking lot. Please see the included list with waiver requests.
- f. Parking Setbacks that don't meet code:
 - i. EXTERIOR SIDE YARD @ Twelve Oaks Mall Road (North), (Southwest), @ I-96 (South), Rear (East): this is considered a

deviation from the ordinance requirements, subject to City Council approval.

Response: In order to provide a well parked, well circulated and well positioned building CFA must maximize the buildable area on the site while focusing on an isolated drive-through positioning such that dine in customers do not need to cross drive-through traffic to get into the building. The parking along the rear of the site was able to provide a larger setback than initially submitted based on plan revisions including reduction in drive aisles and accommodating car overhangs. The setbacks along the frontage and exterior side yards generally meet the existing site setbacks but are slightly improved from existing conditions. Adhering strictly to the code would also severely limit the number of proposed parking spaces provided when drive-through stacking is also taken into account. Please see the included list with waiver requests.

- g. Note To District Standards for RC district that don't meet code:
- i. EXTERIOR SIDE YARD ABUTTING A STREET: Does not comply, see proposed sets backs in the previous section.
Response: Noted, see above.
 - ii. PARKING SETBACK SCREENING: Meets code, but please refer to Landscape Review for additional information
Response: Noted.
- h. Parking, Loading and Dumpster Requirements that don't meet code:
- i. NUMBER OF PARKING SPACES: This is considered a deviation from the ordinance requirements. Based on parking study provided, it appears that a shared parking agreement with Lazyboy parking lot is warranted.
Response: Noted, the following will be added to the written statement. Prior to receiving staff comments, Chick-Fil-A realized the statistics of the parking lot. Knowing at peak times it could be full, Chick-Fil-A reached out to the La-Z-Boy property owner to request cross parking and was denied.

To be sure the parking would be sufficient, the local sites were studied for the volume of vehicles on and off peak times. Based on the performance of the similar locations, the proposed parking will be sufficient. Based on the feedback of the meeting on 3/13 and these comments, the site plan has been evaluated for ways to maximize parking. The angled parking along the north side of the property are now perpendicular to Twelve Oaks Mall Road, and gained 3 additional spaces, bringing to total count up to 68. This number exceeds the average of all three sites evaluated at

the 95th percentile (66 parking stalls) and average (56 parking stalls).

Further supporting information can be provided presenting additional Chick-Fil-A locations in the area are similar in building size and available parking stalls.

Please see the included list with waiver requests.

- ii. END ISLANDS: Check Traffic Review to confirm end islands meet code requirements.
Response: Noted, see landscape comments.
- iii. MINIMUM NUMBER OF BICYCLE PARKING: Meets code, but indicate number of bike spaces under parking data.
Response: Noted, plans will be revised.
- iv. LOADING SPACES: The applicant has provided truck turning diagrams for a dumpster truck, fire truck and the largest loading truck that accesses the site. Staff can support this deviation provided the loading and unloading times does not conflict with peak hour traffic.
Response: The loading zone is sized to meet the day time deliveries and maximize landscape area. Any deliveries larger vehicles will be during non-peak hours. Please see the included list with waiver requests.
- v. DUMPSTER: A deviation for location and not meeting the minimum setback requirements is required. Staff can support this deviation provided the dumpster pick up times does not conflict with peak hour traffic.
Response: Trash pick up will not occur during peak hours. Please see the included list with waiver requests.
- vi. DUMPSTER ENCLOSURE: Meets code, but refer to Façade review for more details.
Response: Noted.
- vii. ACCESSORY STRUCTURES: There is a transformer indicated in the legend, but we are unable to find it on the plan. Please indicate the location, height and required screening to verify conformance.
Response: The transformer is noted on the Site and Landscape plan. Height to be determined by the electric company.
- viii. EXTERIOR LIGHTING: Meets code, but Refer to more comments about lighting on from Page 11.
Response: Noted.

- ix. ROOF TOP EQUIPMENT AND WALL MOUNTED UTILITY EQUIPMENT:
Refer to Façade review for more details.

Response: Noted.

- i. Other Requirements that don't meet code:

- i. GENERAL LAYOUT AND DIMENSION OF PROPOSED PHYSICAL IMPROVEMENTS: Refer to all review for additional information requested.

Response: Noted.

- j. Lighting and Photometric Plans that don't meet code:

- i. SECURITY LIGHTING: Please indicate hours of operation and the lights which will be turned off after hours for security purposes.

Response: Hours of operation will be provided. Correct, lights will be turned off after hours.

- ii. BUILDING LIGHTING: Provide photometrics on building.

Response: Building photometrics will be provided.

- iii. MAXIMUM HEIGHT: Meets code, but note says unless otherwise determined for height. Please confirm the height.

Response: Noted, the height will be added.

2. **ENGINEERING REVIEW COMMENTS:**

- a. GENERAL:

- i. Provide a minimum of two ties to established section or quarter section corners.

Response: Ties will be added to an updated survey.

- ii. Revise the plan set to reference at least **one City established benchmark**. An interactive map of the City's established survey benchmarks can be found under the 'Map Gallery' tab on www.cityofnovi.org. (The two closest benchmarks are 1522 and NOVI 8 according to the map.)

Response: City established benchmark is added on sheets (# 1522)

- iii. Provide a note on the plans that all work shall conform to the current City of Novi standards and specifications.

Response: Noted and plans revised.

- iv. Provide the City's standard detail sheets for water main (5 sheets- rev.02/16/2018), sanitary sewer (3 sheets- rev. 02/16/2018), storm sewer (2 sheets rev.02/16/2018), and paving (2 sheets- rev. 03/05/2018) at the time of the printed Stamping Set submittal. These details can be found on the City's website at this location:

<http://cityofnovi.org/Government/City-Services/Public-Services/Engineering-Division/Engineering-Standards-and-Construction-Details.aspx>

Response: City standard details for watermain, sanitary, storm and paving are used.

- v. An updated Non-domestic User Survey form shall be submitted to the City so it can be forwarded to Oakland County.

Response: Non-domestic User Survey will be submitted so it can be forwarded.

- vi. Provide a traffic control sign table listing the quantities of each sign type proposed for the development. Provide a note along with the table stating all traffic signage will comply with the current MMUTCD standards.

1. Traffic signs in the RCOC right-of-way will be installed by RCOC.

Response: Traffic control table and note is added to sheet C-200.

- vii. Provide a note that compacted sand backfill (MDOT sand class 2) shall be provided for all utilities within the influence of paved areas, and illustrate on the profiles.

Response: Watermain, sanitary and storm profiles are added with MDOT sand class II backfill note for paved areas.

- viii. Provide a construction materials table on a Utility Plan listing the quantity and material type for each utility (water, sanitary and storm) being proposed.

Response: Construction material table added to utility sheet (PS-100).

- ix. Provide a utility crossing table indicating that at least 18-inch vertical clearance will be provided, or that additional bedding measures will be utilized at points of conflict where adequate clearance cannot be maintained.

Response: Utility conflict tags are shown on utility sheet (PS-100).

- x. Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Division for review.

Response: Dewatering note is added to sheet C-300.

- xi. Show the locations of all light poles and label them on the utility plan.

Response: Light pole location are shown and labelled on sheet utility sheet (PS-100).

b. WATER MAIN:

- i. Provide a profile for all proposed water main 8-inch and larger.

Response: Watermain profile is added.

- ii. Provide a separate domestic lead and 6-inch fire lead for the building with a unique **shut-off valve** for each. Shut off valves must be located at the main within water main easement.
Response: Separate domestic lead is present, a shut-off-valve is added on utility sheet (PS-100).
 - iii. Thrust blocks are general not allowed as method of restraint, unless found necessary.
Response: Thrust blocks are not used on this project.
 - iv. Relocation of the water main as shown will require coordination with impacted adjacent City water connections. Contact the Engineering department for further coordination.
Response: City will provide details later if contractor needs to contact them at the time of relocating watermain.
 - v. Three (3) sealed sets of revised utility plans along with the MDEQ permit application (06/12 rev.) for water main construction and the Streamlined Water Main Permit Checklist should be submitted to the Engineering Division for review, assuming no further design changes are anticipated. Utility plan sets shall include **only** the cover sheet, any applicable utility sheets, and the standard detail sheets.
Response: Noted. The necessary items will be submitted.
- c. SANITARY SEWER:
- i. Provide a sanitary sewer basis of design for the development on the utility plan sheet. The City's Sewer Unit Factor Chart is attached.
Response: Sanitary sewer basis of design calculations are added on utility sheet (PS-100).
 - ii. Note on the construction materials table that 6-inch sanitary leads shall be a minimum SDR 23.5, and mains shall be SDR 26.
Response: Sanitary lead specifications added to the construction material table.
 - iii. Provide a note on the Utility Plan that sanitary leads will be buried at least 5 feet deep where under the influence of pavement.
Response: Note added to utility sheet (PS-100).
 - iv. Illustrate all pipes intersecting with manholes on the sanitary profiles.
Response: Sanitary profile with all intersecting pipes are added.

d. STORM SEWER:

- i. Label all inlet storm structures on the profiles. Inlets are only permitted in paved areas and when followed by a catch basin within 50 feet.

Response: Storm sewer profiles with all labelling is added. Inlets are not used in this project.

- ii. Label the 10-year HGL on the storm sewer profiles, and ensure the HGL remains at least 1-foot below the rim of each structure.

Response: 10 year HGL line shown on storm profile with HGL line at least 1-foot below structure rim elevations.

- iii. Illustrate all pipes intersecting storm structures on the storm profiles.

Response: Storm profiles with all intersecting pipes are added.

- iv. Provide a schedule listing the casting type and other relevant information for each proposed storm structure on the utility plan. Round castings shall be provided on all catch basins except curb inlet structures.

Response: All storm structure casting pipe is added to the utility sheet (PS-100).

e. STORM WATER MANAGEMENT PLAN

- i. The Storm Water Management Plan for this development shall be designed in accordance with the Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual.

Response: Storm Water Management Plan in accordance with Storm Water Ordinance and Chapter 5 of the new Engineering Design Manual is added.

- ii. On a sheet or sheets titled "Storm Water Management Plan" (SWMP), provide supporting calculations for the runoff coefficient determination in each drainage area. Include a map showing how the parcel was divided up into individual drainage areas.

Response: Drainage area map with discharge calculations and relevant runoff coefficients is added.

- iii. A runoff coefficient of 0.35 shall be used for all turf grass lawns (mowed lawns) and 0.95 for pavement and roofs.

Response: Above mentioned runoff coefficients are used in runoff calculations.

- iv. Provide a 20-foot wide access easement for maintenance over the pretreatment structure.

Response: Most part of pretreatment unit is in existing 20 foot storm drainage easement. Additional 20 feet storm easement is added for the part of pretreatment unit sticking

out of existing easement. Access to this unit for maintenance purposes will be from existing 30 feet roadway easement.

f. PAVING & GRADING

- i. Detectable warning plates are required at all barrier free ramps, hazardous vehicular crossings and other areas where the sidewalk is flush with the adjacent drive or parking pavement. The barrier-free ramps shall comply with current MDOT specifications for ADA Sidewalk Ramps. Provide the latest version of the MDOT standard detail for detectable surfaces.

Response: MDOT ADA ramp detail is added.

- ii. Provide a note on the Grading Plan stating that the proposed pathway within the road right-of-way shall match existing grades at both ends. Proposed sidewalk should terminate where it provides connectivity to the site, rather than including a stub to the south.

Response: Note added to grading plan (sheet C-300)

- iii. 6-inch curb height must be provided at all drive aisles and 19-foot parking spaces. Revise grading accordingly.

Response: Grading is revised to have 6 inch curb at all drive aisles and 19 for parking spaces.

- iv. The transition from 4-inch to 6-inch curb should occur along the length of 17-foot parking space. Revise notes and grading accordingly.

Response: Curb taper detail is added and referenced it on site plan (sheet C-200).

- v. Provide at least 3-foot of buffer distance between the sidewalk and any fixed objects, including hydrants. Include a note on the plan where the 3-foot separation cannot be provided.

Response: 3 feet separation is maintained between sidewalk and other fixed objects.

- vi. The City standard straight-faced curb (MDOT F-4 curb detail) shall be provided. Revise details accordingly.

Response: City standard curb detail is added.

- vii. Provide a line designation representing the effective 19-foot stall length for 17-foot perimeter stalls.

Response: Line designation representing effective 19 foot stall is added and is referenced with a keynote on site plan (sheet C-200).

- viii. Provide City Standard Paving Details and remove any conflicting information.

Response: City standard paving details are added and all conflicting details are removed.

- ix. The end islands shall conform to the City standard island design, or variations of the standard design, while still conforming to the standards given in Section 2506 of Appendix A of the Zoning ordinance (i.e. 2' minor radius, 15' major radius, minimum 8' wide, 3' shorter than adjacent 19' stall).

Response: A waiver has been requested. See attached.

- x. Revise plans to ensure all end islands are 3 feet shorter than adjacent parking spaces.

Response: See above.

g. SOIL EROSION AND SEDIMENT CONTROL:

- i. A SESC permit is required. A full review has not been completed at this time. The review checklist detailing all SESC requirements is attached to this letter. Please address the comments below and submit a SESC permit application under separate cover. The application can be found on the City's website at <http://cityofnovi.org/Reference/Forms-and-Permits.aspx>.

Response: Noted, SESC permit will be submitted.

h. OFF-SITE EASEMENTS:

- i. Any off-site utility easements anticipated must be executed prior to final approval of the plans. If you have not already done so, drafts of the easements and a recent title search shall be submitted to the Community Development Department as soon as possible for review, and shall be approved by the Engineering Division and the City Attorney prior to executing the easements.

Response: Noted.

i. REVISED FINAL SITE PLAN SUBMITTAL:

- i. A letter from either the applicant or the applicant's engineer must be submitted with the revised Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved. Additionally, a statement must be provided stating that all changes to the plan have been discussed in the applicant's response letter.

Response: Noted.

- ii. An itemized construction cost estimate must be submitted to the Community Development Department for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. The estimate must be itemized for each utility (water, sanitary, storm sewer), on-site paving (square yardage), right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pre-treatment structure and restoration).

Response: Noted, this was provided in the preliminary site plan review package.

j. STAMPING SET SUBMITTAL:

(Please note that all documents must be submitted together as a package with the Stamping Set submittal with a legal review transmittal form that can be found on the City's website. Partial submittals will not be accepted.)

- i. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement (SDFMEA), as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department. Once the agreement is approved by the City's Legal Counsel, this agreement will then be sent to City Council for approval/acceptance. The SDFMEA will then be recorded at the office of the Oakland County Register of Deeds. This document is available on our website.

Response: Noted.

- ii. A draft copy of the 20-foot wide easement for the water main to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.

Response: Noted.

- iii. A draft copy of the 20-foot wide easement for the sanitary sewer and monitoring manhole to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.

Response: Noted.

3. LANDSCAPE REVIEW COMMENTS:

a. LANDSCAPE WAIVERS REQUIRED FOR CURRENT LOCATION:

- i. Insufficient greenbelt width along I-96 frontage. *Supported by staff.*
Response: Noted. Waiver is supported by staff as there is sufficient room in right-of-way separating site and exit ramp. Please see the included list with waiver requests.

- ii. Lack of berm or wall along entire frontage. *Not supported by staff.*
Response: Due to stringent grading conditions, existing utility mains and the monument sign placement, we have omitted the berm or wall from the plan. In place of the berm or well along Novi Road, a sold shrub hedge has been incorporated into the plan along all road frontage. This species chosen for the hedge will reach 4' in height. The building is proposed 1'-4" lower than roadway, which creates a natural berm for the shrub row to sit on top.

The southern side of the site is adjacent to I-96 and existing features already have a berm in place, again placing the site lower 3' lower than the roadway.

At the corner southwest corner of the lot, a windscreen will be placed. This is an 8' tall ornamental fence with evergreen trees between the roadway and fence.

Please see the included list with waiver requests.

- iii. Deficiency in greenbelt plantings (subcanopy trees). *Not supported by staff.*
Response: Waiver not required, requirements satisfied and pending approval by the Mr. Rick Meader.
- iv. Deficiency in perimeter parking lot canopy trees. *Not supported by staff.*
Response: Waiver not required, requirements satisfied and pending approval by the Mr. Rick Meader.
- v. Deficiency in interior parking lot trees. *Not supported by staff.*
Response: Waiver not required, requirements satisfied and pending approval by the Mr. Rick Meader.
- vi. Missing endcap island trees. *Not supported by staff.*
Response: Endcap island trees have been maximized, but due to utility conflicts 3 endcaps islands are unable to be landscaped with trees. These areas is proposed to have shrubs. Overall deficiency of 3 endcap trees. Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.
- vii. Less than 60% of building facing road is landscaped. *Supported by staff.*
Response: Orientation of the proposed building, along with CFA standards to account for customer/employee meal deliveries and interactions along the drive-through do not allow for required 60%. This percentage has been maximized

at 55%. Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

- viii. Most of building foundation landscaping area is not at building.
Supported by staff.

Response: As noted in the comments, the building foundation landscaping is located in the general facility of the landscaping. It should also be noted the provided square footage exceeds the required. Please see the included list with waiver requests.

Ordinance Considerations: All bolded considerations are repeated in the review summary chart and addressed in such order.

a. Landscape Plan Requirements:

- ix. SEALED BY LA.: Need original for Final Site Plan.

Response: Noted, original signatures will be provided.

- x. ZONING: Please show zoning of adjacent parcels on landscape plan.
Response: Adjacent parcel zoning has been added to sheet L-101.

- xi. EXISTING PLANT MATERIAL EXISTING WOODLANDS OR WETLANDS: Meets code, Please identify existing trees south of site as canopy, ornamental or evergreen if species can't be determined. (On Google Maps, it appears to be a mix of evergreens and ornamentals).

Response: Trees have been labeled on sheet L-100.

- xii. EXISTING AND PROPOSED UTILITIES:

1) Please clearly show all existing and proposed utility lines and structures on landscape plan (Sheet L-101) so tree/utility conflicts can be detected and resolved.

2) Please adjust the utility layouts (eastern bay endcaps, east of building endcap) to allow required trees to be planted.

Response: Utilities are shown. 2 endcap trees are unable to be proposed due to utilities inability to be modified. Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

b. Landscaping Requirements: General

- xiii. PARKING LOT ISLANDS:

1. For the central island, calculate the area of the western and southern "lobes" separate from the rest of the island as they are nearly completely separate from the rest of the island so many roots wouldn't be able access the interior. There should be a tree in both of those lobes. They probably have to be increased in width and/or area and to provide the proper spacing from the hydrant in the southern lobe.

Response: Separate lobe SF's have been called out on sheet L-100. Revisions are pending approval by the Mr. Rick Meader.

2. Please increase width and/or area of all islands as necessary to meet requirements by modifying the parking lot layout.

Response: Landscape island widths have been maximized for design on space. Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

3. All endcap islands need to have deciduous canopy trees in them and be 200sf, and 10 feet wide.

Response: Acknowledged. Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

4. Landscape waivers are required for all required area and interior trees that are not provided. *They are not supported by staff.*

Response: Noted. Revisions are pending approval by the Mr. Rick Meader. 10 trees proposed, 12 are required. Utility conflicts are unable to be modified to allow for tree plantings. Please see the included list with waiver requests.

- xiv. PLANTINGS AROUND FIRE HYDRANT: meets code, but:

1. The internal endcap island with the hydrant should have a tree planted in it, at least 10 feet from the hydrant. As noted above, a landscape waiver is required to not provide required endcap trees. *It would not be supported by staff.*

Response: A 10' radii around proposed fire hydrant would locate a proposed tree outside the endcap island. There is already a tree proposed in the next island to the north (as well as a light pole). Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

- c. All Categories

- i. $C = A+B$ TOTAL SQUARE FOOTAGE OF LANDSCAPED ISLANDS:

1. Please label 2 "lobes" of central island with minimal connection to the main island with their area in SF, ending at their necks.

Response: Island lobes have been re-labeled on sheet L-100. Revisions are pending approval by the Mr. Rick Meader.

2. Please provide areas that qualify per minimum (200sf per tree, 10 ft wide) for all trees counting toward the requirement.
Response: Acknowledged. Revisions are pending approval by the Mr. Rick Meader.
 3. A landscape waiver is requested for the site's interior area shortage. *The waiver request is not supported by staff.*
Response: Revisions are pending approval by the Mr. Rick Meader. 10 trees proposed, 12 are required. Utility conflicts are unable to be modified to allow for tree plantings. Please see the included list with waiver requests.
- ii. $D = C/200$ NUMBER OF CANOPY TREES REQUIRED:
1. Please add all required trees in interior islands and endcap islands that meet spatial requirements.
Response: See above.
 2. A landscape waiver is requested for the site's interior trees shortage. *The waiver request is not supported by staff.*
Response: See above.
- iii. PERIMETER GREEN SPACE:
1. All perimeter trees should be canopy trees with a minimum mature height of 30 feet and canopy of 20 feet. Please replace the crabapples along the east side with canopy trees.
Response: Crabapples have been replaced with larger canopy trees, on sheet L-101. Revisions are pending approval by the Mr. Rick Meader.
 2. A landscape waiver is necessary for any required trees that can't be planted. *This waiver is not supported by staff.*
Response: Waiver is not needed, plans have been revised. Revisions are pending approval by the Mr. Rick Meader.
 3. There is no perimeter landscape area requirement so that hatching can be removed.
Response: Acknowledged. Revisions are pending approval by the Mr. Rick Meader.
- d. Berms, Walls and ROW Planting Requirements that don't meet code:
- xv. BERM REQUIREMENTS – Adjacent to the Public ROW:
 1. A landscape waiver is requested to not provide the required berm or wall. The justification for not providing the berm is that there is not sufficient room for it.
Response: See response below.

2. Please provide justification for why the wall cannot be provided. In the letter it states that the berm and wall can't be provided due to existing utility mains and grading conditions. It is not clear that these prevent the installation of the wall. Please further demonstrate that the wall can't be built. *At this time, the waiver request is not supported by staff.*

Response: Due to stringent grading conditions, existing utility mains and the monument sign placement, we have omitted the berm or wall from the plan. In place of the berm or well along Novi Road, a sold shrub hedge has been incorporated into the plan along all road frontage. This species chosen for the hedge will reach 4' in height. The building is proposed 1'-4" lower than roadway, which creates a natural berm for the shrub row to sit on top.

The southern side of the site is adjacent to I-96 and existing features already have a berm in place, again placing the site lower 3' lower than the roadway.

At the corner southwest corner of the lot, a windscreen will be placed. This is an 8' tall ornamental fence with evergreen trees between the roadway and fence.

Revisions are pending approval by the Mr. Rick Meader. Please see the included list with waiver requests.

3. If only a hedge is proposed, it must provide 80% opacity in the winter and 90% opacity in the summer.

Response: Hedge has been revised to include more evergreen species, which increases opacity. Revisions are pending approval by the Mr. Rick Meader.

xvi. GREENBELT WIDTH: I-96 does not meet code:

1. A landscape waiver is required for the lack of greenbelt depth facing I-96. This waiver request is supported by staff as there is a lot of room in the right-of-way before the I-96 exit ramp. It does leave much less room for the required greenbelt landscaping, however.

Response: Waiver is supported by staff as there is sufficient room in right-of-way separating site and exit ramp. Please see the included list with waiver requests.

xvii. MIN. BERM CREST WIDTH: A landscape waiver is requested for the lack of berm. As a wall is also not proposed, this waiver request is not supported by staff.

Response: See response above regarding berm/wall.

- xviii. CANOPY DECIDUOUS OR LARGE EVERGREEN TREES NOTES:
1. It appears that there is an access easement for Novi Road that extends into the property, occupying most of the greenbelt.
Response: Acknowledged.
 2. Please contact the Road Commission for Oakland County for a decision by them on whether the required greenbelt plantings can be planted as proposed.
Response: Acknowledged. Submission has been made to the Oakland County Road Commission without a response to date.
 3. If they can't, please provide a copy of their letter or email with that decision.
Response: Acknowledged.
 4. If the required plantings can't be planted per the RCOC, a landscape waiver will be required but it would be supported by staff.
Response: Acknowledged.
- xix. SUB-CANOPY DECIDUOUS TREES NOTES:
1. Please provide all of the required trees.
Response: Subcanopy trees have been added to plan, see sheet L-101. Revisions are pending approval by the Mr. Rick Meader.
 2. A landscape waiver is necessary if all required trees are not provided. *It would not be supported by staff.*
Response: See above.
- xx. CANOPY DECIDUOUS TREES IN AREA BETWEEN SIDEWALK AND CURB: Meets code, but If the Road Commission for Oakland County does not allow some or all of the street trees they do not have to be planted but a copy of the RCOC decision must be provided to the city.
Response: Acknowledged.
- e. Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d that don't meet code:
- xxi. TRANSFORMERS/UTILITY BOXES: Please screen the box per the city standard detail.
Response: Proposed transformer has been screened with site constraints. Revisions are pending approval by the Mr. Rick Meader.

- f. Building Foundation Landscape Requirements (Sec 5.5.3.D) that don't meet code:
- xxii. INTERIOR SITE LANDSCAPING SF: does and does not meet code landscape waiver is required for the area not provided at the building. *As the extra landscaping adds extra appeal to the site, this waiver is supported by staff.*
Response: Waiver is not needed, plans have been revised. Revisions are pending approval by the Mr. Rick Meader.
 - xxiii. ZONING SEC 5.5.3.D.II. ALL ITEMS FROM (B) TO (E): A landscape waiver is required for deficiency in coverage. *As the hedge (or wall) along the drive-thru will also shield the foundation from the roads, this waiver is supported by staff.*
Response: Noted, see previous responses.
- g. Detention/Retention Basin Requirements that don't meet code:
- xxiv. PLANTING REQUIREMENTS: If any above-ground detention basin is required it needs to be landscaped per the ordinance.
Response: Acknowledged.
- h. Landscaping Notes, Details and General Requirements that don't meet code
- xxv. INSTALLATION DATE: Please add note
Response: Plans have been revised. Revisions are pending approval by the Mr. Rick Meader.
 - xxvi. MAINTENANCE & STATEMENT OF INTENT: Please add note regarding cultivation
Response: Note for 2 year warranty has been revised on sheet L-103. Revisions are pending approval by the Mr. Rick Meader.
 - xxvii. PLANT SOURCE: Please add note
Response: Note is on sheet L-103. Revisions are pending approval by the Mr. Rick Meader.
 - xxviii. IRRIGATION PLAN:
 - 1. Please add irrigation plan or information as to how plants will be watered sufficiently for establishment and long-term survival.
Response: Irrigation plan provided, see sheet L-200.
 - 2. If xeriscaping is used, please provide information about plantings included.
Response: Acknowledged.
 - xxix. APPROVAL OF SUBSTITUTIONS: Please add note
Response: Note is on sheet L-101 and L-200.

- i. Plant List (include all cost estimates) that don't meet code:
- xxx. BOTANICAL AND COMMON NAMES: Meets code, but:
 - 1. Currently, 7 of 19 species used (37%) are native to Michigan. Please increase that number to at least 50% of the species used. (www.michiganflora.net is good source to determine if a tree is native to Michigan).
Response: Tree species have been updated, 50% are native to Michigan. See sheet L-101. Revisions are pending approval by the Mr. Rick Meader.
 - 2. Please replace the Bowhall Maple with a tree that has a minimum mature height of at least 30 feet and mature width of at least 20 feet.
Response: Bowhall has been replaced, see sheet L-101. Revisions are pending approval by the Mr. Rick Meader.
 - 3. Please be sure all species used are hardy in our growth zone, and are salt tolerant where necessary.
Response: All species have been obtained from the City of Novi Landscape Design Manual. Revisions are pending approval by the Mr. Rick Meader.
 - xxxii. COST ESTIMATE: Please use \$15 ea. as standard cost per perennial and \$6/sy as standard cost for sod.
Response: Acknowledged.
- j. Planting Details that don't meet code:
- xxxii. TREE PROTECTION FENCING: Meets code, but Please revise detail and notes to indicate fence should be at 12" beyond dripline.
Response: Tree protection fencing has been removed from plan due to no longer keeping any existing trees within the property. Revisions are pending approval by the Mr. Rick Meader.
- k. Other Plan Material Requirements that don't meet code:
- xxxiii. GENERAL CONDITIONS: Meets code, but please add note near property lines stating this (Plant materials shall not be planted within 4' of property line.).
Response: Note has been added to sheet L-101. Revisions are pending approval by the Mr. Rick Meader.

4. **AECOM PRELIMINARY AND FINAL SITE PLAN COMMENTS:**

Preliminary and final site plan: AECOM recommends preliminary plan approval and final plan denial for the applicant to move forward.

- a. The proposed loading zone does not meet the minimum required for RC zoned areas, which is 10 SFT for each front foot of building. (refer to Section 5.4.2 of the City's Zoning Ordinance.

Response: The loading zone is sized to meet the day time deliveries and maximize landscape area. Any deliveries larger vehicles will be during non-peak hours. Please see the included list with waiver requests.

- b. The applicant has included dimensions for the radii and should also include the width of the proposed end islands throughout the site to review accessibility and compliance with City requirements as stated in Section 5.3.12 of the Zoning Ordinance.

1. Note that all end islands adjacent to a travel way shall be constructed three (3) feet shorter than the adjacent parking space.
2. The end island outside radii is required to be a minimum of 15'.
3. If the standards cannot be met, a waiver will be required from the City.

Response: Due to the overall shape of the site and alignment of the drive aisle, the islands further south cannot accommodate the standard design detail. Refer to truck turning templates for accessibility and maneuverability. Please see the included list with waiver requests.

- c. The applicant is proposing drive-through lanes on the west side of the site. The stacking spaces are in compliance with Section 5.3.11.i of the City's Zoning Ordinance.

- i. Per section 5.3.11.D of the City's Zoning Ordinance, drive-through facilities shall provide one bypass lane that shall be a minimum of 18' wide. The area where the two lanes of vehicles reduces to one lane does not appear to meet this requirement. The applicant should add dimensions to the plans to indicate the 18' width.

Response: The area in question was considered a pinch point for the Fire Marshal. However, through conversations, the fire apparatus can enter the exit of drive-thru lanes and fully access the portion the building located at the pinch point. Additionally, the drive-thru lane widened to 18 feet clear between meal delivery canopy and curb to allow fire truck access. Clear space was approved by the Fire Marshal. Please see the included list with waiver requests.

- d. The applicant has indicated the number of spaces and location of the bicycle parking.
 - i. The applicant should include the layout of the bicycle parking to ensure compliance with Figure 5.16.6 of the City's Zoning Ordinance.
 - ii. Note that a 6' accessible route is required from the adjacent street to the bicycle parking facilities. The proposed sidewalk in front of the bicycle rack is 5'.
 - iii. Note that the bike rack detail shown on sheet C-500 indicates a 35" height which does not match the 36" requirements per Section 5.16.5.B of the City's Zoning Ordinance.

Response: The bike parking has been revised to comply with the City's Ordinance. The sidewalk has been revised to meet the 6' ADA accessible route. The detail has been revised to meet the requirements.

****The signing and striping discussion items will be addressed in the revised plans.***

5. **TRAFFIC IMPACT STUDY (TIS): AECOM RECOMMENDS APPROVAL**

- a. The applicant should address the inconsistent number of trips for the PM Peak hour.

Response: Based on what we have found to be best practices for preparing traffic impact studies, GPD typically rounds up the total peak hour trip generation number in order to provide a conservative, worst-case assessment of the potential impact of the project. Based on the average rate of 32.67 trips per 1,000 square feet of gross floor area, the PM peak hour trip generation calculation comes out to 163.1 which was then rounded up to 164 for this study. As the City's consultant has already acknowledged that the impacts of the development are not anticipated to degrade the levels of service based on the analysis using the higher PM trip number, revising the study and analysis to subtract a single vehicle trip will have no bearing on the findings and recommendations whatsoever and is therefore unnecessary in this instance.

6. **PARKING AND QUEUEING STUDY: AECOM RECOMMENDS APPROVAL**

- a. 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.

Response: Chick-Fil-A feels based on their projections the drive-through stack will be sufficient for their needs. However, if the drive-through does exceed the proposed, the City Staff have suggested making some of these stalls employee parking. This row of parking stalls has been adjusted to be perpendicular spaces and seven of them are signed as "Employee Parking."

- b. 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.

Response: Noted, see above.

- c. 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 & Décor store parking lot. We recommend that the applicant pursue a shared parking agreement with this facility to alleviate issues with potential parking needs.

Response: Prior to receiving staff comments, Chick-Fil-A realized the statistics of the parking lot. Knowing at peak times it could be full, Chick-Fil-A reached out to the La-Z-Boy property owner to request cross parking and was denied.

To be sure the parking would be sufficient, the local sites were studied for the volume of vehicles on and off peak times. Based on the performance of the similar locations, the proposed parking will be sufficient. Based on the feedback of the meeting on 3/13 and these comments, the site plan has been evaluated for ways to maximize parking. The angled parking along the north side of the property are now perpendicular to Twelve Oaks Mall Road, and gained 3 additional spaces, bringing to total count up to 68. This number exceeds the average of all three sites evaluated at the 95th percentile (66 parking stalls) and average (56 parking stalls).

If requested, further supporting information can be provided presenting additional Chick-Fil-A locations in the area are similar in building size and available parking stalls.

Please see the included list with waiver requests.

7. **DRN & ARCHITECTS COMMENTS:**

A sample board should be provided prior to the Planning Commission meeting. (5.15.4.D)

Response: The sample board will be provided.

1. It should be noted that all roof top equipment must be concealed from view from all vantage points (on-site and off-site) using extended parapets or roof screens constructed of materials in compliance with the Façade Ordinance.

Response: Noted, the proposed elevations properly screen the roof top equipment.

2. It should be noted that all proposed signs are not regulated by the Façade Ordinance and must comply with the City's Sign Ordinance.

Response: Signage will be reviewed to be in compliance.

3. It is the applicant's responsibility to request the inspection of each façade material at the appropriate time.

Response: Noted, this information has been shared with the Construction Manager.

8. **CITY OF NOVI FIRE DEPARTMENT COMMENTS**

Approved with conditions

- a. All fire hydrants MUST be installed and operational prior to any building construction begins.

Response: Noted, this information has been shared with the Construction Manager.

- b. CORRECTED 2/13/19 KSP- MUST add a fire hydrant to the site plan. Distance is greater than 300' from fire hydrant to fire hydrant. (City of Novi Ordinance 11-68(F)(1)(c).

Response: No comment needed.

- c. CORRECTED 2/13/19 KSP-MUST provide additional access (fire lane access) around the building on the south east side of the structure. (IFC 503.1.1(2) IFC 503.1.1(3)).

Response: No comment needed.

- d. All water-main sizes MUST be put on the plans for review.

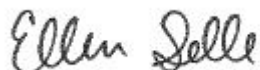
Response: The utility plan has been updated.

- e. On plan #L-100, FDC location MUST be free of landscaping obstructions for 3' in all directions. Landscape prints) show obstructions at FDC location.

Response: The landscape plan has been updated.

GPD feels that each comment has been addressed to meet your requirements. If you require any additional information or have any questions, please contact me at 216-927-8650 or email at eselle@gpdgroup.com.

Sincerely,



Ellen Selle
Project Coordinator
GPD Group

List of Deviations Requests based on March 6, 2019 Planning Review Letter

Deviation	Code	Staff Comment	Applicant Response
1 Fast food drive-through	Free Standing independent restaurants cannot be within 1,000'	The existing use is also restaurant.	Existing use is a restaurant that is located 220 feet from nearest building corner to Red Lobster nearest building corner. Proposed restaurant use is located 295 feet from nearest building corner to Red Lobster nearest building corner
2 Bypass lane for drive-through (Traffic & XX	Drive-through facilities to provide 1 bypass lane, 18', unless otherwise determined by Fire Marshal	Partial bypass provided. Where the two lanes of vehicles reduces to one lane does not appear to meet this requirement	The side of the drive-through, where two lanes reduce to one, was considered a pinch point for the Fire Marshal. However, through conversations, the fire apparatus can enter the exit of drive-thru lanes and fully access the portion the building located at the pinch point. Additionally, the drive-thru lane widened to 18 feet clear between meal delivery canopy and curb to allow fire truck access. Clear space was approved by the Fire Marshal.
3 Building setback - Exterior Side Yard at I-96 (southwest)	50' required	32' provided	A large area of green space existing at the corner of the site at the intersection of I-96 and Novi Road. This area pinches down the site and makes the building placement difficult to accommodate an isolated drive-through from the parking lot.
4 Parking Setbacks			In order to provide a well parked, well circulated and well positioned building CFA must maximize the buildable area on the site while focusing on an isolated drive-through positioning such that dine in customers do not need to cross drive-through traffic to get into the building. The parking along the rear of the site was able to provide a larger setback than initially submitted based on plan revisions including reduction in drive aisles and accommodating car overhangs. The setbacks along the frontage and exterior side yards generally meet the existing site setbacks but are slightly improved from existing conditions. Adhering strictly to the code would also severely limit the number of proposed parking spaces provided when drive-through stacking is also taken into account
Exterior side yard at 12 Oaks Mall Road (north)	20' required	14.5' provided	
(southwest)	20' required	9.3' provided, drive thru lanes are in minimum parking setback	
Exterior side yard at I-96 (south)	20' required	12.1' provided, Dumpster is within parking setbacks	
Rear (east)	10' required	6' provided	
5 Number of Parking Spaces (Zoning & Traffic)	100 required	65 provided Based on parking study provided, it appears that a shared parking agreement with Lazyboy parking lot is warranted.	Prior to receiving staff comments, Chick-Fil-A realized the statistics of the parking lot. Knowing at peak times it could be full, Chick-Fil-A reached out to the La-Z-Boy property owner to request cross parking and was denied. To be sure the parking would be sufficient, the local sites were studied for the volume of vehicles on and off peak times. Based on the performance of the similar locations, the proposed parking will be sufficient. Based on the feedback of the meeting on 3/13 and these comments, the site plan has been evaluated for ways to maximize parking. The angled parking along the north side of the property are now perpendicular to Twelve Oaks Mall Road, and gained 3 additional spaces, bringing to total count up to 68. This number exceeds the average of all three sites evaluated at the 95th percentile (66 parking stalls) and average (56 parking stalls). Further supporting information can be provided presenting additional Chick-Fil-A locations in the area are similar in building size and available parking stalls.
6 Loading Spaces	2,110 SF provided	360 SF provided	The loading zone is sized to meet the day time deliveries and maximize landscape area. Any deliveries larger vehicles will be during non-peak hours.
7 Dumpster	Dumpster cannot be located in parking setback	Proposed Located within parking setback. Staff can support provided dumpster pickup times does not conflict with peak hour traffic.	Correct. Trash pick up will not occur during peak hours.
8 Berm/Screen wall	Code requires wall for drive-through	Applicant should provide more information	Due to stringent grading conditions, existing utility mains and the monument sign placement, we have omitted the berm or wall from the plan. In place of the berm or well along Novi Road, a sold shrub hedge has been incorporated into the plan along all road frontage. This species chosen for the hedge will reach 4' in height. The building is proposed 1'-4" lower than roadway, which creates a natural berm for the shrub row to sit on top. The southern side of the side is adjacent to I-96 and existing features already have a berm in place, again placing the site lower 3' lower than the roadway. At the corner southwest corner of the lot, a windscreen will be placed. This is an 8' tall ornamental fence with evergreen trees between the roadway and fence.
9 Insufficient green belt width along I-96 frontage	Code requires 25'	Provided between 8-24 feet.	Waiver is supported by staff as there is sufficient room in right-of-way separating site and exit ramp.
10 Missing endcap island trees	1 tree per endcap	4 endcap areas were noted as deficient.	Endcap island trees have been maximized, but due to utility conflicts 3 endcaps islands are unable to be landscaped with trees. These areas is proposed to have shrubs. Overall deficiency of 3 endcap trees.

List of Deviations Requests based on March 6, 2019 Planning Review Letter

	Deviation	Code	Staff Comment	Applicant Response
11	Less than 60% of building facing road is landscaped	60% required	55% proposed	Orientation of the proposed building, along with CFA standards to account for customer/employee meal deliveries and interactions along the drive-through do not allow for required 60%. This percentage has been maximized at 55%
12	Building Foundation Landscape	2,240 SF of landscaping required at building foundation	2,389 SF provided, but only 37% is located at the building	As noted in the comments, the building foundation landscaping is located in the general facility of the landscaping. It should also be noted the provided square footage exceeds the required.
13	Parking End Islands (Traffic)	All endcap islands adjacent to travel way shall be constructed 3' short than adjacent parking space. Radii is required to be 15'	See plan.	Due to the overall shape of the site and alignment of the drive aisle, the islands further south cannot accommodate the standard design detail. Refer to truck turning templates for accessibility and maneuverability.

Waivers not required

A	Greenbelt plantings - Subcanopy Trees	Zoning Sections: 5.5.3.B.ii and iii	Add subcanopy trees to plans by creating more depth in landscaping row at Novi Road	Waiver not required, requirements satisfied.
B	Interior Parking Lot Landscaping	2,355 SF of Island area and 12 trees are required	1,954 SF and 9 trees are provided	Waiver not required, requirements satisfied.
C	Parking Lot Perimeter Canopy Trees	24 deciduous trees are required	13 canopy and 6 subcanopy trees are provided	Waiver not required, requirements satisfied.

Twelve Mile Road

Novi Road

Novi Mall

Chick-Fil-A

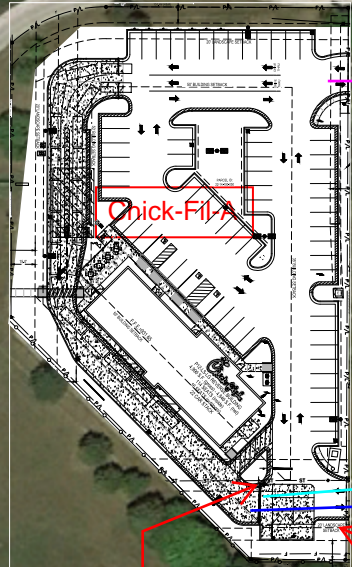
I-96



This Circulation Plan is based on the first possible exits to Twelve Mile Road and Novi Road.

Novi Road

Novi Mall



I-96
Exit Ramp

This Circulation Plan is based on the first possible exits to Twelve Mile Road and Novi Road.