EVERBROOK/LEARNING CARE ACADEMY
JSP15-57

Everbrook/Learning Care Academy JSP15-57
Public hearing at the request of ICAP Development for approval of the Special Land Use Permit, Preliminary Site Plan, and Stormwater Management Plan. The subject property is located west of Beck Road and north of Eleven Mile Road in Section 17 on 4.15 acres. The applicant is proposing to construct a daycare facility in an 11,844 square foot free-standing building to serve 138 children and 22 staff members with site improvements including parking, storm water, landscape, and recreation area for kids. A daycare facility is considered a Special Land Use under PSLR overlay. A Traffic Impact Study has been submitted and reviewed by the City's Traffic Engineering consultant.

Required Action
Approve/deny the Special Land Use Permit, Preliminary Site Plan, and Stormwater Management Plan.

REVIEW	RESULT	DATE	COMMENTS
Planning	Approval recommended	4-29-16	• Items to be addressed by the applicant prior to Final Site Plan approval
Engineering	Approval recommended	4-18-16	• Items to be addressed by the applicant prior to Final Site Plan approval
Landscaping	Approval recommended	4-19-16	• Items to be addressed by the applicant prior to Final Site Plan approval
Traffic	Approval recommended	4-28-16	• **Applicant to extend deceleration lane on Beck Road to meet City Standards or seek approval of a DCS variance from City Council.** • Items to be addressed by the applicant prior to Final Site Plan approval
Wetland	No review required	N/A	
Woodland	No review required	N/A	
Façade	Approval recommended	4-6-16	• Full compliance, no waiver required
Fire	Approval recommended	4-6-16	• All items have been addressed

MOTION SHEET

Approval – Special Land Use Permit

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **approve** the Special Land Use Permit based on and subject to the following:

a. The proposed use will not cause any detrimental impact on existing thoroughfares *(as indicated by the Traffic Impact Study and as a result of the recommendations of that study);*
b. The proposed use will not cause any detrimental impact on the capabilities of public services and facilities*;*
c. The proposed use is compatible with the natural features and characteristics of the land *(because the plan will not impact any existing natural features);*
d. The proposed use is compatible with adjacent uses of land *(because the proposed use conforms to the PSLR agreement and all standards for a day care center)*;
e. The proposed use is consistent with the goals, objectives, and recommendations of the City's Master Plan for Land Use*;*
f. The proposed use will promote the use of land in a socially and economically desirable manner;
g. 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; and
h. *(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 –

Approval – Preliminary Site Plan

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **approve** the Preliminary Site Plan based on and subject to the following:

a. Applicant shall extend the proposed Beck Road deceleration lane to meet City Standards, or seek City Council approval of a Design and Construction Standards variance;
b. The findings of compliance with Ordinance standards in the staff and consultant review letters and the conditions and the items listed in those letters being addressed on the Final Site Plan; and
c. *(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 –

Approval – Stormwater Management Plan

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **approve** the Stormwater 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 the plan is otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)

– OR –

Denial – Special Land Use Permit

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **deny** the Special Land Use Permit...*(because the plan is not in compliance with Article 4, Article 5, and Article 6 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Preliminary Site Plan

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **deny** the Preliminary Site Plan...*(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 –

Denial – Stormwater Management Plan

In the matter of Everbrook/Learning Care Academy, JSP15-57, motion to **deny** the Stormwater 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

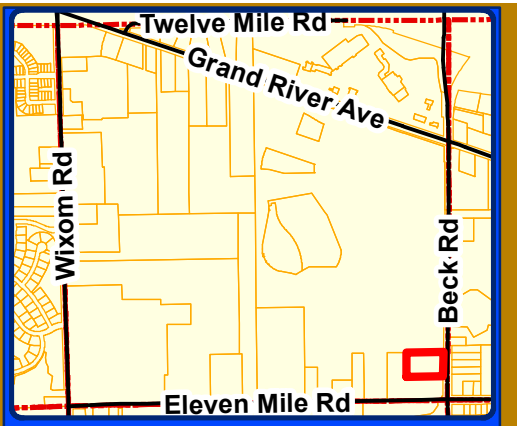
Zoning

Future Land Use

Natural Features

JSP 15-57 Learning Care Academy

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: 10/29/15
Project:JSP 15-57 Learning Care Academy
Version #: 1

Feet
0 20 40 80 120

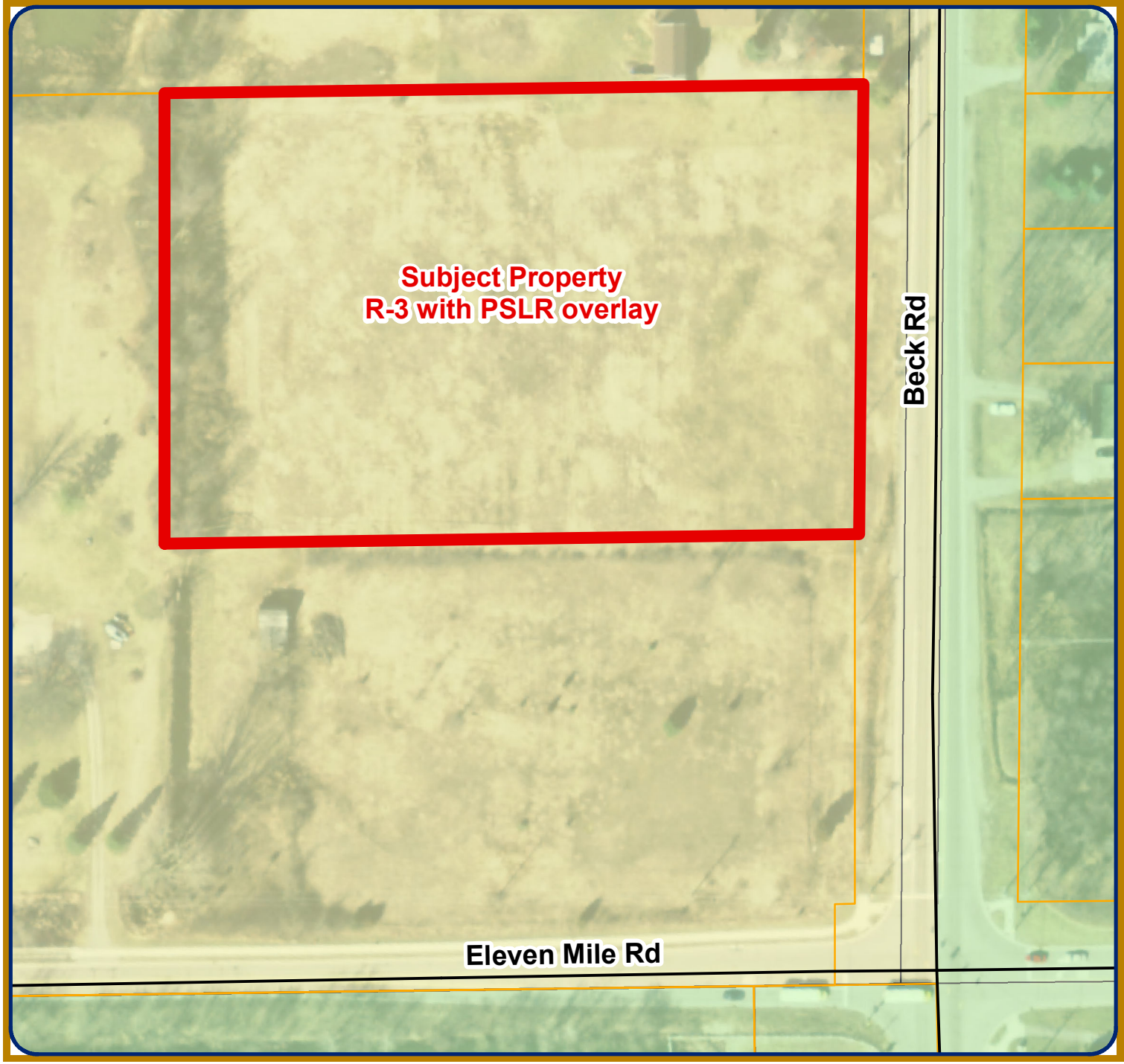
1 inch = 106 feet

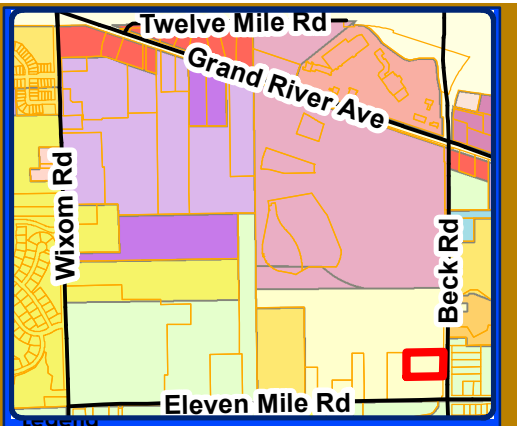
MAP INTERPRETATION NOTICE

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

JSP 15-57 Learning Care Academy

Zoning





Legend

- R-A: Residential Acreage
- R-1: One-Family Residential District
- R-3: One-Family Residential District
- R-4: One-Family Residential District
- RM-1: Low-Density Multiple Family
- RM-2: High-Density Multiple Family
- B-1: Local Business District
- B-2: Community Business District
- B-3: General Business District
- FS: Freeway Service District
- I-1: Light Industrial District
- I-2: General Industrial District
- OS-1: Office Service District
- OSC: Office Service Commercial
- OST: Office Service Technology

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cityofnovi.org

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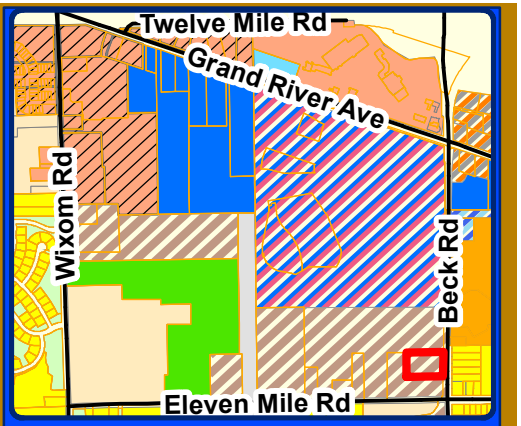
MAP INTERPRETATION NOTICE

JSP 15-57 Learning Care Academy

Future Land Use



- SINGLE FAMILY
- MULTIPLE FAMILY
- SUBURBAN LOW-RISE
- COMMUNITY OFFICE
- OFFICE RES DEV TECH
- OFFICE COMMERCIAL
- OFFICE RD TECH w/RETAIL OVERLAY
- LOCAL COMMERCIAL
- COMMUNITY COMMERCIAL
- EDUCATIONAL FACILITY
- PUBLIC
- PUBLIC PARK
- PRIVATE PARK
- UTILITY

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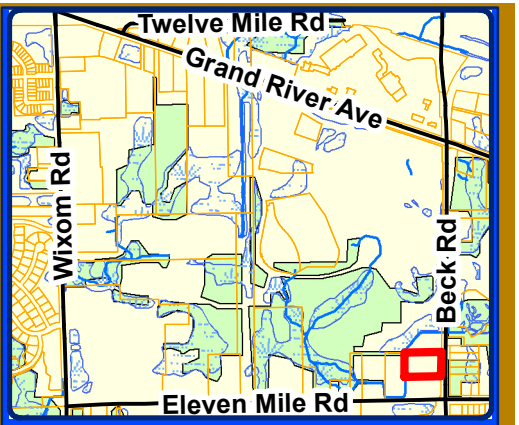
MAP INTERPRETATION NOTICE

JSP 15-57 Learning Care Academy

Natural Features



Legend

- Wetlands
- Woodlands

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1 inch = 106 feet

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SITE PLAN
(Full plan set available for viewing at the Community Development Department)

GreenbergFarrow
21 S. Evergreen Ave. Suite 200
Arlington Heights, Illinois 60005
t: 847 788 9200 f: 847 788 9536

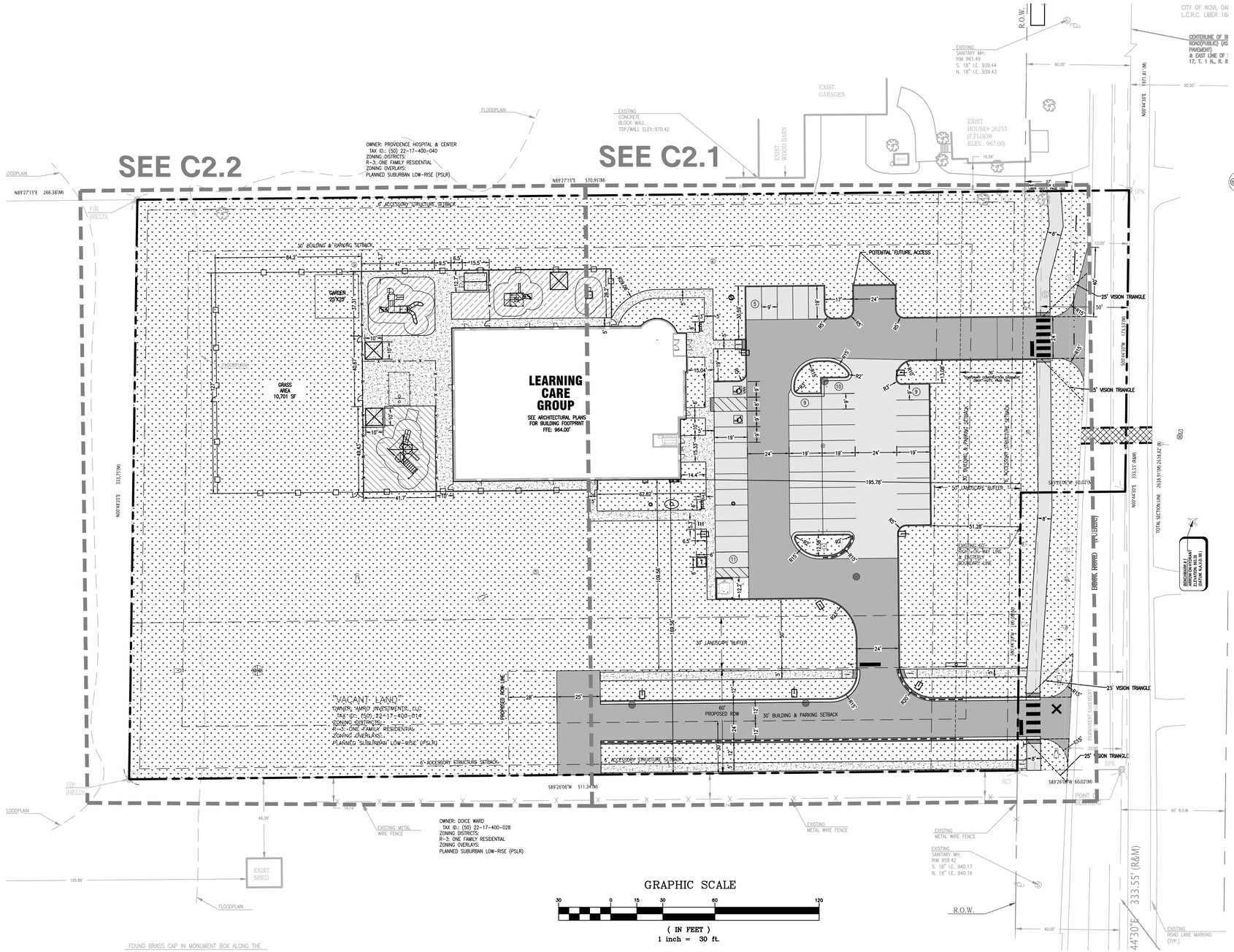
ICAP DEVELOPMENT

Learning Care group

LEARNING CARE GROUP
NOVI, MI
EVERBROOK ACADEMY
20150407.0

PERSPECTIVE
SCALE: AS NOTED

APRIL 12, 2016



GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

GENERAL SITE NOTES:

1. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE AND ADEQUATE WORKING CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SITE SETBACKS, EASEMENTS AND DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST STATE AND LOCAL GOVERNMENT CONSTRUCTION STANDARDS AND SPECIFICATIONS.
5. ALL HANDICAP ACCESSIBLE SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND REQUIREMENTS.
6. IF DURING THE COURSE OF CONSTRUCTION THE CONTRACTOR FINDS ANY DISCREPANCIES OR CONFLICTS BETWEEN THE PROPOSED SITE IMPROVEMENTS INDICATED ON THE PLANS AND THE PHYSICAL CONDITIONS OF THE SITE, OR ANY ERRORS OR OMISSIONS WITHIN THE PLANS OR IN THE SITE LAYOUT AS PROVIDED BY THE ENGINEER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY THE ENGINEER. UNTIL AUTHORIZED TO PROCEED, ANY WORK PERFORMED BY THE CONTRACTOR AFTER SUCH A DISCOVERY WILL BE AT THE CONTRACTOR'S SOLE RISK AND EXPENSE.
7. CONTRACTOR SHALL COORDINATE ALL SITE IMPROVEMENTS WITH ARCHITECTURAL PLANS. ARCHITECTURAL PLANS SHALL BE USED FOR BUILDING STAKEOUT.
8. CONTRACTOR SHALL COORDINATE ALL LANDSCAPE IMPROVEMENTS, INCLUDING NEW PLANTINGS AND TURF AREA RESTORATION REQUIREMENTS, WITH LANDSCAPE PLANS.
9. CONSTRUCTION SURVEY AND STAKEOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL DIMENSIONS SHOWN ARE MEASURED FROM FACE OF CURB TO FACE OF CURB OR EDGE OF PAVEMENT TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
11. ALL CURB RADII ARE MEASURED AT THE FACE OF CURB UNLESS OTHERWISE NOTED.
12. ALL NEW ASPHALT AND/OR CONCRETE PAVING SHALL MATCH EXISTING PAVEMENTS FLUSH.
13. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS OUTSIDE OF CONSTRUCTION LIMITS TO ORIGINAL CONDITION OR BETTER.
14. CONTRACTOR SHALL REPAIR AT HIS EXPENSE ANY DAMAGE TO EXISTING ASPHALT, CONCRETE, CURBS, SIDEWALKS, ETC. RESULTING FROM CONSTRUCTION TRAFFIC AND/OR OPERATIONS. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER AND/OR ENGINEER.
15. ALL FIRE ACCESS LANES WITHIN THE PROJECT AREA SHALL REMAIN IN SERVICE, CLEAN OF DEBRIS, AND ACCESSIBLE FOR USE BY EMERGENCY VEHICLES.
16. ALL DETECTABLE WARNING PLATES SHALL BE PREFORMED PLASTIC INSERTS UNLESS OTHERWISE NOTED.
17. SEE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT INFORMATION:

SITE AREA:	±4.15 ACRES
ZONED:	N/A
PROPOSED BUILDING AREA:	11,844 SQ. FT. (138 CHILDREN AND 22 STAFF)
PROPOSED USE:	DAY CARE
BUILDING HEIGHT:	24'-0"
PARKING REQUIRED:	43 STALLS (7,540 SQ. FT. USABLE BUILDING SPACE) (1 STALL PER 350 SQ. FT. AND 1 STALL PER EMPLOYEE)
PARKING PROVIDED:	44 STALLS (INCLUDING 2 ADA STALLS)
PLAY SPACE REQUIRED:	20,700 SQ. FT. (150 SQ. FT. PER CHILD)
PLAY SPACE PROVIDED:	20,728 SQ. FT.

PROPOSED LEGEND:

- PROPERTY LINE
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED REVERSE PITCH CURB AND GUTTER
- PROPOSED DEPRESSED CURB AND GUTTER
- PROPOSED CONCRETE BARRIER CURB
- PROPOSED PARKING STALL COUNT
- PROPOSED SIGN
- PROPOSED SIGN
- PROPOSED LIGHT POLE
- PROPOSED STORM SEWER STRUCTURES
- PROPOSED SANITARY SEWER STRUCTURES
- PROPOSED SANITARY SEWER GREASE INTERCEPTOR
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
- PROPOSED TAPPING SLEEVE AND VALVE
- PROPOSED GATE VALVE AND VALVE BOX
- PROPOSED WATER SERVICE TAP
- PROPOSED TRANSFORMER PAD AND STEEL BOLLARDS
- PROPOSED GAS METER
- PROPOSED ELECTRIC METER, CT CABINET AND DISCONNECT
- PROPOSED 6' SEMI-PRIVATE VINYL FENCE
- PROPOSED 4' VINYL COATED CHAIN LINK FENCE

NOTE: SEE SHEET C1.0 FOR EXISTING LEGEND

PAVEMENT HATCH LEGEND:

- PROPOSED CONCRETE SIDEWALK
  4" PORTLAND CEMENT CONCRETE
  4" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED EASY TURF WITH SINGLE PAD
  2 -1/8" PLAYGROUND SHOCK PAD
  3" AGGREGATE BASE
  NATURAL SOIL SURFACE
- PROPOSED EASY TURF
  3" AGGREGATE BASE TOPPED WITH 1" OF FINES AND COMPACTED TO 90%
  NATURAL SOIL SURFACE
- PROPOSED HEAVY DUTY CONCRETE
  6" PORTLAND CEMENT CONCRETE
  MDOT 22A 8" GRANULAR BASE
  6" OF COMPACTED SUBGRADE
- PROPOSED ASPHALT PAVEMENT
  1 1/2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  1 1/2" MDOT NO. 1100L, 20A BITUMINOUS LEVELING COURSE
  10" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED HEAVY DUTY ASPHALT PAVEMENT
  2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  2 1/2" MDOT NO. 1100L, 20A BITUMINOUS LEVELING COURSE
  10" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED DETECTABLE WARNING PLATE
- PROPOSED LANDSCAPE AREA
- EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED

GreenbergFarrow
COA#:
1430 W. Peachtree St. NW
Suite 200
Atlanta, GA 30309
t: 404 601 4000 f: 404 601 3970

PROJECT TEAM

ISSUE/REVISION RECORD

DATE	DESCRIPTION
09/25/15	CLIENT REVIEW
09/30/15	PERMIT SUBMITTAL
10/22/15	SITE PLAN SUBMITTAL
12/07/15	BID SET
02/19/16	SITE PLAN REVISION
02/26/16	SITE REVISIONS
03/14/16	PLAY AREA REVISIONS
03-29-16	CITY SUBMITTAL

PROFESSIONAL IN CHARGE
JOHN NOURZAD
PROFESSIONAL ENGINEER
LICENSE NO. 15701

PROJECT MANAGER
BRIAN OLESEN

QUALITY CONTROL
LARRY DIEHL

DRAWN BY
MITCH HEFFERNAN

PROJECT NAME

LEARNING CARE GROUP

NOVI MICHIGAN

NWQ W. 11 MILE ROAD & BECK ROAD

Learning Care group

ICAP DEVELOPMENT

PROJECT NUMBER
20150407.0

SHEET TITLE

OVERALL SITE PLAN

SHEET NUMBER

C2.0

PLANNING REVIEW

PLAN REVIEW CENTER REPORT

April 29, 2016

Planning Review

Everbrook/Learning Care Academy

JSP15-57

Petitioner

ICAP Development

Review Type

Preliminary Site Plan

Property Characteristics

- Site Location: West of Beck Road and north of Eleven Mile Road (Section 117)
- Site Zoning: R-3 (One-Family Residential) with PSLR (Planned Suburban Low-Rise) Overlay
- Adjoining Zoning: West, North and South: R-3; East: RA-Residential Acreage;
- Adjoining Uses: North: Single family residential; Other sides: vacant
- School District: Novi School District
- Site Size: 4.15 acres
- Plan Date: 03.29.16

Project Summary

The subject property is currently vacant and measures 4.15 acres. The applicant is proposing to construct a daycare facility in an 11,844 square foot free-standing building to serve 138 children and 22 staff members with site improvements including parking, storm water, landscape, and recreation area for kids. A daycare facility is considered a Special Land Use under PSLR overlay. A Traffic Impact Study has been submitted and reviewed by the City's Traffic Engineering consultant.

Recommendation

Approval of the ***Preliminary Site Plan is recommended*** with changes addressed on the Final Site Plan submittal.

Project History

The Planning Commission held a public hearing on November 4, 2015 recommending the approval of the Planned Suburban Low-Rise (PSLR) Overlay Development Agreement and Concept Plan to the City Council.

The City Council on November 23, 2015 tentatively approved the PSLR Overlay Development Agreement and Concept Plan. The City Council on April 18, 2016 approved the PSLR Overlay Development Agreement and revised Concept Plan.

Special Land Use Considerations

A special land use requires a public hearing and approval from the Planning Commission of the special land use, preliminary site plan, and stormwater management plan. **Section 6.1.2.C of the Zoning Ordinance outlines specific factors the Planning Commission shall consider in the review of any Special Land Use:**

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. Items in **bold** below must be addressed by the applicant prior to Preliminary Site Plan approval.

1. Building, Parking and Accessory Setbacks (Sec. 3.1.23.D): The site plan indicates the setbacks measured from the existing property line. **The setbacks are required to be measured from the proposed Rights-of-Way after dedication. Please revise the drawings to indicate the proper setbacks.**

2. Loading Spaces (Sec. 3.21.2.A.vi): Loading spaces required based on the proposed use. **The current site plan does not indicate a loading space. If the proposed use does not require a loading space, then the applicant shall provide the reasoning in the response letter.**

3. Outdoor Lighting (Sec. 3.21.2.A.x): Outdoor lighting of parking lots, access drives, and pedestrian and bicycle facilities shall meet the special conditions. **Provide light details of height and cut-off angle. Provide note if direct light source is not visible at road ROW. Adjust lighting to meet maximum illumination at property line of one-half foot-candle.**

4. Day Care Standards (Sec. 4.12.2): The hours of operation shall be limited to the period between 6 a.m. and 7 p.m. for those facilities abutting residential zoning districts. **Provide hours of operation of the day care facility on the plan sheet.**

5. Building Design Standards (Sec. 3.1.27.D): **Provide the maximum percent of lot covered buildings including accessory buildings as a note on the plan sheet.**

6. Accessory Buildings, Maximum Area (Sec. 4.19.1.C): **Provide total floor area of all accessory buildings and the total area of the rear yard.**

7. Bicycle Parking General Requirements (Sec. 516): Bicycle parking shall be accessible via a 6 ft. paved sidewalk. **Provide the dimensions of the sidewalk adjacent to the bike parking area and adjust if not 6 ft.**

8. Dumpster Enclosure (Sec. 21-145 (c) of City Code): **Provide dumpster and enclosure details on the plans that adhere to the City Code requirements.**

9. Fences, Maintenance (Sec. 5.11.3.B): **Provide a note on the plans "All fences shall comply with applicable provisions of the current City of Novi Property Maintenance Code."**

10. Rooftop Equipment (Sec. 4.19.2.E.ii): **Provide a note on the plans "All rooftop equipment must be screened and all wall mounted utility equipment must be enclosed and integrated into the design and color of the building."**

11. Pedestrian Connectivity: **Provide a sidewalk connection from in front of the building to the proposed sidewalk in the road right-of-way.**

12. Legal Documents: Once Preliminary Site Plan approval is obtained, please provide the Master Deed and ROW dedication legal documents with the Final Site Plan submittal.

Other Reviews

a. Engineering Review: **Recommends approval.**
b. Landscape Review: **Recommends approval** with items to be addressed on the Final Site Plan.
c. Wetland Review: No further review is necessary; there are no wetlands on site.
d. Woodland Review: No further review is necessary; the site does not impact the on-site woodlands.
e. Traffic Review: **Recommends approval** with comments addressed on the Final Site Plan.
f. Traffic Impact Study Review: **Recommends approval** with comments.
g. Facade Review: **Recommends approval**; no waivers required.
h. Fire Review: **Recommends approval**, all comments have been addressed.

Response Letter

With this submittal, all reviewers are recommending approval. This Site Plan is scheduled to go before Planning Commission on May 11, 2016. Please provide the following **no later than May 4, 2016 by 9:00 am** if you wish to keep the schedule.

1. A response letter addressing **ALL** the comments from **ALL** the review letters.
2. A PDF version of all the Site Plan drawings that were dated 03.29.2016. **NO CHANGES MADE**.
3. A color rendering of the Site Plan, if any.

Signage

Two monument signs are proposed for this project. Please submit sign permit applications. Contact Jeannie Niland [248.347.0438] in the Community Development Department for information regarding sign permits. Exterior Signage is not regulated by the Planning Division or Planning Commission.

Site Addressing

The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. Please contact and submit an application to Jeannie Niland [248.347.0438] in the Community Development Department.

Pre-Construction Meeting

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 and prior to the start of any work on the site. There are a variety of requirements, fees, and permits that must be issued before a Pre-Con can be scheduled. If you have questions, 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 [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department 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 248.347.0484 or kmellem@cityofnovi.org.

Kirsten J. Mellem

Kirsten Mellem, Planner

PLANNING REVIEW CHART: PSLR – Everbrook/Learning Care Academy

Review Date: April 21, 2016
Review Type: Preliminary Site Plan
Project Name: JSP15-57
Plan Date: March 29, 2016
Prepared by: Kirsten Mellem, Planner
Contact: **E-mail:** kmellem@cityofnovi.org **Phone:** 248.347.0484

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

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan *(adopted August 25, 2010)*	Suburban Low-Rise	Suburban Low-Rise	Yes	
Area Study	The site does not fall under any special category	NA	Yes	
Zoning *(Effective December 25, 2013)*	R-3(One Family Residential) with PSLR(Planned Suburban Low-Rise)overlay	PSLR	Yes	PSLR Agreement and Concept Plan approved by City Council on 4/18/2016.
Uses Permitted *(Sec 3.1.27.B & C)*	Sec 3.1.27.B Principal Uses Permitted. Sec 3.1.27.C Special Land Uses	Day Care Centers, subject to special conditions	Yes	Special Land Use Permit required under PSLR.
3.21 PSLR Required Conditions				
Narrative *(Sec. 3.32.3.A)*	Explain how the development exceeds the standards of this ordinance	A narrative is provided	Yes	
PSLR Overlay Concept Plan: Required Items *(Sec. 3.21.1.A)*	i. Legal description and dimensions	Provided	Yes	
	ii. Existing zoning of site/adjacent properties	Provided	Yes	
	iii. Existing natural features such as wetlands and proposed impacts	No Wetlands on site	NA	
	iv. Existing woodlands and proposed impacts	Few regulated woodlands on site. Plan indicates all existing trees will be saved.	Yes	Site plan will not be affecting onsite woodlands.
	v. Existing and proposed rights-of-way and road layout	The current site plan indicates proposed ROW for the private drive and ROW	Yes	

Item	Required Code	Proposed	Meets Code	Comments
		dedication along Beck Road for sidewalk and other improvements.		
	vi. Bicycle/pedestrian plan	Eight foot pathway shown along Eleven Mile Road	Yes	
	vii. Conceptual storm water management plan	Provided	Yes	
	viii. Conceptual utility plan	Provided	Yes	
	ix. Building Parking and Wetland Setback requirements	Provided	Yes	
	x. Conceptual layout	Provided	Yes	
	xi. Conceptual open space/recreation plan	Provided	Yes	
	xii. Conceptual streetscape landscape plan	Provided	Yes	
PSLR Overlay Concept Plan: Optional Items *(Sec. 3.21.1.A)*	xiii. Parking plan	Provided	Yes	Refer to Traffic review letter for additional comments
	xiv. Detailed layout plan	Provided	Yes	
	xv. Residential density calculations and type of units	Residential option not proposed	NA	
	xvi. Detailed open space/recreation		NA	
	xvii. Detailed streetscape landscape plan		NA	
	xviii. Graphic description of each deviation from the applicable ordinance requested		NA	
	xix. Phasing plan	Phasing not indicated	NA	
Community Impact Statement *(Sec. 3.21.1.B)*	Statement is required, if the petition area is 10 acres or more	Total project area is 4.15 Acres	NA	
Traffic Impact Study *(Sec. 3.21.1.C)*	Study as required by the City of Novi Site Plan and Development Manual	A traffic impact study was provided. Dated 1-6-2016.	Yes	
Proposed Ordinance Deviations *(Sec. 3.21.1.D)*	List all proposed ordinance deviations with supporting narrative.	Provided	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.

Item	Required Code	Proposed	Meets Code	Comments
Required PSLR Overlay Use Standards/ Conditions for special land uses *(Sec. 3.21.2)*				
Site Standards *(Sec. 3.21.2.A)*				
Building Frontage *(Sec. 3.21.2.A.i)*	Buildings shall front on a dedicated non-section line public street or an approved private drive	Frontage on a private drive	Yes	Note that private drive shall be built according to private road standards per DCS Manual.
Building Setbacks *(Sec. 3.21.2.A.ii) & (Sec 3.1.27.D)*	Minimum front yard setback: 30 ft* Maximum front yard setback: 75 ft.	For the purpose of this review, frontage along proposed drive on the south is considered front yard. Proposed building appears to exceed the maximum setback.	No	Building maximum setback deviation approved at City Council meeting on 4-18-2016.
*The maximum front and exterior side yard setback requirement when adjacent to roads and drives (other than planned or existing section line road right-of-way) is 75 feet.	Minimum rear yard setback: 30 ft	More than 30 ft.	Yes	
	Exterior side yard adjacent to roads and drives 30 ft*		NA	
	Exterior side yard adjacent to planned or existing section line road ROW 50 ft	Frontage along Beck Road (Section line) is considered an Exterior side yard. Proposed building appears to be in conformance.	Yes	
	Interior side yard 30 ft	30 ft. for proposed building	Yes	
	Building to building 30 ft	Single building	NA	
	Building Corner to corner: 15 ft	Single building	NA	
Landscape Buffer *(Sec. 3.21.2.A.iii)* **and Berms** *(Sec. 5.5.3)*	All buildings, parking lots, and loading areas shall be separated from section line road rights-of-way by a **50 ft. landscape buffer** containing an undulating 3-5 ft. tall landscaped berm.		No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
Parking spaces for all uses in the district (except for townhouse style multiple-family dwellings that provide private garages for each dwelling unit) *(Sec. 3.21.2.A.iv)*	Located only in the rear yard or interior side yard	Few located in the front yard and exterior side yard.	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
	Screened by 3-5 ft. undulating berm from adjacent streets per Section 5.5.3.		No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
	All parking and access aisles shall be min. 15 ft. from all buildings.	Parking is proposed at 15.04' from building.	Yes	

Item	Required Code	Proposed	Meets Code	Comments
Parking Setbacks *(Sec. 3.21.2.A.iv.d)* ***** except that parking spaces for townhouse developments shall be permitted in the front yard setback when the parking area is also a driveway access to a parking garage contained within the unit.	Front yard parking is not permitted*	Partial parking is proposed in front yard	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
	Exterior side yard adjacent to a section line road - 50 ft. min	Minimum 50 ft. provided	Yes	
	Exterior side yard adjacent to a local street – 30 ft. min	No exterior side yard identified	NA	
	Interior side yards adjacent to single family residential districts - 30 ft. min	Southern and northern yard abuts single family residential Side yards = 30 ft.	Yes	
	Interior side yards not adjacent to a single family residential district – 15 ft. min	NA	NA	
Open Space Recreation requirements for Multi-Family Residential Developments *(Sec. 3.21.2.A.v)*	Minimum of 200 square feet of private opens space accessible to building (includes covered porches, balconies and patios)	Not a Multi-family development	NA	
	Common open space areas as central to project as possible	Not a Multi-family development	NA	
	Active recreation areas shall be provided with at least 50 % of the open spaces dedicated to active recreation	Not a Multi-family development	NA	
	Active recreation shall consist 10% of total site area.	Not a Multi-family development	NA	
Other Applicable Zoning Ordinances (Sec. 3.21.2.A.vi, vii and ix)	Loading and Unloading per Section 5.4	Loading spaces are not proposed	Yes	Loading spaces are not required for PSLR overlay unless the use requires one. **Please provide additional information if loading space is not required for the proposed use.**
	Off-street Parking per Section 5.2 and 5.3	Parking is in general conformance with the standards except few places	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.

Item	Required Code	Proposed	Meets Code	Comments
	Landscaping per Section 5.5: All sites shall include streetscape amenities such as but not limited to benches, pedestrian plazas, etc.		No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
Building Length *(Sec. 3.21.2.A.vii)*	Maximum building length as described in Sec 3.21.3.A.vii shall not exceed **180 ft.**	A minimum of 90 ft. and a maximum of 130 ft. proposed	Yes	
	City Council may modify the minimum length up to a maximum of 360 ft. if: Building includes recreation space for min. 50 people Building is setback 1 ft. for every 3 ft. in excess of 180 ft. from all residential districts.	Additional length not requested	NA	
Outdoor Lighting *(Sec. 3.21.2.A.x)*	Maximum height of light fixtures: 20 ft.	Unable to determine	No	**Provide light details on photometric sheet stating height and cut-off angle.** **If in conformance, please add a note to the site plan.** **Update plan to reflect max 0.5fc at property line.**
	Cut-off angle of 90 degrees or less	Unable to determine	No	
	No direct light source shall be visible at any property line abutting a section line road right-of-way at ground level.	If in conformance, please add a note to the site plan.	No	
	Maximum Illumination at property line: 0.5fc	Exceeds 0.5fvc	No	
Day Care Standards *(Sec. 4.12)*				
Outdoor recreation areas (Sec. 4.12.2.i.a)	150 sq. ft. for each person cared for, with 3,500 sf minimum total	Play area required: 20,700 SF Play area provided: 20,728 SF	Yes	
	All areas shall be fenced with self-closing gates	Recreation areas are fenced in.	Yes	
	Recreation area may extend into an exterior side yard up to 25% of the distance between building façade and the property line	Recreation area is proposed in front, interior side and the rear yard.	NA	
Hours of Operation	They shall be limited to period between 6 am and 7 pm abutting residential districts	Hours of operation not provided	No	**Provide hours of operation on the plan sheet.**
Location	Facilities shall be located either within a permitted	Facilities located in a free standing building	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	office, or in a commercial structure or a free standing building with surrounding development	with surrounding development.		
Circulation Standards *(Sec. 3.21.2.B)*				
Full Time Access *(Sec. 3.21.2.B)*	Full time access drives shall be connected only to non-section line roads	Full time access drives are connected to a proposed private drive	Yes	
Emergency Access *(Sec. 3.21.2.B)*	Emergency access with access gate may be connected to section line roads when no other practical location is available	No Emergency access is proposed. But two access points are provided to the site from Section line road. Fire is good with the alternative	Yes	
Connection to Neighboring Properties *(Sec. 3.21.2.B.i)*	New roads should provide public access connections to neighboring properties at location(s) acceptable to the City and the neighboring property	Layout is designed to allow for future connections to property on south and north.	Yes	
New Roads *(Sec. 3.21.2.B.ii.a)*	New roads shall be designed as pedestrian/bicycle focused corridors as identified in the Non-Motorized Master Plan	Part of Beck road along the subject property is identified as a major corridor in City's Non-Motorized Plan. A eight foot pathway is proposed along Beck Road	Yes	
Non-Motorized Facilities *(Sec. 3.21.2.B.ii.b)*	Facilities shall be connected to the existing pedestrian network	Sidewalks are proposed within the site and connected to Beck Road	Yes	
Proposed Non-Motorized Facilities *(Sec. 3.21.2.B.ii.c)*	Where existing non-motorized facilities do not exist on adjacent neighboring properties, facilities shall be stubbed to the property line.	A 5 foot sidewalk is proposed on either side of the proposed Public drive	Yes	
Building Design Standards (Sec. 3.21.2.C)				
Building Height *(Sec. 3.21.2.C.i)*	35 ft. or 2 ½ stories	Maximum height is noted to be kept at 24ft.	Yes	
Building Design *(Sec. 3.21.2.C.ii)*	Buildings must be designed with a "single-family residential character"	The proposed building meets the intent of the PLSR district	Yes	Refer to Façade comments for further details
Maximum % of Lot Area Covered *(Sec. 3.1.27.D)*	25%	Not provided.	No	**Provide the maximum percent of lot covered buildings including accessory buildings.**

Item	Required Code	Proposed	Meets Code	Comments
Accessory Buildings				
Setbacks *(Sec. 4.19.1.G)*	It shall not be located closer than - ten (10) feet to any main building - six (6) feet to any interior side lot or rear lot line.	Three canopies are provided in multiple locations within the play area. They appear to be in conformance	Yes	
Location *(Sec. 4.19.1.B)*	Accessory buildings shall not be erected in any required front yard or in any required exterior side yard.	Structures are located in the interior side yard and rear yard	Yes	
Maximum Area *(Sec. 4.19.1.C)*	The total floor area of all accessory buildings shall not occupy more than twenty-five (25) percent of any required rear yard.		No	**Provide actual percentage on the plans.**
Design *(Sec. 4.19.1.L)*	All attached and detached accessory buildings in excess of two-hundred (200) square feet shall be designed and constructed of materials and architecture compatible with the principal structure, and shall have a minimum roof pitch of 3/12 and overhangs of no less than six (6) inches.	Each canopy structure measures 100 sq. ft. and storage shed is 196.85 sq. ft.	Yes	
Flagpoles *(Sec. 4.19.2.B)*	Flagpoles may be located within any required front or exterior side yard. Such poles shall be located no closer to a public right-of-way than one-half (½) the distance between the right-of-way and the principal building.	A flagpole is not indicated on the revised plans	NA	
Number of Structures (Sec. 4.19.1.J)	Not more than two (2) detached accessory buildings shall be permitted on any lot having twenty-one thousand seven hundred eighty (21,780) square feet of area or more.	Three canopy structures and one shed are proposed on this property.	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.

Item	Required Code	Proposed	Meets Code	Comments
Note To District Standards *(Sec 3.6.2)*				
Off-Street Parking in Front *Yard* *(Sec3.6.2.E)*		Parking proposed in front yard.	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
Parking setback screening *(Sec 3.6.2.P)*	Required parking setback area shall be landscaped per sec 5.5.3	Landscape plan is provided.	Yes	
Modification of parking setback requirements *(Sec 3.6.2.Q)*	Refer to Sec 3.6.2 for more details.	Modifications are not requested.	NA	
Parking, Loading and Dumpster Requirements				
Number of Parking Spaces Nursery schools, day nurseries or child care centers *(Sec. 5.2.12.B)*	One (1) for each three hundred fifty (350) square feet of usable floor area (UFA) plus one (1) space for each employee 7,540 UFA = 22 spaces 22 Employees = 22 spaces Total = 44 spaces	44 spaces proposed.	Yes	
Parking Space Dimensions and Maneuvering Lanes *(Sec. 5.3.2)*	<u>90° parking layout:</u> 9' x 19' parking space dimensions and 24' wide drives	9 x 19' space proposed	Yes	
	9' x 17' if overhang on 7' wide interior sidewalk or landscaped area as long as detail indicates 4'' curb		NA	
Parking stall 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		Yes	
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 ft. wide, have an outside radius of 15 ft., and be constructed 3 ft. shorter than the adjacent parking stall as illustrated	End islands are proposed.	Yes	Refer to Traffic review for more details

Item	Required Code	Proposed	Meets Code	Comments
	in the Zoning Ordinance			
Barrier Free Spaces *Barrier Free Code*	1 barrier free parking spaces (for total 26 to 50)& 1 van barrier free parking space	2 spaces provided.	Yes	
Barrier Free Space Dimensions *Barrier Free Code*	- 8‘ wide with an 8’ wide access aisle for van accessible spaces - 5’ wide with a 5’ wide access aisle for regular accessible spaces	1 common 8 ft. aisle proposed.	Yes	
Barrier Free Signs *Barrier Free Code*	One sign for each accessible parking space.	Signs proposed.	Yes	
Minimum number of Bicycle Parking *(Sec. 5.16.1)*	One (1) space for each twenty (20) employees on the maximum shift, minimum two (2) spaces	3 bike racks are indicated on the plan.	Yes	
Bicycle Parking General requirements *(Sec. 5.16)*	- No farther than 120 ft. from the entrance being served - When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations - Spaces to be paved and the bike rack shall be inverted “U” design - Shall be accessible via 6 ft. paved sidewalk	Bike racks are indicated on the plan. Proposed 5 ft. sidewalk	**No**	**Provide 6 ft. sidewalk.**
Bicycle Parking Lot layout *(Sec 5.16.6)*	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	Bike rack details are indicated on the plan.	Yes	
Loading Spaces (*Sec. 5.4.1)* Location of such facilities in a permitted side yard shall be subject to review and approval by the City	As needed	No loading spaces indicated.	**No**	**Clarify if there is a need for designated loading and unloading area for deliveries and/or pick-up/drop-off of students.**

Item	Required Code	Proposed	Meets Code	Comments
Dumpster *(Sec 4.19.2.F)*	- Located in rear yard or interior side yard in case of double frontage - 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	- Located in front yard, not attached to the building.	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
Dumpster Enclosure *(Sec. 21-145.(c) City code of Ordinances)*	- 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	Dumpster proposed.	**No**	**Provide dumpster and enclosure details on plans.**
Fences				
Fence Location *(Sec. 5.11.2.A)*	No fence shall extend into a front or exterior side yard	Part of the fence extends into front yard along the proposed private drive	No	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.
Fence Height *(Sec. 5.11.2.B)*	No fence shall exceed eight (8) feet in height Fences with barbed wire on top can exceed 11 feet	Maximum height is 6 ft.	Yes	
Electrical Current for Fences *(Sec. 5.11.2.C)*	No fence shall carry electrical current or charge of electricity.	This is protective fence for a daycare play area.	Yes	
Prohibited Materials. *(Sec. 5.11.3.A)*	This section refers to prohibited materials that cannot used for proposed fences	A semi-private 6 ft. vinyl fence is proposed along the building. A 4 ft. chain link fence is proposed inside the enclosed play area.	Yes	Deviations approved as part of the PSLR Agreement at the 4-18-16 City Council meeting.

Item	Required Code	Proposed	Meets Code	Comments
Maintenance *(Sec. 5.11.3.B)*	All fences shall comply with applicable provisions of the current City of Novi Property Maintenance Code.		**No**	**Please provide a note stating the requirement on the plans.**
Uniformity *(Sec. 5.11.3.C)*	All fences shall be of uniform material(s), finish, and color along a property line of any parcel totaling less than one-hundred fifty (150) feet in length.	The property line is longer than 150 feet.	NA	
Roof top Equipment Requirements				
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	Rooftop equipment proposed.	Yes	**Please provide a note stating the requirement on the plans.**
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.	Rooftop equipment is screened.	Yes	
Sidewalk Requirements				
ARTICLE XI. OFF-ROAD NON-MOTORIZED FACILITIES *Sec. 11-256. Requirement. (c)* & Sub. Ord. Sec. 4.05,	- In the case of new streets and roadways to be constructed as part of the project, a sidewalk shall be provided on both sides of the proposed street or roadway. - Sidewalks along arterials and collectors shall be 6 feet or 8 feet wide as designated by the "Bicycle and Pedestrian Plan," but not along industrial service streets per Subdivision Ordinance - Whereas sidewalks along local streets and private roadways shall be five (5) feet wide.	An 8 ft. wide asphalt bike path is proposed along Beck Road.	Yes	
Pedestrian Connectivity	- Whether the traffic circulation features	The site plan has provision for future	**No**	**Provide a sidewalk connection from in front of**

Item	Required Code	Proposed	Meets Code	Comments
	within the site and parking areas are designed to assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets - Building exits must be connected to sidewalk system or parking lot.	connection for pedestrian connectivity in some areas.		**the building to the proposed sidewalk in the road right-of-way.**
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).		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).		Yes	
Economic Impact	- Total cost of the proposed building & site improvements - Number of anticipated jobs created (during construction & after building is occupied, if known)	Total cost of improvements exceed $3.0 Million. The day care will have approximately 22 staff members.	Yes	
Legal Documents	PSLR Development Agreement is required Master Deed would be required for the ROW dedication with Final Site Plan review.	Draft agreement provided.	Yes/ No	Final agreement was approved by the City Council on 4-18-2016. <u>Provide Master Deed and ROW dedication with Final Site Plan Submittal.</u>
Development and Street Names	Development and street names must be approved by the Street	To be reviewed for name on 4/21/16.	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	Naming Committee before Preliminary Site Plan approval			
Development/ Business Sign	- Signage if proposed requires a permit. - Exterior Signage is not regulated by the Planning Division or Planning Commission.	2 monument signs were approved at the City Council meeting on 4-18-2016.		**A permit is still required.** Contact Jeannie Niland 248-347-0438 for sign permit information.

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

04/18/2016

Engineering Review

Everbrook/Learning Care Academy
JSP15-0057

Applicant
AMRO INVESTMENTS, LLC

Review Type
Preliminary Site Plan

Property Characteristics

- Site Location: N. of 11 Mile Rd. and W. of Beck Rd.
- Site Size: 4.15 acres
- Plan Date: 03/26/16

Project Summary

- Construction of an approximately 11,844 square-foot building and associated parking. Site access would be provided by private road with two curb cuts onto Beck Rd.
- Water service would be provided by a 2-inch domestic lead and a 6-inch fire lead from the existing 16-inch water main on the east side of Beck Rd.
- Sanitary sewer service would be provided by 2-inch domestic lead from the existing 18-inch sanitary sewer on the west side of Beck Rd.
- Storm water would be collected by a single storm sewer collection system and detained in an on-site detention pond.

Recommendation
Approval of the Preliminary Site Plan and Preliminary Storm Water Management Plan is recommended.

Comments:

The Preliminary Site Plan meets the general requirements of Chapter 11, the Storm Water Management Ordinance and the Engineering Design Manual with the following items to be addressed at the time of Final Site Plan submittal (further engineering detail will be required at the time of the final site plan submittal):

Additional Comments (to be addressed prior to the Final Site Plan submittal):

General

1. Provide a note on the plans that all work shall conform to the current City of Novi standards and specifications.
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.
3. A right-of-way permit will be required from the City of Novi.
4. Plans must be signed and sealed by an engineer licensed in the State of Michigan.
5. The Non-domestic User Survey form shall be submitted to the City so it can be forwarded to Oakland County. This form was included in the original site plan package.
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.
7. Generally, all proposed trees shall remain outside utility easements. Where proposed trees are required within a utility easement, the trees shall maintain a minimum 5-foot horizontal separation distance from any existing or proposed utility. All utilities shall be shown on the landscape plan, or other appropriate sheet, to confirm the separation distance.
8. Provide a traffic control plan for the proposed road work activity (City roads).
9. Provide a construction materials table on the Utility Plan listing the quantity and material type for each utility (water, sanitary and storm) being proposed.
10. 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.
11. Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Department for review.
12. Revise the sheet index to match the sheets provided.
13. The City standard detail sheets are not required for the Final Site Plan submittal. They will be required with the Stamping Set submittal. They can be found on the City website (www.cityofnovi.org/DesignManual).

Water Main

14. Note that a tapping sleeve, valve and well will be provided at the connection to the existing water main.
15. Provide a profile for all proposed water main 8-inch and larger.

Sanitary Sewer

16. Provide a sanitary sewer monitoring manhole, unique to this site, within a dedicated access easement or within the road right-of-way. If not in the right-of-way, provide a 20-foot wide access easement to the monitoring manhole from the right-of-way (rather than a public sanitary sewer easement).
17. Provide a note on the Utility Plan stating the sanitary lead will be buried at least 5 feet deep where under the influence of pavement.

Storm Sewer

18. Provide profiles for all proposed storm sewer 12-onches and larger.
19. A minimum cover depth of 3 feet shall be maintained over all storm sewers. Currently, a few pipe sections do not meet this standard. Grades shall be elevated and minimum pipe slopes shall be used to maximize the cover depth. In situations where the minimum cover cannot be achieved, Class V pipe must be used with an absolute minimum cover depth of 2 feet. An explanation shall be provided where the cover depth cannot be provided.
20. Provide a 0.1-foot drop in the downstream invert of all storm structures where a change in direction of 30 degrees or greater occurs.
21. Match the 0.80 diameter depth above invert for pipe size increases.
22. Storm manholes with differences in invert elevations exceeding two feet shall contain a 2-foot deep plunge pool.
23. Provide a four-foot deep sump and an oil/gas separator in the last storm structure prior to discharge to the storm water basin.
24. 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.
25. 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.
26. 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

27. 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.
28. Provide an access easement for maintenance over the storm water detention system and the pretreatment structure. Also, include an access easement to the detention area from the public road right-of-way.

29. Provide release rate calculations for the three design storm events (first flush, bank full, 100-year).
30. Provide a soil boring in the vicinity of the storm water basin to determine soil conditions and to establish the high water elevation of the groundwater table.
31. Provide supporting calculations for the runoff coefficient determination.
32. A runoff coefficient of 0.35 shall be used for all turf grass lawns (mowed lawns).
33. Due to maintenance concerns, each restricting orifice in the control structure shall be a minimum of 1 square-inch in size, even though this may result in a flow rate above that calculated.
34. Provide storm calculations on plans or a reference to the Stormwater Report.

Paving & Grading

35. The right-of-way sidewalk shall continue through the drive approach. If like materials are used for each, the sidewalk shall be striped through the approach. The sidewalk shall be increased to 6-inches thick along the crossing or match the proposed cross-section if the approach is concrete. The thickness of the sidewalk shall be increased to 6-inches across the drive approach. Provide additional spot grades as necessary to verify the maximum 2-percent cross-slope is maintained along the walk.
36. Curbing and walks adjacent to the end of 17-foot stalls shall be reduced to 4-inches high, rather than the standard 6-inch height to be provided adjacent to 19-foot stalls. Provide additional details as appropriate.
37. Provide the standard Type 'M' approach at the Beck Rd. driveway.

The following must be submitted at the time of Final Site Plan submittal:

38. A letter from either the applicant or the applicant's engineer must be submitted with the Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.
39. An itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal 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 cost estimate must be itemized*** for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).

The following must be submitted at the time of Stamping Set submittal:

40. A draft copy of the maintenance agreement for the storm water facilities, as outlined in the Storm Water Management Ordinance, must be submitted to

the Community Development Department with the Final Site Plan. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds.

41. A draft copy of the 20-foot wide easement for the sanitary sewer access to on the site must be submitted to the Community Development Department.

42. Executed copies of any required off-site utility easements must be submitted to the Community Development Department.

The following must be addressed prior to construction:

43. 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).

44. 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. Once determined, a grading permit fee must be paid to the City Treasurer's Office.

45. A Soil Erosion Control Permit must be obtained from the City of Novi. Contact Sarah Marchioni in the Community Development Department (248-347-0430) for forms and information.

46. A permit for work within the right-of-way of Beck Rd. must be obtained from the City of Novi. The application is available from the City Engineering Department and should be filed at the time of Final Site Plan submittal. Please contact the Engineering Department at 248-347-0454 for further information.

47. Construction Inspection Fees to be determined once the construction cost estimate is submitted must be paid prior to the pre-construction meeting.

48. A storm water performance guarantee, equal to 1.5 times the amount required to complete storm water management and facilities as specified in the Storm Water Management Ordinance, must be posted at the Treasurer's Office.

49. An incomplete site work performance guarantee for this development will be calculated (equal to 1.5 times the amount required to complete the site improvements, excluding the storm water facilities) as specified in the Performance Guarantee Ordinance. This guarantee will be posted prior to TCO, at which time it may be reduced based on percentage of construction completed.

50. A street sign financial guarantee in an amount to be determined ($400 per traffic control sign proposed) must be posted at the Treasurer's Office.

Please contact Jeremy Miller at (248) 735-5694 with any questions.

cc: Adam Wayne, Engineering
Brian Coburn, Engineering
Kirsten Mellem, Community Development
Sabrina Lilla, Water & Sewer

LANDSCAPE REVIEW

PLAN REVIEW CENTER REPORT

April 19, 2016

Preliminary Site Plan

Everbrook (Learning Care Academy)

Review Type
Preliminary Site Plan Landscape Review

Job #
JSP15-0057

Property Characteristics

- Site Location: Northwest corner of Beck and 11 Mile Road
- Site Zoning: R-3 with PSLR
- Adjacent Zoning: R-3 with PSLR
- Plan Date: 3/29/2016

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 Preliminary Site Plan submittal. Underlined items should be addressed in Final Site Plans. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review is a summary and not intended to substitute for any Ordinance.

Recommendation:

This project is **recommended for approval** with the understanding that the items listed below and on the attached Landscape Chart will be addressed satisfactorily in the Preliminary and Final Site Plans.

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

Soils information is provided on the Landscape Plans.

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

Existing and proposed utilities provided.

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

The only existing trees indicated on the plans are those in the woodland along the west edge of the property. They are shown as being preserved.

Residential adjacent to Non-Residential Screening (Zoning Sec. 5.5.3., Zoning Sec.3.21.2.A)

North property line

1. The proposed berm height meets the minimum height requirement (min 4.5' max 6'). If possible, more vertical variation above the minimum height should be added.
2. The combination of large and small evergreen trees and deciduous trees should provide the required screening for the property to the north.
3. Varieties of Red Maple with a broader crown (at least 20') than Armstrong Maple should be used to provide better screening. (All required deciduous canopy trees should have a mature canopy of at least 20' – please replace narrower trees with varieties that provide the required canopy).

South property line.

1. The PRO agreement for the property allows no berm along the south property line.

2. The PRO agreement also allows the absence of screening to provide 80-90% opacity along the south property line.

West Property Line

The existing woods being preserved along the west property line provides sufficient screening so no additional berms or landscaping is required.

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii, Zoning Section 3.21.2.A)

1. **Please add more vertical variation (above the required minimum) to the berm along Beck Road.**
2. **Please also provide the required greenbelt landscaping for the 260 lf of frontage along the new public road south of the building. 7 large evergreen or deciduous canopy trees and 13 subcanopy trees between the road and the building are required. If desired, the required plantings can be spread along the entire building frontage, not just that portion of the building facing the road. As the PRO does not require full screening along the south property line, some of the perimeter trees could be moved to serve as greenbelt trees.**

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

Beck Road

Based on the 333.75 lf of frontage, less the 60' right-of-way for the new, public access road, eight (8) deciduous canopy trees are required in the greenspace between the sidewalk and Beck Road. In place of these, 16 subcanopy trees are proposed due to the overhead wires. This is acceptable.

Access Road

1. **Street trees should be placed on both sides of the access road at 1 deciduous canopy tree per 35 lf for the entire length of the cul-de-sac. For 260lf of frontage, 7 trees are required on each side of the road. 12 trees are provided ("perimeter" trees along road can be counted as street trees).**
2. **Please provide 2 more street trees along the north side of the road.**

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

1. **The number of required parking lot trees is 21. Only 8 have been provided, which is less than the number agreed to in the PRO. Please provide at least 2 more to conform with the PRO. The underground sanitary and electric lines can be shifted to the east to provide sufficient room for 2 trees in the two open areas at the west of the parking lot.**
2. **Islands need to have a tree planted in them to count toward the requirement. See #1 of this section.**
3. **Please use varieties of deciduous canopy trees with a mature canopy of at least 20 feet.**

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

1. **The perimeter of the parking lot is 535 lf, not 252 lf. This would result in 15 perimeter trees. While all 15 may not fit, please revise the calculations and add as many as possible.**
2. **Please move perimeter trees to within 10' of the parking lot.**

Transformer/Utility Box Screening (Zoning Sec 5.5.3.D.)

Provided

Building Foundation Landscape (Zoning Sec 5.5.3.D.)

Provided.

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

Provided.

Planting Notations and Details (LDM)

Provided.

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

1. Provided.
2. **Hamamelis x intermedia is not native to Michigan. It is a cross between two Asian species. Hamamelis virginiana is native to Michigan, but should not be used in the detention pond as it is a woods plant that doesn't do well in full sun. Please select another native shrub. Possibilities are *Aronia melanocarpa, Cornus sericea, Cornus amomum, Physocarpus opulifolius, Sambucus canadensis* and *Ilex verticillata*.**

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

Irrigation plan for landscaped areas is required for Final Site Plan.

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

Provided for berms and parking areas.

Snow Deposit (LDM.2.q.)

Provided at north end of parking lot.

Proposed trees to be saved (Sec 37 Woodland Protection 37-9, LDM 2.e.(1))

No trees are proposed to be removed.

Corner Clearance (Zoning Sec 5.9)

Please show corner clearance triangles at entry points to access road and move tree just west of it out of triangle.

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

TRAFFIC REVIEW

AECOM
27777 Franklin Road
Suite 2000
Southfield, MI 48034
www.aecom.com

248 204 5900 tel
248 204 5901 fax

Memorandum

To	Barbara McBeth, AICP	Page	1
CC	Kirsten Mellem		
Subject	JSP 15-0057 – Everbrook Academy – Preliminary Site Plan – Traffic Review		
From	Matt Klawon, PE		
Date	April 28, 2016		

The preliminary site plan was reviewed to the level of detail provided and AECOM **recommends approval** 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, ICAP Development, is proposing to construct Everbrook Academy, formerly know as Learning Care Academy, on the west side of Beck Road, north of 11 Mile Road.
2. Beck Road is under City of Novi jurisdiction.
3. The proposed property consists of an 11,844 sqaure feet (sq ft) (7,540 usable sq ft) child care facility to serve a maximum of 138 children with up to 22 staff members.

TRAFFIC IMPACTS

1. AECOM performed an initial trip generation estimate based on the ITE Trip Generation Manual, 8th Edition, as follows:

   ITE Code: 565 – Day Care Center
   Development-specific Quantity: 138 (students)
   Zoning Change: N/A

Trip Generation Summary					
	City of Novi Threshold	**Estimated Trips (Permitted under existing zoning)**	**Estimated Trips (Permitted under proposed zoning)**	**Proposed Development**	**Analysis**
AM Peak-Hour, Peak-Direction Trips	100	N/A	N/A	58	

PM Peak-Hour, Peak-Direction Trips	100	N/A	N/A	59	
Daily (One-Directional) Trips	750	N/A	N/A	627	

2. The number of trips does not exceed the City's threshold of more than 750 trips per day or 100 peak direction trips per either the AM or PM peak hour. AECOM recommends performing the following traffic impact study in accordance with the City's requirements:

Traffic Impact Study Recommendation	
Type of Study	**Justification**
None	Not warranted; however, a full traffic impact study was provided and has been reviewed. Comments can be found under a separate letter.

EXTERNAL SITE ACCESS AND OPERATIONS

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

1. Please indicate the sight distances at both Beck Road interfaces.
2. Based on anticipated volumes presented in the Traffic Impact Study (TIS), a southbound right turn taper is warranted. The taper is only designed to be 40', while the City Ordinance generally recommends a standard length of 100', with an acceptable range of 75' to 100'. It is recommended that the applicant increase the length of the taper to a minimum of 75' since a 100' taper does not appear to be feasible due to the location of the northern property border. The purpose of the increased taper length is to provide enough distance for right-turning vehicles to decelerate to an appropriate turning speed while reducing the impact on southbound through traffic.
3. The driveway spacing requirements are generally in compliance with City standards.
4. The number of access points provided for the site is adequate.
5. The applicant has provided a vehicle connection point along the northern property line for connection to future adjacent developments.
    a. The proposed driveway has been constructed with 5' entering and exiting radii, which is in compliance with City standards for field entrances.
    b. Due to the potential for traffic to use this driveway in the future, the applicant could consider increasing the entering and exiting radii to a minimum of 15' to align with City Ordinance requirements for a typical driveway.

INTERNAL SITE OPERATIONS

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

AECOM

1. General traffic flow
    a. The site plan indicates a “bus drop-off” location; however, the feasibility of a bus accessing the designated area may be difficult without blocking travel lanes and/or parking spaces. The applicant should provide circulation patterns indicating the anticipated bus on-site operations for further review.
    b. The site plan does not indicate a designated loading zone.
    c. The dumpster is located in an area that should not cause unrelated interferences with other on-site traffic.
2. Parking facilities
    a. The number of parking spaces provided meets the minimum requirement as indicated in the City Zoning Ordinance.
    b. Parking spaces are in compliance with City standards.
        i. The applicant could consider increasing the amount of landscape space on the site by reducing the length of the parking spaces along the northern and eastern sides of the property. To remain in compliance with City standards, the applicant may:
            1. Reduce the parking space length from 19’ to 17’, AND
            2. Reduce the adjacent curb height to 4”.
    c. The handicap parking spaces are adequate in terms of quantity and design. The applicant could consider adjusting the placement of the handicap signs to be more directly in front of the parking spaces which they are reserving.
    d. Please indicate the length of the end islands throughout the site. City standards require the end islands to be 3’ shorter than the adjacent parking space.
    e. The bicycle parking facilities provided are adequate.
3. The roadway/aisle widths are in compliance with City standards.
4. Sidewalk Requirements
    a. The proposed sidewalks adjacent to the facility are in compliance with standards.
    b. The proposed sidewalk along Beck Road is in compliance with standards.
5. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices. The following is a discussion of the proposed signing.
    a. The applicant should consider the installation of a standard “End of Road” sign (W14-1, W14-1a, W14-2, or W14-2a) at the end of the proposed temporary T-turnaround along the south property line.

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

Sincerely,

Maureen Peters, PE
Reviewer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS
Engineering Services

TRAFFIC IMPACT STUDY REVIEW

AECOM
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www.aecom.com

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248 204 5901 fax

Memorandum

To	Barbara McBeth, AICP	Page	1
CC	Kirsten Mellem		
Subject	JSP 15-0057 – Everbrook Academy – Traffic Impact Study Review		
From	Matt Klawon, PE		
Date	April 14, 2016		

The traffic impact study (TIS) was reviewed to the level of detail provided and AECOM **recommends approval** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City.

GENERAL TIS COMMENTS

All comments have been indicated on the attached TIS, and most critical comments are included herein.

1. The existing southbound average annualized daily traffic volume presented in the TIS is not correct based on the traffic counts included in Appendix B and the Southeast Michigan Council of Governments (SEMCOG) Seasonal Factor Table for 2014.
    a. Southbound 24-hour count total = 9,230 vehicles
    b. Seasonal Factor for a Tuesday in December 2014 = .956
    c. 9,230 * 0.956 = **8,824 vehicles**
2. Analysis was performed for two separate scenarios: (1) Phase I – build year 2016 with an estimated 100 student enrollment and (2) Phase II – build year 2019 with an expanded building and estimated 131 student enrollment. Table 1 displays the trip generation information for each scenario, as depicted in the TIS.
    a. The daily trips were calculated using the average rate, not the equation provided in the Trip Generation Manual. According to the manual, this scenario warrants use of the equation. The daily trip values should be updated to 446 and 594 for Phase I and Phase II, respectively.
    b. The TIS states that, under Phase II conditions, the site will exceed the City's thresholds for peak hour trips. While the site generates more than 100 trips per peak period, the City's thresholds are for peak hour, *peak direction* trips; therefore, the site does not exceed City thresholds. This statement should be revised in the TIS to reflect accutate City standards.

AECOM

Table 1. Trip Generation Summary

Scenario	ITE Code	ITE Land Use Description	Variable	No. of Units	Daily Trips	AM Peak		PM Peak	
						Enter	Exit	Enter	Exit
Phase I	565	Day Care Center	Students	100	438	42	38	38	43
Phase II	565	Day Care Center	Students	131	574	56	49	50	56

3. The TIS includes level of service (LOS) results for an optimized conditions scenario for each build year 2016 and build year 2019. The values presented in Tables 8 and 9 of the TIS could not be verified as the Synchro reports are not included in the Appendix. It is not critical to examine the Synchro reports for purposes of this review, as the optimized conditions results are similar to the "Future" condition results.
4. Right Lane Warrant
    a. Please provide the source of the 2-way 24-hour volumes used for the right lane warrant analysis.
    b. A right-turn lane taper is warranted along southbound Beck Road at the northern site driveway. Due to right-of-way limitations, a taper of 40' can be included, which is less than the standard 100' taper (range of 75' – 100') indicated in the City Ordinance.
5. In the **Access Management** section of the TIS, the driveway spacing states that distances from *centerline* of the driveway to the Beck Road is 230 feet. The City Ordinance measures driveway spacing from the near curb to near curb of the two driveways/roadways. The TIS could be updated to reflect the accurate measurement using the City's preferred methodology.
6. The Beck Road southbound thru "site generated" volume at 11 Mile Road shown on Sheet 3 of Appendix E should be changed from 12 to 16 to display accurate distribution of the total site-generated traffic. The correct value of 19 was used in the Synchro models and there is not a need to reevaluate the impacts.

In general, the results of the TIS indicate that the site is not expected to have negative impacts on the adjacent roadway. Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM

Maureen Peters, PE
Reviewer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS
Engineering Services

TRAFFIC IMPACT STUDY FROM APPLICANT

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

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January 6, 2016

ICAP Development LLC
1243 N. 10th Street, Suite 300
Milwaukee, Wisconsin 53202

Attn: Mr. Brian Adamson

Re: Learning Care Group Traffic Impact Study — HRC Job No. 20150884
Novi, Michigan

Dear Mr. Adamson:

At your request, Hubbell, Roth & Clark, Inc. (HRC) prepared a traffic impact study for the proposed Learning Care Group development in the City of Novi, Michigan. The site plan is shown in **Attachment A**. The site plan indicates that the initial school size will be 11,844 square feet with a possible future expansion to 14,682 square feet. To meet the requirements of the City of Novi, HRC completed the following tasks:

- Confirmed our scope of services with Novi's traffic engineer, AECOM.
- Provided a description of the adjacent roadway system.
- Collected 24 hour, 2-way vehicle counts on Beck Road, north of 11 Mile.
- Collected turning movement counts from 7:00 AM – 9:00 AM and 2:00 PM – 6:00 PM at the signalized intersection of Beck and 11 Mile Roads.
- Forecasted background growth based on two build out dates.
- Estimated the trips generated by the proposed land use and future expansion using the techniques in the Institute of Transportation Engineer's Trip Generation Manual.
- Distributed and assigned the site generated trips to the adjacent roadway network.
- Conducted a capacity analyses for existing, background, and future conditions for the AM and PM peak hours using Synchro 9 software at the signalized intersection of Beck and 11 Mile Roads using the techniques outlined in the Transportation Research Board Highway Capacity Manual.
- Determined if site plan meets access management policies adopted by the City of Novi.
- Determined any road improvements necessary to mitigate the impact of additional traffic on the adjacent roadway system.
- Conducted a turning lane warrant study to determine if a taper and/or turning lane are required at the site driveways.
- Prepared a letter report with our findings and recommendations.

Existing Roadway System

The site the Learning Care Group development is located on Beck Road the north of 11Mile Road. Access to the site will be from a private driveway and future public street. The site location is shown in **Figure 1**.

Figure 1. Location Map

Beck Road is a 2-lane road with a continuous center left-turn lane and a posted speed of 45 mph. Beck Road is classified an Urban Minor Arterial and is under the jurisdiction of the City of Novi. The site is approximately 250 feet north of 11 Mile Road and 0.25 mile south of an entrance to St. John Providence Hospital. There is a dedicated right turn lane (210 feet in length) on southbound Beck and a dedicated right turn lane (170 feet in length) on northbound Beck at 11 Mile Road. The traffic signals are on a diagonal span wire with low level left turn signals. Eleven Mile Road is a 2-lane road with a posted speed of 30 mph. This road is classified a Major Collector and is under the jurisdiction of the City of Novi. There is a dedicated left turn lane (210 feet in length) on eastbound and westbound 11 Mile Road at Beck Road. The intersection of Beck Road and 11 Mile Road is signalized and on the FAST-TRAC system. Beck Road has paved and gravel shoulders and ditches.

Existing Traffic Volumes

HRC collected 24-hour counts on Beck Road on Tuesday, 12/1/2015. Using SEMCOG's Seasonal Factor Table for 2014, the Average Annualized Daily Traffic on Beck Road is 9,856 vehicles northbound and 8,925 vehicles southbound. The 24 hour count data is provided in **Attachment B**.

Turning movement counts were taken by HRC at the intersection of Beck Road and 11 Mile Road on

Tuesday, 12/1/2015. Counts were collected for six hours from 7:00 – 9:00 AM and from 2:00 – 6:00 PM. The AM peak hour is 7:15-8:15 AM and the PM peak hour is 5:00-6:00 PM. **Table 1** summarizes the peak hour turning movement counts. The complete turning movement counts are provided in **Attachment C**.

Table 1. Turning Movement Counts at Beck & 11 Mile

Approach	Movement	AM Peak	PM Peak
11 Mile Eastbound	LT	54	18
	TH	113	49
	RT	73	31
	Total	240	98
11 Mile Westbound	LT	21	29
	TH	85	58
	RT	58	44
	Total	164	131
Beck Road Northbound	LT	84	32
	TH	728	641
	RT	40	26
	Total	852	699
Beck Road Southbound	LT	33	55
	TH	442	809
	RT	57	24
	Total	532	888
TOTAL		**1788**	**1816**

Background Traffic Growth

The initial development is projected to be ready for occupancy by the end of 2016. The expansion is projected to be ready for occupancy by the end of 2019.

HRC proposes to use a growth rate of 1% per year for this study. This assumption was based on historic AADT data and annual growth trends provided by RCOC *in the general area.* **Table 2** shows that the annual rates vary. An average is difficult to estimate so in order to be conservative, a small growth rate was used.

Table 2. Annual Growth Trend in Study Area

Approach	2005-2008	2008-2010	2010-2012
NB Beck	6%	-1%	-5%
SB Beck	20%	2%	0%
EB 10 Mile	-1%	2%	-3%
WB 10 Mile	3%	10%	-9%

Trip Generation

One of the most critical elements of a traffic study is estimating the amount of traffic to be generated by a proposed development. This is usually done by using trip generation rates or equations to provide an estimate of all future trips generated by a proposed development.

Rates are commonly expressed in trips per unit of development. For example, trips per dwelling unit are commonly used for residential developments, while trips per 1,000 square feet of gross floor area are used for offices and retail. Equations provide a direct estimate of trips based upon development units being multiplied in a mathematical relationship.

Trips are defined as a single or one directional movement with either the origin or destination of the trip inside the study site. Thus, a car entering and leaving a site would be recorded as generating two trips. Trip generation estimates are often the most critical factors in assessing impacts and needs of a proposed development.

There are several sources for trip generation rates and equations, which are based on data collected from locations in the United States and Canada. These are compilations of data that have been gathered over many years for various land uses. National data sources are starting points in estimating the amount of traffic that may be generated by a specific building or land use. Whenever possible, the National rates should be adjusted to reflect local or forecasted conditions. These National sources are not intended to be used without question, deviation or sound judgment. They often reflect what are supposed to be the average or typical conditions. Data collected from local sites may be more representative than National averages of other developments within the area.

The most widely used source of national trip generation data is the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE). The information in this report is almost solely derived from suburban and urban sites. Data included in trip generation was obtained from actual driveway counts of vehicular traffic entering and exiting the site. The eighth edition contains more than 4,800 data sets from individual trip generation studies. The report also includes discussions on the application and use of trip generation rates and equations; descriptions of the characteristics of each land use; maximum/minimum average rates for weekdays, weekends and peak hours of the generator and adjacent street traffic; and additional statistical data regarding data variability.

The client provided HRC with an average of daily trips generated from a survey of 809 schools for one week. The summary is provided in **Attachment D** and indicates total number of enrolled students and employees. The client clarified that student enrollment is always less then student capacity. A school with a capacity of 130 children typically has 100 enrolled students. In the future, when the school is expanded there will be a capacity for 170 students but enrollment is typically 131 students. The empirical data corresponds to ITE Land Use Code 565, Day Care Center, when the variable is the number of students. When the variable is employees or gross floor area, the trip generation projections are excessive. **Table 3** compares the trip generation based on ITE Land Use Code 565 for the initial school and for the future school.

Table 3: Trip Generation for Children's LCG School Site

Scenario	ITE Code	ITE Land Use Description	Variable	No. of Units	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
						IB	OB	IB	OB
Phase I	565	Day Care Center	Students	100	438	42	38	38	43
Phase II	565	Day Care Center	Students	131	574	56	49	50	56

It was noted that the site development traffic volumes do not exceed Novi's threshold of 100 peak hour trips until Phase II is constructed. If Phase II is constructed then both the AM and PM peak will have trip generation volumes above 100.

Trip Distribution and Assignment

Traffic expected to be generated by a project must be distributed and assigned to the roadway system so that the impacts of the proposed project on roadway links and intersections within the study area can be analyzed. After an estimate of the total traffic into and out of the site has been made, that traffic must be distributed and assigned to the roadway system. The trip distribution step produces estimates of trip origins and destinations. The assignment step produces estimates of the amount of site traffic that will use certain access routes between their origin and destination.

The proposed site plan shows two driveways, driveway #1 is directly on Beck Road in the northeast corner of the site and driveway #2 goes to a proposed private road in the southeast corner of the site. Both driveways provide for 2-way travel. In order to model the worst case scenario, HRC assumed that all trips would access the site using only driveway #1 to the north.

The trips expected to be generated by the development were then assigned to the road. Trips were distributed first based on the directional split of traffic at the driveway on Beck during the peak hours studied. Then the trips to and from the south were assigned based on the directional split at the intersection of Beck and 11 Mile Road. **Table 4** shows the how the trips were assigned to road network.

Table 4: Traffic Split Based on Volumes on Beck Road and Beck & 11 Mile Intersection

Direction	AM Peak Hour		PM Peak Hour	
	Inbound	Outbound	Inbound	Outbound
North	39%	61%	56%	44%
South	53%	32%	40%	51%
East	4%	3%	3%	3%
West	4%	4%	1%	2%
Total	100%	100%	100%	100%

Overall trip assignment for the AM and PM peak hours are shown in the four figures provided in **Attachment E**. Based on the number of assigned trips, the impact from the development on the signalized intersection at Beck & 11 Mile Roads is 3% of the intersection volumes, below the industry practice to study intersections that the development is adding 5% or more to the intersection.

Capacity Analysis at Intersection

At signalized intersections, the Highway Capacity Manual (HCM) defines level of service in terms of control delay. Delay may be measured in the field, or it may be estimated. Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume to capacity ratio for the lane group or approach in question. **Table 5** indicates the control delay criteria used for determining level of service (LOS) for signalized intersections.

Table 5: Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (Seconds)
A	<10
B	>10 to ≤ 20
C	>20 to ≤ 35
D	>35 to ≤ 55
E	>55 to ≤ 80
F	>80

Level of Service A describes operations with very low control delay up to 10.0 sec per vehicle. This occurs when progression is exceptionally favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of Service B describes operations with control delay in the range of 10.1 to 20.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average delay.

Level of Service C describes operations with control delay in the range of 20.1 to 35.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of Service D describes operations with control delay in the range of 35.1 to 55.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with control delay in the range of 55.1 to 80.0 sec per vehicle. This is considered to be above the limit of acceptable delay for an urban roadway in the study area. These

high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent occurrences.

Level of Service F describes operations with control delay in excess of 80.1 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over saturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

A capacity analysis was conducted at the intersection of Beck Road and 11 Mile Road using Synchro 9 software during the AM and PM peak hours for existing, background, and future traffic volumes. **Table 6** and **Table 7** show the growth in volume for each movement used in the traffic model for Phase I and Phase II, respectively. .

Table 6: Growth in Turning Movement Counts at Beck & 11 Mile Roads – Phase I (2016)

Peak Hour	Scenario	SB Beck			WB 11 Mile			NB Beck			EB 11 Mile			Total
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM	Existing	33	442	57	21	85	58	84	728	40	54	113	73	1788
	Background	0	4	1	0	1	1	1	7	0	1	1	1	18
	Future	1	12	2	0	0	2	0	23	0	1	0	0	41
	Total	34	458	60	21	86	61	85	758	40	56	114	74	1847
PM	Existing	55	809	24	29	58	44	32	641	26	18	49	31	1816
	Background	1	8	0	0	1	0	0	6	0	0	0	0	16
	Future	1	22	1	0	0	1	0	16	0	0	0	0	41
	Total	57	839	25	29	59	45	32	663	26	18	49	31	1873

Table 7: Growth in Turning Movement Counts at Beck & 11 Mile Roads – Phase II (2019)

Peak Hour	Scenario	SB Beck			WB 11 Mile			NB Beck			EB 11 Mile			Total
		LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
AM	Existing	33	442	57	21	85	58	84	728	40	54	113	73	1788
	Background	1	18	2	1	3	2	3	29	2	2	5	3	71
	Future	1	16	2	0	0	3	0	29	0	2	0	0	53
	Total	35	476	61	22	88	63	87	786	42	58	118	76	1912
PM	Existing	55	809	24	29	58	44	32	641	26	18	49	31	1816
	Background	2	32	1	1	2	2	1	26	1	1	2	1	72
	Future	2	28	1	0	0	1	0	20	0	1	0	0	53
	Total	59	869	26	30	60	47	33	687	27	20	51	32	1941

Results of the capacity analysis of existing, background, and future traffic volumes at the intersection of

Beck and 11 Mile Roads during the AM and PM peak hours are provided in **Table 8** and **Table 9**. The movements with a LOS E or LOS F are highlighted. During the PM peak hour, 11 Mile Road experiences unacceptable levels of service. HRC optimized the split timings to demonstrate that acceptable levels of service were possible on all approaches and better represent how the actuated signal operates. Because the actuated signal operates on RCOC's FAST-TRAC system, it is continually updating signal splits, thus optimizing the signal performance. The Synchro reports are provided in **Attachment F**.

Table 8: Level of Service Results by Scenario and Peak Hour – Phase I (2016)

Peak Hour	Approach	Existing		Background (2016)		Future (2016)		Optimized Splits – Future (2016)	
		LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh
AM	EB	D	50.1	D	50.2	D	50.2	D	46.9
	WB	D	52.1	D	52.1	D	52.1	D	48.8
	NB	B	18.0	B	18.3	B	19.1	C	20.1
	SB	B	13.1	B	13.3	B	13.5	B	14.0
	Overall	**C**	**24.0**	**C**	**24.2**	**C**	**24.5**	**C**	**24.4**
PM	EB	E	56.7	E	56.7	E	56.8	D	53.5
	WB	E	55.8	E	55.8	E	55.9	D	52.5
	NB	B	12.1	B	12.2	B	12.6	B	13.1
	SB	B	15.1	B	15.3	B	16.1	B	16.9
	Overall	**B**	**19.1**	**B**	**19.3**	**B**	**19.7**	**B**	**19.9**

Table 9: Level of Service Results by Scenario and Peak Hour – Phase II (2019)

Peak Hour	Approach	Existing		Background (2019)		Future (2019)		Optimized Splits – Future (2019)	
		LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh	LOS	Delay sec/veh
AM	EB	D	50.1	D	50.2	D	50.3	D	47.0
	WB	D	52.1	D	52.3	D	52.2	D	48.9
	NB	B	18.0	B	19.5	C	20.6	C	21.8
	SB	B	13.1	B	13.8	B	14.1	B	14.6
	Overall	**C**	**24.0**	**C**	**24.9**	**C**	**25.4**	**C**	**25.4**
PM	EB	E	56.7	E	56.9	E	56.9	D	53.6
	WB	E	55.8	E	55.9	E	56.0	D	52.6
	NB	B	12.1	B	12.7	B	13.2	B	13.8
	SB	B	15.1	B	16.3	B	17.3	B	18.3
	Overall	**B**	**19.1**	**B**	**20.0**	**C**	**20.6**	**C**	**20.8**

Capacity Analysis at Driveway

HRC conducted a capacity analysis at Driveway #1 using Synchro 9 software. The intersections were analyzed following the procedures for unsignalized intersections as outlined in the 2010 Highway Capacity Manual.

At an un-signalized intersection with stop control on the minor approach (two way stop controlled intersections), LOS "F" occurs when there are not enough gaps of suitable size to allow a minor-street demand to safely cross through traffic on the major street. This is typically evident from extremely long control delays experienced by minor street traffic and by queuing on the minor approaches. LOS "F" may also appear in the form of drivers on the minor street selecting smaller than usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. Note that LOS "F" may not always result in long queues but in adjustments to normal gap acceptance behavior, for example a left turning vehicle using a shorter than normal gap in traffic to complete the left turn. **Table 10** indicates the control delay criteria used for determining level of service (LOS) for un-signalized intersections.

At two-way stop controlled intersections, the critical movement, often the minor-street left turn, may control the overall performance of the intersection. The lower threshold for LOS "F" is set at 50 seconds of delay per vehicle as shown in **Table 10**. In some cases, the delay equations will predict delays greater than 50 seconds for minor-street movements under very low-volume conditions on the minor street (less than 25 vehicles per hour). A LOS "F" threshold is reached with a movement capacity of approximately 85 vehicles per hour or less.

Table 10: Level of Service Criteria for Un-Signalized Intersections

Level of Service	Control Delay per Vehicle (Seconds)
A	<10
B	>10 to ≤ 15
C	>15 to ≤ 25
D	>25 to ≤ 35
E	>35 to ≤ 50
F	>50

The capacity analysis at the proposed driveways during the AM and PM peak hours is provided in **Table 11**. The level of service is acceptable. The Synchro reports are provided in **Attachment F**.

Table 11: Driveway Level of Service by Peak Hour and Phase

Peak Hour	Movement	Future - Phase I (2019)		Future - Phase II (2019)	
		LOS	Delay sec/veh	LOS	Delay sec/veh
AM	EB	C	18.4	C	19.9
	NB LT	A	8.8	A	8.9

Peak Hour	Movement	Future - Phase I (2019)		Future - Phase II (2019)	
		LOS	Delay sec/veh	LOS	Delay sec/veh
PM	EB	C	23.1	C	24.5
	NB LT	B	10.4	B	10.6

Right Lane Warrant

HRC conducted an analysis of the need for a right turn lane or taper at driveway #1 using Figure IX.10 from the *Code of Ordinances of the City of Novi adopted April 20, 1987.* Since driveway #1 is the first driveway for southbound trips, it is highly likely that most drivers will use this driveway to enter the site. Driveway #1 meets warrants for a right turn taper during the peak hours for Phase I and Phase II. See **Figure 3** below.

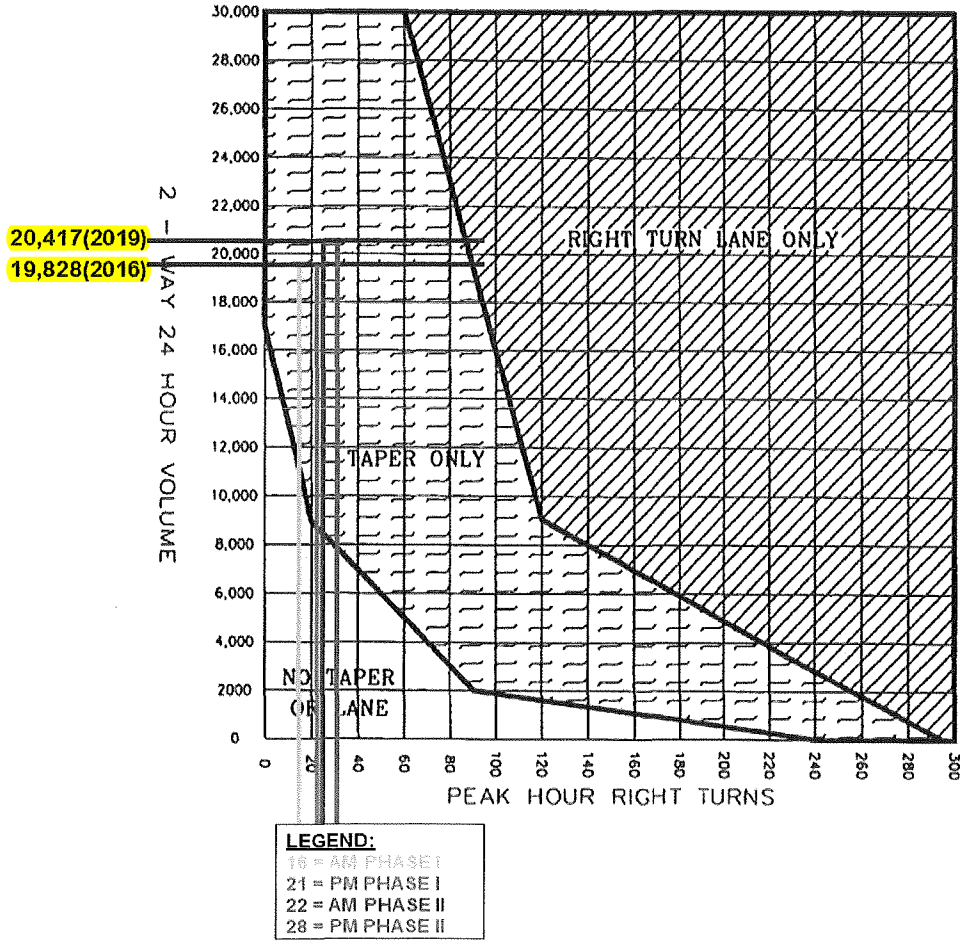


Figure 3. City of Novi Figure IX.10, Standard Warrant for Right Turn Lane or Taper

The standard for a right-turn lane entering taper is 100 feet. The maximum length allowed given the property right-of-way is 40 feet.

Access Management

There are two proposed access points to the site. The developer is proposing to construct a driveway with direct access to Beck Road and another driveway to a proposed public road on the south side that will be available to future development in the area. The proposed public road meets the ordinance requirement to provide full time access to a non-section line road.

The distance between the centerline of the driveway and the road to Beck Road is 230 feet. This distance meets the required distance of 230 feet for a road with a speed of 45 mph. This requirement comes from the City of Novi Code of Ordinances Section 11-216. There are two residential driveways across from each other on Beck road just north of Driveway #1 (north). The distance between the centerlines of the residential driveways and Driveway #1 is 80 feet. These distances do not meet the spacing standards for driveways on opposite sides of undivided roads based on Figure IX.12 from the City of Novi Code of Ordinances Section 11-219.

Summary and Recommendations

The traffic study results are as follows:

1. Trip generation projections show that the trips from the development do not exceed Novi's threshold of 100 peak hour trips until Phase II is constructed. If Phased II is constructed then both the AM and PM peak hours will have trip generation volumes above 100.
2. To be conservative, background traffic was projected to grow at 1% annually.
3. At the signalized intersection of Beck and 11 Mile Roads, the capacity analysis results show that the east and west bound approaches are currently experiencing a LOS E in both peak hours. The addition of the background trips and site development trips do not adversely affect the level of service. The capacity results varied only slightly between Phase I and Phase II. No geometric improvements are necessary at the signalized intersection. Because the actuated signal operates on the FAST-TRAC system, it is continually updating signal splits, thus optimizing the signal performance.
4. The driveway capacity analysis results show no issues.
5. Driveway #1 (north side) meets warrants for a right lane taper according to the City of Novi's Code of Ordinances Section 11-216. The right turn entering taper should be 40 feet long, the maximum length allowed within the property right-of-way.
6. The recommended driveway spacing per the City of Novi's Code of Ordinances is not met but the conflicting driveways serve single-family residences.

If you have any questions or require any additional information, please contact the undersigned.

Very truly yours,

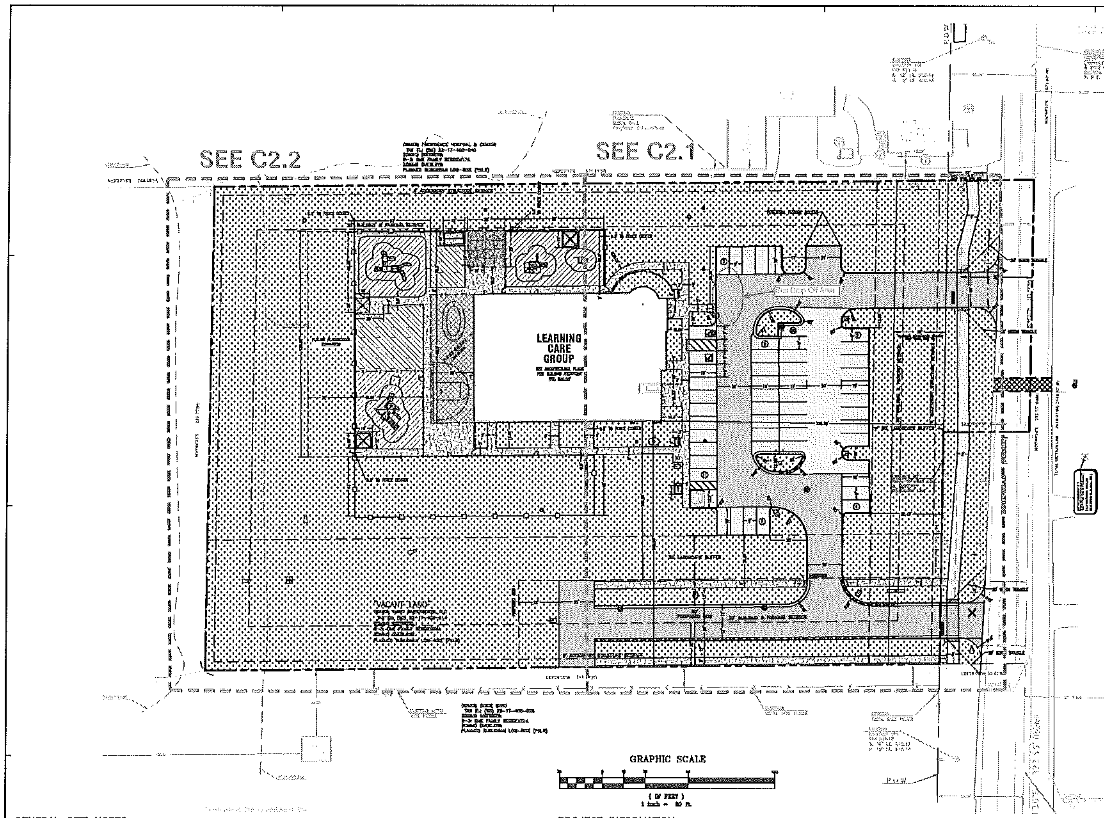
HUBBELL, ROTH & CLARK, INC.

Colleen Hill-Stramsak, P.E., PTOE
Transportation Department Head

CHS/bjl/kmk
Attachments A-Site Plan
B-24 Hour Volumes
C-Turning Movement Counts
D-LCG School Traffic Survey Results
E-Trip Assignment Figures
F-Synchro Reports
G-Resume of Preparer
pc: HRC; File

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment A: Site Plan



GENERAL SITE NOTES:

1. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE AND ADEQUATE WORKING CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SITE SETBACKS, EASEMENTS AND DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST STATE AND LOCAL GOVERNMENT CONSTRUCTION STANDARDS AND SPECIFICATIONS.
5. ALL HANDICAP ACCESSIBLE SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND REQUIREMENTS.
6. IF DURING THE COURSE OF CONSTRUCTION THE CONTRACTOR FINDS ANY DISCREPANCIES OR CONFLICTS BETWEEN THE PROPOSED SITE IMPROVEMENTS INDICATED ON THE PLANS AND THE PHYSICAL CONDITIONS OF THE SITE, OR ANY ERRORS OR OMISSIONS WITHIN THE PLANS OR IN THE SITE LAYOUT AS PROVIDED BY THE ENGINEER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY THE ENGINEER. UNTIL AUTHORIZED TO PROCEED, ANY WORK PERFORMED BY THE CONTRACTOR AFTER SUCH A DISCOVERY WILL BE AT THE CONTRACTOR'S SOLE RISK AND EXPENSE.
7. CONTRACTOR SHALL COORDINATE ALL SITE IMPROVEMENTS WITH ARCHITECTURAL PLANS. ARCHITECTURAL PLANS SHALL BE USED FOR BUILDING STAKEOUT.
8. CONTRACTOR SHALL COORDINATE ALL LANDSCAPE IMPROVEMENTS, INCLUDING NEW PLANTINGS AND TURF AREA RESTORATION REQUIREMENTS, WITH LANDSCAPE PLANS.
9. CONSTRUCTION SURVEY AND STAKEOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL DIMENSIONS SHOWN ARE MEASURED FROM FACE OF CURB TO FACE OF CURB OR EDGE OF PAVEMENT TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
11. ALL CURB RADII ARE MEASURED AT THE FACE OF CURB UNLESS OTHERWISE NOTED.
12. ALL NEW ASPHALT AND/OR CONCRETE PAVING SHALL MATCH EXISTING PAVEMENTS FLUSH.
13. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS OUTSIDE OF CONSTRUCTION LIMITS TO ORIGINAL CONDITION OR BETTER.
14. CONTRACTOR SHALL REPAIR AT HIS EXPENSE ANY DAMAGE TO EXISTING ASPHALT, CONCRETE, CURBS, SIDEWALKS, ETC. RESULTING FROM CONSTRUCTION TRAFFIC AND/OR OPERATIONS. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER AND/OR ENGINEER.
15. ALL FIRE ACCESS LANES WITHIN THE PROJECT AREA SHALL REMAIN IN SERVICE, CLEAN OF DEBRIS, AND ACCESSIBLE FOR USE BY EMERGENCY VEHICLES.
16. ALL DETECTABLE WARNING PLATES SHALL BE PREFORMED PLASTIC INSERTS UNLESS OTHERWISE NOTED.
17. SEE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PROJECT INFORMATION:

SITE AREA:	±4.15 ACRES
ZONED:	N/A
PROPOSED BUILDING AREA:	11,844 SQ. FT. (130 CHILDREN AND 22 STAFF)
PROPOSED USE:	DAY CARE
BUILDING HEIGHT:	24'-0"
PARKING REQUIRED:	43 STALLS (7,540 SQ. FT. USABLE BUILDING SPACE) (1 STALL PER 350 SQ. FT. AND 1 STALL PER EMPLOYEE)
PARKING PROVIDED:	52 STALLS (INCLUDING 2 ADA STALLS)
PLAY SPACE REQUIRED:	19,500 SQ. FT. (150 SQ. FT. PER CHILD)
PLAY SPACE PROVIDED:	23,853 SQ. FT. (INCLUDING FUTURE BUILDING AREA)

FUTURE BUILDING EXPANSION

ACCUMULATIVE AREA OF BUILDING:	14,682 SQ. FT. (170 CHILDREN AND 28 STAFF)
PARKING REQUIRED:	52 STALLS (8,940 SQ. FT. USABLE BUILDING SPACE)
PARKING PROVIDED:	52 STALLS
PLAY SPACE REQUIRED:	25,500 SQ. FT.
ADDITIONAL PLAY SPACE PROVIDED:	4,660 SQ. FT.
TOTAL PLAY SPACE PROVIDED (NOT INCLUDING THE BUILDING EXPANSION AREA):	28,267 SQ. FT.

PROPOSED LEGEND:

- PROPERTY LINE
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED REVERSE PITCH CURB AND GUTTER
- PROPOSED DEPRESSED CURB AND GUTTER
- PROPOSED CONCRETE BARRIER CURB
- PROPOSED PARKING STALL COUNT
- PROPOSED SIGN
- PROPOSED PYLON SIGN
- PROPOSED LIGHT POLE
- PROPOSED STORM SEWER STRUCTURES
- PROPOSED SANITARY SEWER STRUCTURES
- PROPOSED SANITARY SEWER GREASE INTERCEPTOR
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
- PROPOSED TAPPING SLEEVE AND VALVE
- PROPOSED GATE VALVE AND VALVE BOX
- PROPOSED WATER SERVICE TAP
- PROPOSED TRANSFORMER PAD AND STEEL BOLLARDS
- PROPOSED GAS METER
- PROPOSED ELECTRIC METER, CT CABINET AND DISCONNECT
- PROPOSED VINYL FENCE
- PROPOSED 4' VINYL COATED CHAIN LINK FENCE

NOTE: SEE SHEET C1.0 FOR EXISTING LEGEND

PAVEMENT HATCH LEGEND:

- PROPOSED CONCRETE SIDEWALK
  - 4" PORTLAND CEMENT CONCRETE
  - 4" BASE MATERIAL
- PROPOSED EASY TURF WITH SINGLE PAD
  - 2 ¾" PLAYGROUND SHOCK PAD
  - 3" AGGREGATE BASE
  - NATURAL SOIL SURFACE
- PROPOSED EASY TURF WITH DOUBLE PAD
  - TWO LAYERS OF 2 ¾" PLAYGROUND SHOCK PAD
  - 3" AGGREGATE BASE COMPACTED TO 90%
  - NATURAL SOIL SURFACE
- PROPOSED EASY TURF
  - 3" AGGREGATE BASE TOPPED WITH 1" OF FINES AND COMPACTED TO 90%
  - NATURAL SOIL SURFACE
- PROPOSED HEAVY DUTY CONCRETE
  - 6" PORTLAND CEMENT CONCRETE
  - MDOT 22A 8" GRANULAR BASE
  - 6" OF COMPACTED SUBGRADE
- PROPOSED SPLASH PAD CONCRETE
- PROPOSED ASPHALT PAVEMENT
  - 1 1/2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  - 1 1/2" MDOT NO. 1100L, 20A BITUMINOUS LEVELING COURSE
  - 10" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED PLAYGROUND PAVEMENT
  - 2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  - 10" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED HEAVY DUTY ASPHALT PAVEMENT
  - 2" MDOT NO. 1100T, 36A BITUMINOUS
  - 2 1/2" MDOT NO. 100L, 20AA BITUMINOUS IN TWO LIFTS
  - 10" MDOT 21AA CRUSHED LIMESTONE
- PROPOSED DETECTABLE WARNING PLATE
- PROPOSED LANDSCAPE AREA
- EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED

GreenbergFarrow
1430 W. Peachtree St. NW
Suite 200
Atlanta, GA 30309
t: 404 601 4000 f: 404 601 3970

PROJECT TEAM

ISSUE/REVISION RECORD

DATE	DESCRIPTION
09-25-15	CLIENT REVIEW
09-30-15	PERMIT SUBMITTAL
10-23-15	SITE PLAN SUBMITTAL

PROFESSIONAL IN CHARGE
JOHN BOURZAD
PROFESSIONAL ENGINEER
LICENSE NO. 15701

PROJECT MANAGER
BRIAN OLESEN

QUALITY CONTROL
LARRY DEHL

DRAWN BY
MITCH HEFFERNAN

PROJECT NAME
LEARNING CARE GROUP

NOVI
MICHIGAN
NWQ W. 11 MILE ROAD & BECK ROAD

Learning Care group

ICAP DEVELOPMENT

PROJECT NUMBER
20150407.0

SHEET TITLE
OVERALL SITE PLAN

SHEET NUMBER
C2.0

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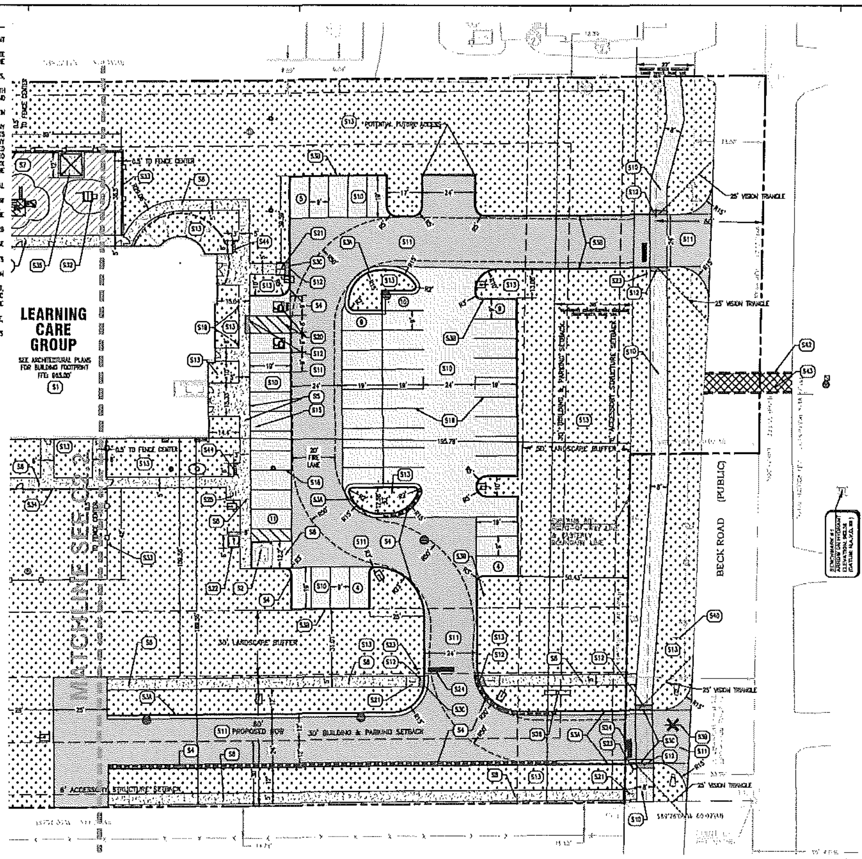
16. ALL DETECTABLE WARNING PLATES SHALL BE PREFORMED PLASTIC INSERTS UNLESS OTHERWISE NOTED.
17. SEE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PAVEMENT HATCH LEGEND:

S6	PROPOSED CONCRETE SIDEWALK 4" PORTLAND CEMENT CONCRETE 4" BASE MATERIAL
S7	PROPOSED EASY TURF WITH SINGLE PAD 2 ⅜" PLAYGROUND SHOCK PAD 3" AGGREGATE BASE NATURAL SOIL SURFACE
S7A	PROPOSED EASY TURF WITH DOUBLE PAD TWO LAYERS OF 2 ⅜" PLAYGROUND SHOCK PAD 3" AGGREGATE BASE COMPACTED TO 90% NATURAL SOIL SURFACE
S7B	PROPOSED EASY TURF 3" AGGREGATE BASE TOPPED WITH 1" OF FINES AND COMPACTED TO 90% NATURAL SOIL SURFACE
S8	PROPOSED HEAVY DUTY CONCRETE 6" PORTLAND CEMENT CONCRETE MDOT 22A 6" GRANULAR BASE 6" OF COMPACTED SUBGRADE
S9	PROPOSED SPLASH PAD CONCRETE
S10	PROPOSED ASPHALT PAVEMENT 1 1/2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE 1 1/2" MDOT NO. 1100L, 20A BITUMINOUS LEVELING COURSE 10" MDOT 21AA CRUSHED LIMESTONE
S10A	PROPOSED PLAYGROUND PAVEMENT 2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE 10" MDOT 21AA CRUSHED LIMESTONE
S11	PROPOSED HEAVY DUTY ASPHALT PAVEMENT 2" MDOT NO. 1100T, 36A BITUMINOUS 2 1/2" MDOT NO. 1100L, 20AA BITUMINOUS IN TWO LIFTS 10" MDOT 21AA CRUSHED LIMESTONE
S12	PROPOSED DETECTABLE WARNING PLATE
S13	PROPOSED LANDSCAPE AREA
S43	EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED



PROJECT INFORMATION:

SITE AREA:	±4.15 ACRES
ZONED:	N/A
PROPOSED BUILDING AREA:	11,844 SQ. FT. (130 CHILDREN AND 22 STAFF)
PROPOSED USE:	DAY CARE
BUILDING HEIGHT:	24'-0"
PARKING REQUIRED:	43 STALLS (7,540 SQ. FT. USABLE BUILDING SPACE) (1 STALL PER 350 SQ. FT. AND 1 STALL PER EMPLOYEE)
PARKING PROVIDED:	52 STALLS (INCLUDING 2 ADA STALLS)
PLAY SPACE REQUIRED:	19,500 SQ. FT. (150 SQ. FT. PER CHILD)
PLAY SPACE PROVIDED:	25,853 SQ. FT. (INCLUDING FUTURE BUILDING AREA)

FUTURE BUILDING EXPANSION:

ACCUMULATIVE AREA OF BUILDING:	14,459 SQ. FT. (170 CHILDREN AND 28 STAFF)
PARKING REQUIRED:	52 STALLS (8,949 SQ. FT. USABLE BUILDING SPACE)
PARKING PROVIDED:	52 STALLS
PLAY SPACE REQUIRED:	25,500 SQ. FT.
ADDITIONAL PLAY SPACE PROVIDED:	4,968 SQ. FT.
TOTAL PLAY SPACE PROVIDED (NOT INCLUDING THE BUILDING EXPANSION AREA):	25,287 SQ. FT.

PROPOSED LEGEND:

- PROPERTY LINE
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED REVERSE PITCH CURB AND GUTTER
- PROPOSED DEPRESSED CURB AND GUTTER
- PROPOSED CONCRETE BARRIER CURB
- PROPOSED PARKING STALL COUNT
- PROPOSED SIGN
- PROPOSED PYLON SIGN
- PROPOSED LIGHT POLE
- PROPOSED STORM SEWER STRUCTURES
- PROPOSED SANITARY SEWER STRUCTURES
- PROPOSED SANITARY SEWER GREASE INTERCEPTOR
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
- PROPOSED TAPPING SLEEVE AND VALVE
- PROPOSED GATE VALVE AND VALVE BOX
- PROPOSED WATER SERVICE TAP
- PROPOSED TRANSFORMER PAD AND STEEL BOLLARDS
- PROPOSED GAS METER
- PROPOSED ELECTRIC METER, CT CABINET AND DISCONNECT
- PROPOSED VINYL FENCE
- PROPOSED 4' VINYL COATED CHAIN LINK FENCE

NOTE: SEE SHEET C1.0 FOR EXISTING LEGEND

SITE KEY NOTES:

S1 PROPOSED BUILDING (SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL INFORMATION AND DETAILS)
S2 PROPOSED TRASH ENCLOSURE (SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL INFORMATION AND DETAILS)
S3A PROPOSED CONCRETE CURB AND GUTTER
S3B PROPOSED CONCRETE BARRIER CURB
S3C PROPOSED DEPRESSED CONCRETE CURB AND GUTTER
S4 PROPOSED REVERSE PITCH CONCRETE CURB AND GUTTER
S5 PROPOSED MONOLITHIC CONCRETE CURB AND SIDEWALK
S6 PROPOSED 4" CONCRETE SIDEWALK
S7 PROPOSED EASY TURF WITH SINGLE PAD
S7A PROPOSED EASY TURF WITH DOUBLE PAD
S7B PROPOSED EASY TURF
S8 PROPOSED HEAVY DUTY CONCRETE
S9 PROPOSED SPLASH PAD CONCRETE
S10 PROPOSED ASPHALT PAVEMENT
S11 PROPOSED HEAVY DUTY ASPHALT PAVEMENT
S12 PROPOSED DETECTABLE WARNING PLATE
S13 PROPOSED LANDSCAPE AREA (SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION AND DETAILS)
S15 PROPOSED PRECAST CONCRETE WHEEL STOP (TYP. OF 11)
S16 PROPOSED 4" PAVEMENT STRIPING PER LOCAL CODE
S18 PROPOSED HANDICAP ACCESSIBLE PARKING SIGN PER LOCAL CODE (TYP. OF 2)
S20 PROPOSED HANDICAP ACCESSIBLE PARKING STALL STRIPING AND SYMBOL PER LOCAL CODE (TYP.)
S21 PROPOSED HANDICAP ACCESSIBLE CURB RAMP AT 12:1 MAXIMUM SLOPE PER LOCAL CODES
S22 PROPOSED CONCRETE TRANSFORMER PAD WITH STEEL BOLLARD PROTECTION (CONTRACTOR SHALL COORDINATE CONCRETE TRANSFORMER PAD LOCATION, SIZE AND THICKNESS WITH ELECTRIC COMPANY PRIOR TO INSTALLATION)
S23 PROPOSED 30" R1-1 STOP SIGN
S24 PROPOSED 24" WIDE STOP BAR PAINTED WHITE
S25 PROPOSED BIKE RACKS
S26 PROPOSED PYLON SIGN (BY OTHERS)
S28 PROPOSED CROSSWALK STRIPING PER LOCAL CODES
S29 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 3821)
S30 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 1556)
S31 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 3812)
S32 PROPOSED INFANT MAZE EQUIPMENT (LSI MODEL 658)
S33 PROPOSED 6' VINYL FENCE
S34 PROPOSED 4' VINYL COATED CHAIN LINK FENCE. FENCE SHALL INCLUDE 8-9 GAUGE WIRE COATED IN BLACK VINYL, GALVANIZED POST AND CHILD PROOF/PANIC HARDWARE
S35 PROPOSED 10'X10' 4 POST SHADE STRUCTURE ON CONCRETE (BY OTHERS)
S36 PROPOSED BASKETBALL COURT AND STRIPING
S37 PROPOSED STORAGE SHED ON CONCRETE
S38 PROPOSED SPLASH PAD AREA
S39 EXISTING SIGN TO BE RELOCATED
S40 PROPOSED LOCATION OF RELOCATED SIGN
S42 SAWCUT EXISTING PAVEMENT
S43 EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED WITH HEAVY DUTY PAVEMENT
S44 PROPOSED URBANSCAPE BURNS HARBOR SERIES BENCH MODEL BH1122S WITH FAUX WOOD AND SURFACE MOUNT OPTIONS
S45 PROPOSED PLAYGROUND STRIPING
S46 PROPOSED SHED

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.

GreenbergFarrow
1430 W. Peachtree St NW
Suite 200
Atlanta, GA 30309
t: 404 601 4000 f: 404 601 3970
PROJECT TEAM

ISSUE/REVISION RECORD

DATE	DESCRIPTION
08-25-15	CLIENT REVIEW
09-30-15	PERMIT SUBMITTAL
10-22-15	SITE PLAN SUBMITTAL

PROFESSIONAL IN CHARGE
JOHN HOURZAD
PROFESSIONAL ENGINEER
LICENSE NO. 15701
PROJECT MANAGER
BRIAN OLESON
QUALITY CONTROL
LARRY DEHL
DRAWN BY
MITCH HEFFERNAN

PROJECT NAME
LEARNING CARE GROUP

NOVI MICHIGAN
NWQ W. 11 MILE ROAD & BECK ROAD

Learning Caregroup

ICAP DEVELOPMENT

PROJECT NUMBER
20150407.0

SHEET TITLE
SITE PLAN EAST

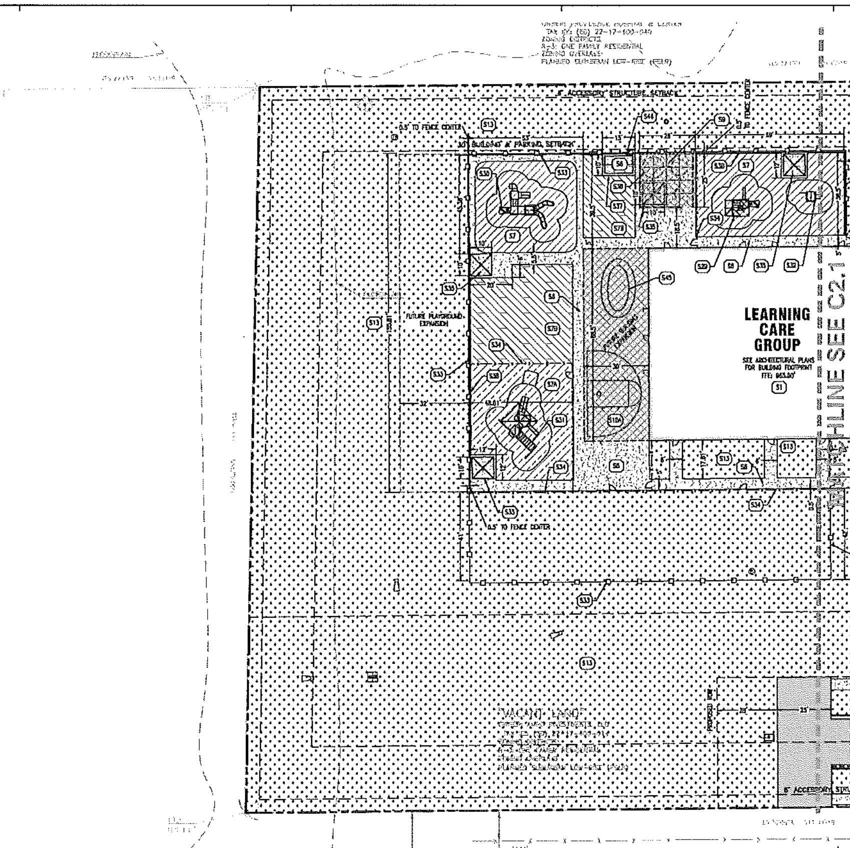
SHEET NUMBER
C2.1

GENERAL SITE NOTES:

1. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SAFE AND ADEQUATE WORKING CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION OF THE PROPOSED SITE IMPROVEMENTS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SITE SETBACKS, EASEMENTS AND DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE LATEST STATE AND LOCAL GOVERNMENT CONSTRUCTION STANDARDS AND SPECIFICATIONS.
5. ALL HANDICAP ACCESSIBLE SITE IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL FEDERAL, STATE AND LOCAL CODES AND REQUIREMENTS.
6. IF DURING THE COURSE OF CONSTRUCTION THE CONTRACTOR FINDS ANY DISCREPANCIES OR CONFLICTS BETWEEN THE PROPOSED SITE IMPROVEMENTS INDICATED ON THE PLANS AND THE PHYSICAL CONDITIONS OF THE SITE, OR ANY ERRORS OR OMISSIONS WITHIN THE PLANS OR IN THE SITE LAYOUT AS PROVIDED BY THE ENGINEER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMMEDIATELY NOTIFY THE ENGINEER. UNTIL AUTHORIZED TO PROCEED, ANY WORK PERFORMED BY THE CONTRACTOR AFTER SUCH A DISCOVERY WILL BE AT THE CONTRACTOR'S SOLE RISK AND EXPENSE.
7. CONTRACTOR SHALL COORDINATE ALL SITE IMPROVEMENTS WITH ARCHITECTURAL PLANS. ARCHITECTURAL PLANS SHALL BE USED FOR BUILDING STAKEOUT.
8. CONTRACTOR SHALL COORDINATE ALL LANDSCAPE IMPROVEMENTS, INCLUDING NEW PLANTINGS AND TURF AREA RESTORATION REQUIREMENTS, WITH LANDSCAPE PLANS.
9. CONSTRUCTION SURVEY AND STAKEOUT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. ALL DIMENSIONS SHOWN ARE MEASURED FROM FACE OF CURB TO FACE OF CURB OR EDGE OF PAVEMENT TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
11. ALL CURB RADII ARE MEASURED AT THE FACE OF CURB UNLESS OTHERWISE NOTED.
12. ALL NEW ASPHALT AND/OR CONCRETE PAVING SHALL MATCH EXISTING PAVEMENTS FLUSH.
13. CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS OUTSIDE OF CONSTRUCTION LIMITS TO ORIGINAL CONDITION OR BETTER.
14. CONTRACTOR SHALL REPAIR AT HIS EXPENSE ANY DAMAGE TO EXISTING ASPHALT, CONCRETE, CURBS, SIDEWALKS, ETC. RESULTING FROM CONSTRUCTION TRAFFIC AND/OR OPERATIONS. REPAIRS SHALL BE MADE TO THE SATISFACTION OF THE OWNER AND/OR ENGINEER.
15. ALL FIRE ACCESS LANES WITHIN THE PROJECT AREA SHALL REMAIN IN SERVICE, CLEAR OF DEBRIS, AND ACCESSIBLE FOR USE BY EMERGENCY VEHICLES.
16. ALL DETECTABLE WARNING PLATES SHALL BE PREFORMED PLASTIC INSERTS UNLESS OTHERWISE NOTED.
17. SEE GENERAL NOTES SHEET FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PAVEMENT HATCH LEGEND:

- (S6) PROPOSED CONCRETE SIDEWALK
  - 4" PORTLAND CEMENT CONCRETE
  - 4" BASE MATERIAL
- (S7) PROPOSED EASY TURF WITH SINGLE PAD
  - 2 ¾" PLAYGROUND SHOCK PAD
  - 3" AGGREGATE BASE
  - NATURAL SOIL SURFACE
- (S7A) PROPOSED EASY TURF WITH DOUBLE PAD
  - TWO LAYERS OF 2 ¾" PLAYGROUND SHOCK PAD
  - 3" AGGREGATE BASE COMPACTED TO 90%
  - NATURAL SOIL SURFACE
- (S7B) PROPOSED EASY TURF
  - 3" AGGREGATE BASE TOPPED WITH 1" OF FINES AND COMPACTED TO 90%
  - NATURAL SOIL SURFACE
- (S8) PROPOSED HEAVY DUTY CONCRETE
  - 8" PORTLAND CEMENT CONCRETE
  - MDOT 22A 8" GRANULAR BASE
  - 6" OF COMPACTED SUBGRADE
- (S9) PROPOSED SPLASH PAD CONCRETE
- (S10) PROPOSED ASPHALT PAVEMENT
  - 1 1/2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  - 1 1/2" MDOT NO. 1100L, 20A BITUMINOUS LEVELING COURSE
  - 10" MDOT 21AA CRUSHED LIMESTONE
- (S10A) PROPOSED PLAYGROUND PAVEMENT
  - 2" MDOT NO. 1100T, 36A BITUMINOUS WEARING COURSE
  - 10" MDOT 21AA CRUSHED LIMESTONE
- (S11) PROPOSED HEAVY DUTY ASPHALT PAVEMENT
  - 2" MDOT NO. 1100T, 36A BITUMINOUS
  - 2 1/2" MDOT NO. 1100L, 20AA BITUMINOUS IN TWO LIFTS
  - 10" MDOT 21AA CRUSHED LIMESTONE
- (S12) PROPOSED DETECTABLE WARNING PLATE
- (S13) PROPOSED LANDSCAPE AREA
- (S43) EXISTING ASPHALT PAVEMENT TO BE REMOVED AND REPLACED



PROJECT INFORMATION:

SITE AREA:	±4.15 ACRES
ZONED:	N/A
PROPOSED BUILDING AREA:	11,844 SQ. FT. (130 CHILDREN AND 22 STAFF)
PROPOSED USE:	DAY CARE
BUILDING HEIGHT:	24'-0"
PARKING REQUIRED:	43 STALLS (7,540 SQ. FT. USABLE BUILDING SPACE) (1 STALL PER 350 SQ. FT. AND 1 STALL PER EMPLOYEE)
PARKING PROVIDED:	52 STALLS (INCLUDING 2 ADA STALLS)
PLAY SPACE REQUIRED:	19,500 SQ. FT. (150 SQ. FT. PER CHILD)
PLAY SPACE PROVIDED:	25,953 SQ. FT. (INCLUDING FUTURE BUILDING AREA)

FUTURE BUILDING EXPANSION:

ACCUMULATIVE AREA OF BUILDING:	14,482 SQ. FT. (170 CHILDREN AND 26 STAFF)
PARKING REQUIRED:	52 STALLS (9,649 SQ. FT. USABLE BUILDING SPACE)
PARKING PROVIDED:	52 STALLS
PLAY SPACE REQUIRED:	25,500 SQ. FT.
ADDITIONAL PLAY SPACE PROVIDED:	4,059 SQ. FT.
TOTAL PLAY SPACE PROVIDED (NOT INCLUDING THE BUILDING EXPANSION AREA):	25,257 SQ. FT.

PROPOSED LEGEND:

- PROPERTY LINE
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED REVERSE PITCH CURB AND GUTTER
- PROPOSED DEPRESSED CURB AND GUTTER
- PROPOSED PARKING STALL COUNT
- PROPOSED SIGN
- PROPOSED PYLON SIGN
- PROPOSED LIGHT POLE
- PROPOSED STORM SEWER STRUCTURES
- PROPOSED SANITARY SEWER STRUCTURES
- PROPOSED SANITARY SEWER GREASE INTERCEPTOR
- PROPOSED FIRE HYDRANT
- PROPOSED FIRE DEPARTMENT CONNECTION (FDC)
- PROPOSED TAPPING SLEEVE AND VALVE
- PROPOSED GATE VALVE AND VALVE BOX
- PROPOSED WATER SERVICE TAP
- PROPOSED TRANSFORMER PAD AND STEEL BOLLARDS
- PROPOSED GAS METER
- PROPOSED ELECTRIC METER, CT CABINET AND DISCONNECT
- PROPOSED 6' VINYL COATED CHAIN LINK FENCE
- PROPOSED VINYL FENCE
- PROPOSED 4' VINYL COATED CHAIN LINK FENCE

NOTE: SEE SHEET C1.0 FOR EXISTING LEGEND

SITE KEY NOTES: (S#)

- S1 PROPOSED BUILDING (SEE ARCHITECTURAL AND STRUCTURAL PLANS FOR ADDITIONAL INFORMATION AND DETAILS)
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- S18 PROPOSED HANDICAP ACCESSIBLE PARKING SIGN PER LOCAL CODE (TYP. OF 2)
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- S23 PROPOSED 30" R1-1 STOP SIGN
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- S25 PROPOSED BIKE RACKS
- S26 PROPOSED PYLON SIGN (BY OTHERS)
- S28 PROPOSED CROSSWALK STRIPING PER LOCAL CODES
- S29 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 3631)
- S30 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 1536)
- S31 PROPOSED PLAYGROUND EQUIPMENT (LSI MODEL 3812)
- S32 PROPOSED INFANT MAZE EQUIPMENT (LSI MODEL 655)
- S33 PROPOSED 6' VINYL FENCE
- S34 PROPOSED 4' VINYL COATED CHAIN LINK FENCE. FENCE SHALL INCLUDE 6-9 GAUGE WIRE COATED IN BLACK VINYL, GALVANIZED POST AND CHILD PROOF/PANIC HARDWARE
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- S45 PROPOSED PLAYGROUND STRIPING
- S46 PROPOSED SHED

GRAPHIC SCALE

(IN FEET)
1 inch = 80 ft.

GreenbergFarrow
1430 W Peachtree St. NW
Suite 200
Atlanta, GA 30309
t: 404 601 4000 f: 404 601 3970

PROJECT TEAM

ISSUE/REVISION RECORD

DATE	DESCRIPTION
09-25-15	CLIENT REVIEW
09-30-15	PERMIT SUBMITTAL
10-22-15	SITE PLAN SUBMITTAL

PROFESSIONAL IN CHARGE
JOHN BOUHZAD
PROFESSIONAL ENGINEER
LICENSE NO. 15701

PROJECT MANAGER
BRIAN OLESEN

QUALITY CONTROL
LARRY DEHL

DRAWN BY
MITCH HEFFERNAN

PROJECT NAME
LEARNING CARE GROUP

NOVI
MICHIGAN
NWQ W. 11 MILE ROAD & BECK ROAD

Learning Care group

ICAP DEVELOPMENT

PROJECT NUMBER
20150407.0

SHEET TITLE
SITE PLAN WEST

SHEET NUMBER
C2.2

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment B: 24 Hour Volumes

Hubbell, Roth & Clark, Inc.
555 Hulet Drive
Bloomfield Hills, MI 48303
(248) 454-6300

Site Code: Beck and 11 Mile
Station ID:

Latitude: 0' 0.0000 Undefined

Start	30-Nov-15		01-Dec-15		02-Dec-15		03-Dec-15		04-Dec-15		Weekday Average		05-Dec-15		06-Dec-15	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	*	*	36	29	44	40	*	*	*	*	40	34	*	*	*	*
01:00	*	*	36	23	37	13	*	*	*	*	36	18	*	*	*	*
02:00	*	*	18	20	17	17	*	*	*	*	18	18	*	*	*	*
03:00	*	*	18	16	23	17	*	*	*	*	20	16	*	*	*	*
04:00	*	*	44	60	48	57	*	*	*	*	46	58	*	*	*	*
05:00	*	*	145	224	136	216	*	*	*	*	140	220	*	*	*	*
06:00	*	*	331	654	332	668	*	*	*	*	332	661	*	*	*	*
07:00	*	*	492	**854**	522	850	*	*	*	*	507	852	*	*	*	*
08:00	*	*	**556**	844	**579**	**896**	*	*	*	*	**568**	**870**	*	*	*	*
09:00	*	*	555	788	510	728	*	*	*	*	532	758	*	*	*	*
10:00	*	*	466	648	320	470	*	*	*	*	393	559	*	*	*	*
11:00	**475**	**595**	453	546	*	*	*	*	*	*	464	570	*	*	*	*
12:00 PM	561	601	488	623	*	*	*	*	*	*	524	612	*	*	*	*
01:00	517	621	503	571	*	*	*	*	*	*	510	596	*	*	*	*
02:00	617	606	582	591	*	*	*	*	*	*	600	598	*	*	*	*
03:00	681	718	694	705	*	*	*	*	*	*	688	712	*	*	*	*
04:00	767	**731**	748	**744**	*	*	*	*	*	*	758	**738**	*	*	*	*
05:00	**842**	692	**868**	713	*	*	*	*	*	*	**855**	702	*	*	*	*
06:00	665	649	738	652	*	*	*	*	*	*	702	650	*	*	*	*
07:00	576	382	524	406	*	*	*	*	*	*	550	394	*	*	*	*
08:00	404	305	417	296	*	*	*	*	*	*	410	300	*	*	*	*
09:00	280	203	269	218	*	*	*	*	*	*	274	210	*	*	*	*
10:00	165	94	160	109	*	*	*	*	*	*	162	102	*	*	*	*
11:00	115	54	87	70	*	*	*	*	*	*	101	62	*	*	*	*
Total	6665	6251	9228	10404	2568	3972	0	0	0	0	9230	10310	0	0	0	0
Day	12916		19632		6540		0		0		19540		0		0	
AM Peak	11:00	11:00	08:00	07:00	08:00	08:00	-	-	-	-	08:00	08:00	-	-	-	-
Vol.	475	595	556	854	579	896	-	-	-	-	568	870	-	-	-	-
PM Peak	17:00	16:00	17:00	16:00	-	-	-	-	-	-	17:00	16:00	-	-	-	-
Vol.	842	731	868	744	-	-	-	-	-	-	855	738	-	-	-	-

Comb. Total	12916	19632	6540	0	0	19540	0	0

ADT ADT 19,543 AADT 19,543

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment C: Turning Movement Counts

Hubbell, Roth & Clark, Inc.
555 Hulet Drive
Bloomfield Hills, MI 48302
(248) 454-6300

File Name : 20151201_TMC
Site Code : 00000000
Start Date : 12/1/2015
Page No : 1

Groups Printed- Unshifted

	Beck Rd Southbound					11 Mile Rd Westbound					Beck Rd Northbound					11 Mile Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	11	86	7	0	104	2	10	11	0	23	11	195	5	0	211	2	13	5	0	20	358
07:15 AM	5	89	31	0	125	8	43	19	0	70	43	189	8	0	240	8	16	12	0	36	471
07:30 AM	7	124	9	0	140	3	27	12	0	42	27	188	12	0	227	24	39	37	0	100	509
07:45 AM	13	113	7	0	133	4	5	14	0	23	7	187	12	0	206	13	43	16	0	72	434
Total	36	412	54	0	502	17	85	56	0	158	88	759	37	0	884	47	111	70	0	228	1772
08:00 AM	8	116	10	0	134	6	10	13	0	29	7	164	8	0	179	9	15	8	0	32	374
08:15 AM	4	116	5	0	125	2	1	8	0	11	8	177	9	0	194	12	7	1	0	20	350
08:30 AM	5	111	10	0	126	3	9	16	0	28	6	191	8	0	205	5	12	3	0	20	379
08:45 AM	10	98	23	0	131	8	9	15	0	32	11	167	15	0	193	16	35	6	0	57	413
Total	27	441	48	0	516	19	29	52	0	100	32	699	40	0	771	42	69	18	0	129	1516
*** BREAK ***																					
02:00 PM	3	128	3	0	134	3	6	9	0	18	8	133	2	0	143	1	3	3	0	7	302
02:15 PM	12	111	9	0	132	5	16	5	0	26	22	143	2	0	167	1	6	7	0	14	339
02:30 PM	8	136	7	0	151	6	8	4	0	18	16	114	5	0	135	18	29	11	0	58	362
02:45 PM	9	138	8	0	155	1	5	6	0	12	3	112	5	0	120	7	9	19	0	35	322
Total	32	513	27	0	572	15	35	24	0	74	49	502	14	0	565	27	47	40	0	114	1325
03:00 PM	9	157	7	0	173	9	4	10	0	23	1	96	8	0	105	11	12	12	0	35	336
03:15 PM	11	131	10	0	152	3	8	7	0	18	10	146	9	0	165	9	19	22	0	50	385
03:30 PM	12	154	11	0	177	4	10	6	0	20	10	157	5	0	172	4	9	5	0	18	387
03:45 PM	14	158	11	0	183	6	22	5	0	33	5	154	9	0	168	9	7	16	0	32	416
Total	46	600	39	0	685	22	44	28	0	94	26	553	31	0	610	33	47	55	0	135	1524
04:00 PM	11	176	7	0	194	3	17	13	0	33	10	178	7	0	195	19	10	14	0	43	465
04:15 PM	17	169	12	1	199	9	19	13	1	42	8	138	8	0	154	12	21	22	0	55	450
04:30 PM	18	153	8	0	179	4	11	9	0	24	10	172	8	0	190	4	10	9	0	23	416
04:45 PM	9	162	12	0	183	8	9	13	0	30	7	145	3	0	155	5	11	4	0	20	388
Total	55	660	39	1	755	24	56	48	1	129	35	633	26	0	694	40	52	49	0	141	1719
05:00 PM	15	205	9	0	229	10	20	12	0	42	4	145	3	0	152	4	13	5	0	22	445
05:15 PM	12	193	4	0	209	7	16	15	0	38	12	181	6	0	199	5	13	8	0	26	472
05:30 PM	16	208	4	0	228	5	9	10	0	24	7	156	12	0	175	6	10	11	0	27	454
05:45 PM	12	203	7	0	222	7	13	7	0	27	9	159	5	0	173	3	13	7	0	23	445
Total	55	809	24	0	888	29	58	44	0	131	32	641	26	0	699	18	49	31	0	98	1816
Grand Total	251	3435	231	1	3918	126	307	252	1	686	262	3787	174	0	4223	207	375	263	0	845	9672
Apprch %	6.4	87.7	5.9	0		18.4	44.8	36.7	0.1		6.2	89.7	4.1	0		24.5	44.4	31.1	0		
Total %	2.6	35.5	2.4	0	40.5	1.3	3.2	2.6	0	7.1	2.7	39.2	1.8	0	43.7	2.1	3.9	2.7	0	8.7	

Hubbell, Roth & Clark, Inc.
555 Hulet Drive
Bloomfield Hills, MI 48302
(248) 454-6300

	Beck Rd Southbound					11 Mile Rd Westbound					Beck Rd Northbound					11 Mile Rd Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	5	89	31	0	125	8	43	19	0	70	43	189	8	0	240	8	16	12	0	36	471
07:30 AM	7	124	9	0	140	3	27	12	0	42	27	188	12	0	227	24	39	37	0	100	509
07:45 AM	13	113	7	0	133	4	5	14	0	23	7	187	12	0	206	13	43	16	0	72	434
08:00 AM	8	116	10	0	134	6	10	13	0	29	7	164	8	0	179	9	15	8	0	32	374
Total Volume	33	442	57	0	532	21	85	58	0	164	84	728	40	0	852	54	113	73	0	240	1788
% App. Total	6.2	83.1	10.7	0		12.8	51.8	35.4	0		9.9	85.4	4.7	0		22.5	47.1	30.4	0		
PHF	.635	.891	.460	.000	.950	.656	.494	.763	.000	.586	.488	.963	.833	.000	.888	.563	.657	.493	.000	.600	.878
Peak Hour Analysis From 02:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	15	205	9	0	229	10	20	12	0	42	4	145	3	0	152	4	13	5	0	22	445
05:15 PM	12	193	4	0	209	7	16	15	0	38	12	181	6	0	199	5	13	8	0	26	472
05:30 PM	16	208	4	0	228	5	9	10	0	24	7	156	12	0	175	6	10	11	0	27	454
05:45 PM	12	203	7	0	222	7	13	7	0	27	9	159	5	0	173	3	13	7	0	23	445
Total Volume	55	809	24	0	888	29	58	44	0	131	32	641	26	0	699	18	49	31	0	98	1816
% App. Total	6.2	91.1	2.7	0		22.1	44.3	33.6	0		4.6	91.7	3.7	0		18.4	50	31.6	0		
PHF	.859	.972	.667	.000	.969	.725	.725	.733	.000	.780	.667	.885	.542	.000	.878	.750	.942	.705	.000	.907	.962

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment D: LCG School Traffic Survey Results

School Traffic Model - Novi, MI

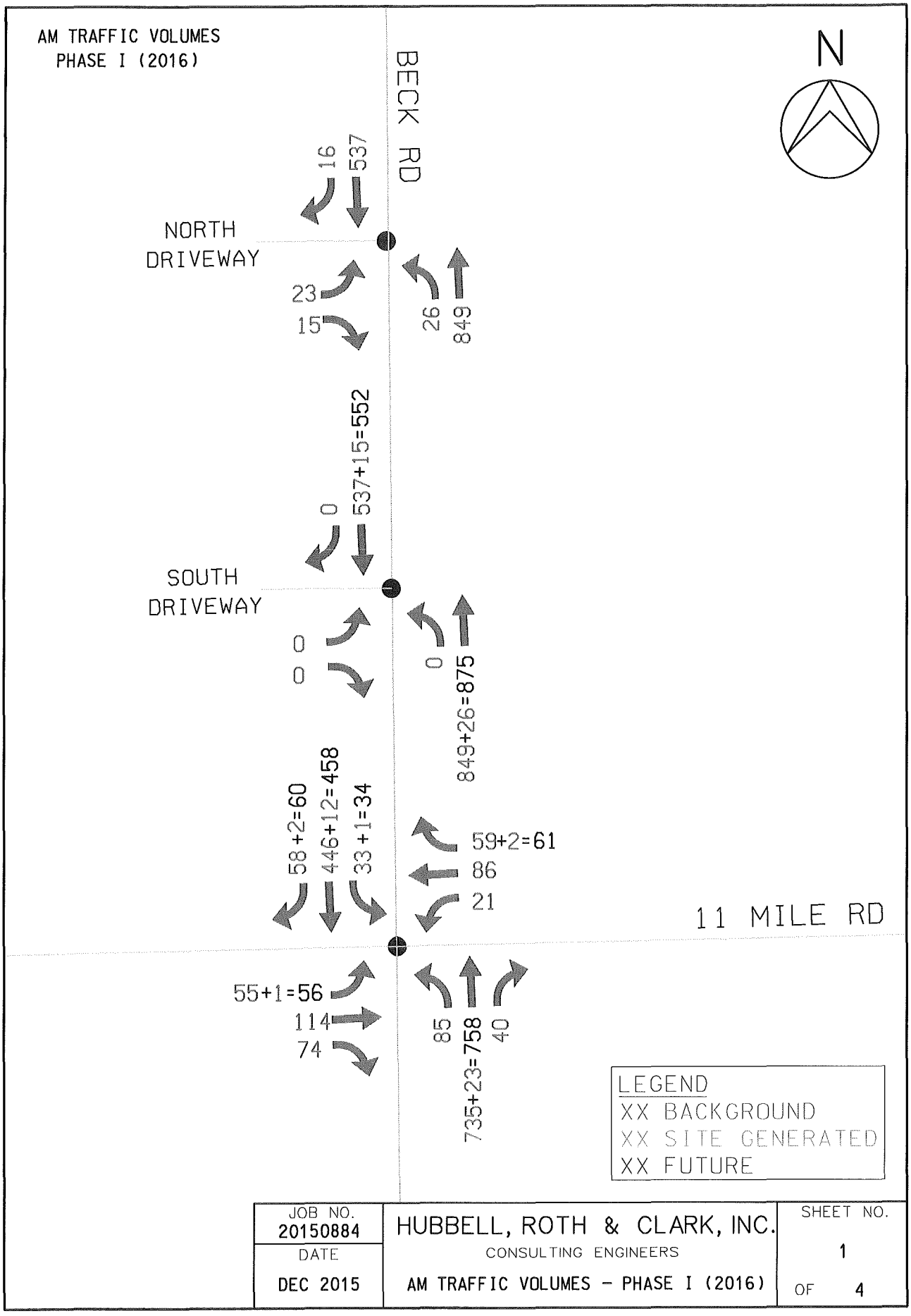
Daily Volume:	131	131	20	20	2

	Children		Employees		Prospects	Total	
	Check-in	Check-out	Check-in	Check-out	Tours	Visits IN	Visits OUT
6:00 - 7:00 a	17	0	2	0	0.0	**19**	**17**
7:00 - 8:00 a	39	4	3	0	0.0	**46**	**43**
8:00 - 9:00 a	33	7	3	0	0.1	**43**	**41**
9:00 - 10:00 a	10	1	2	0	0.2	**14**	**12**
10:00 - 11:00 a	3	0	1	1	0.2	**4**	**4**
11:00 - 12:00 p	2	1	1	1	0.2	**5**	**5**
12:00 - 1:00 p	3	5	2	3	0.2	**10**	**11**
1:00 - 2:00 p	2	2	3	3	0.2	**7**	**6**
2:00 - 3:00 p	8	5	3	1	0.2	**16**	**14**
3:00 - 4:00 p	11	11	1	1	0.2	**23**	**24**
4:00 - 5:00 p	2	28	0	2	0.2	**31**	**33**
5:00 - 6:00 p	0	46	0	3	0.3	**47**	**50**
6:00 - 7:00 p	0	19	0	3	0.0	**20**	**23**
Total	**131**	**131**	**20**	**20**	**2**	**283**	**283**

Based on all LCW schools (809 schools) for week ending 11/6/15
Assumes each child check-in/out is a unique visit (excludes buses, siblings)
Assumes all traffic is incremental
Child/staff volumes based on Year 3 estimates (school year 2018-2019)

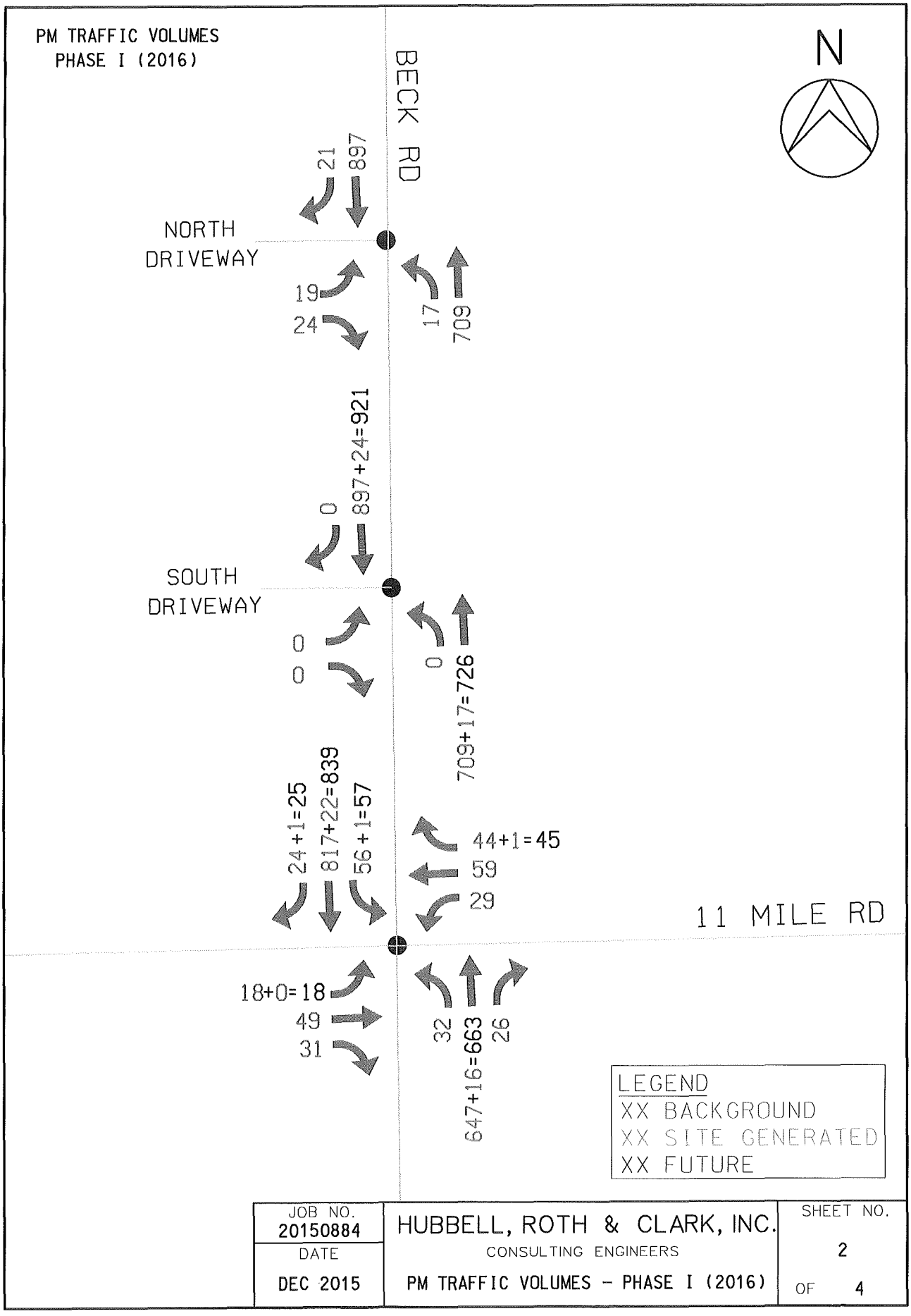
HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment E: Trip Assignment Figures

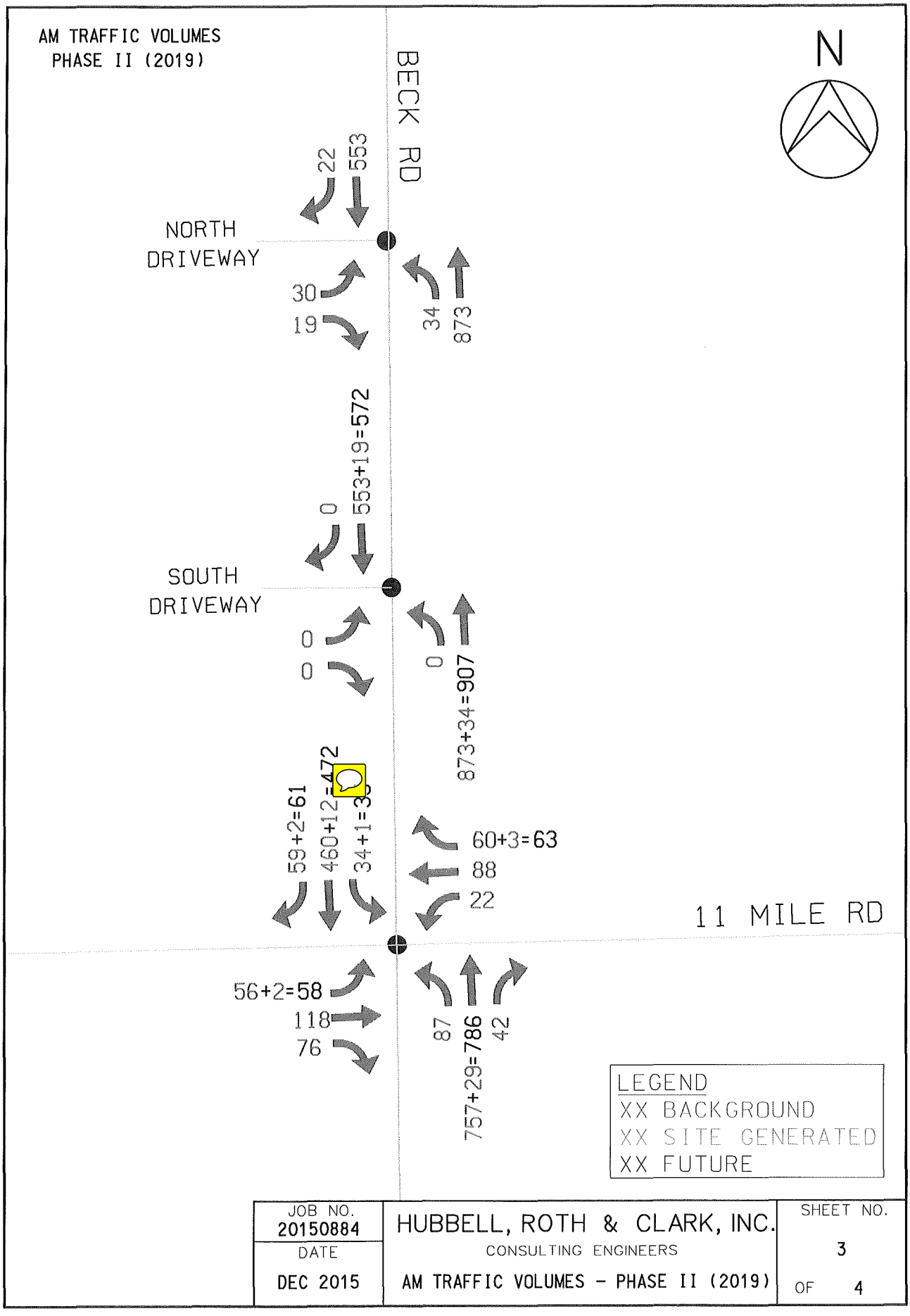


JOB NO. 20150884	HUBBELL, ROTH & CLARK, INC.	SHEET NO.
DATE	CONSULTING ENGINEERS	1
DEC 2015	AM TRAFFIC VOLUMES - PHASE I (2016)	OF 4

PM TRAFFIC VOLUMES
PHASE I (2016)

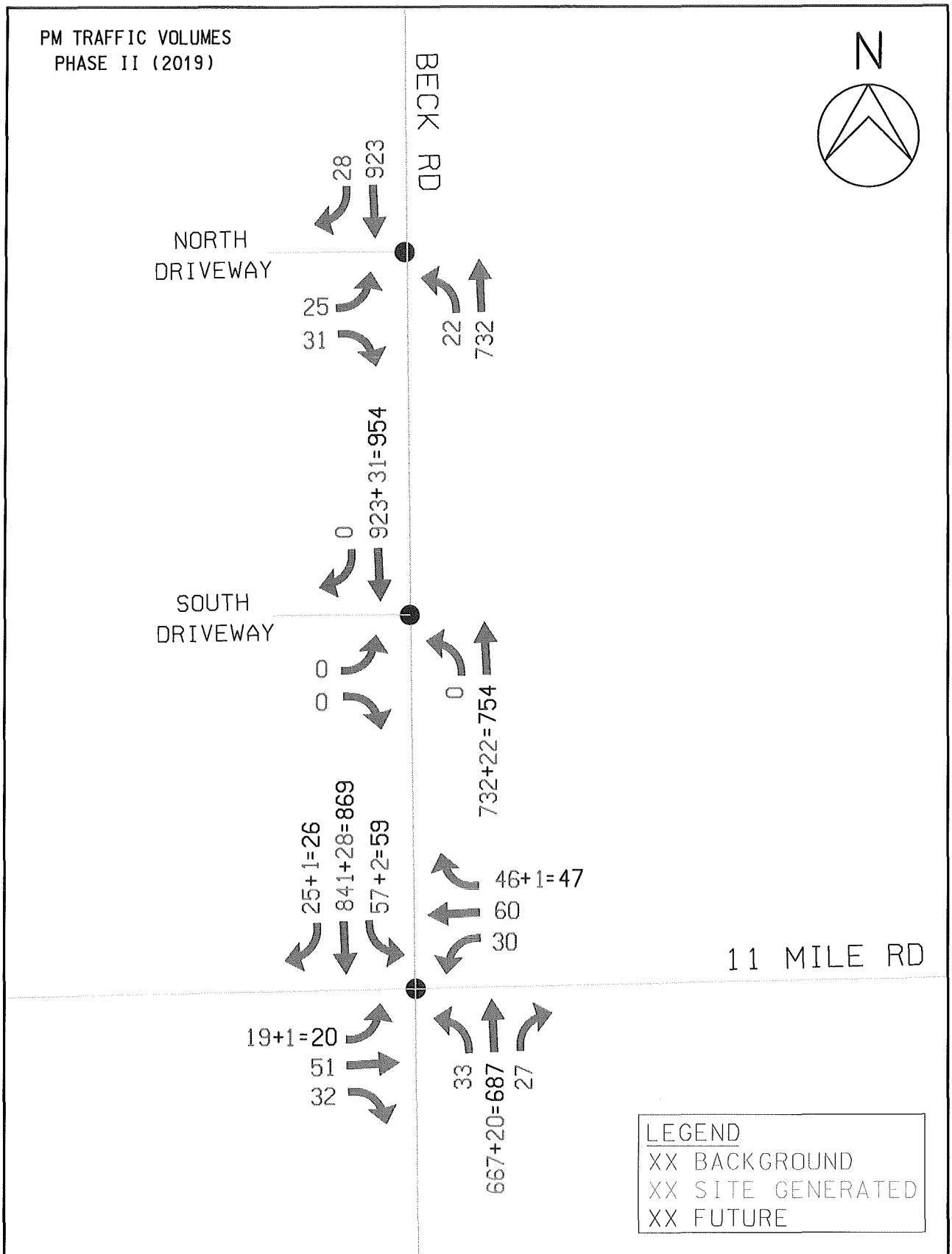


JOB NO. 20150884	HUBBELL, ROTH & CLARK, INC.	SHEET NO. 2
DATE DEC 2015	CONSULTING ENGINEERS PM TRAFFIC VOLUMES – PHASE I (2016)	OF 4



JOB NO. 20150884	HUBBELL, ROTH & CLARK, INC.	SHEET NO. 3
DATE DEC 2015	CONSULTING ENGINEERS AM TRAFFIC VOLUMES - PHASE II (2019)	OF 4

PM TRAFFIC VOLUMES
PHASE II (2019)



JOB NO. 20150884	HUBBELL, ROTH & CLARK, INC.	SHEET NO.
DATE	CONSULTING ENGINEERS	4
DEC 2015	PM TRAFFIC VOLUMES - PHASE II (2019)	OF 4

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment F: Synchro Reports

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Future Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	59	123	79	23	92	63	91	791	43	36	480	62
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	150	96	99	116	80	508	1109	980	311	1109	980
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.03	0.60	0.60	0.03	0.60	0.60
Sat Flow, veh/h	1774	1103	709	1774	1032	706	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	59	0	202	23	0	155	91	791	43	36	480	62
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1738	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	11.3	0.0	0.0	9.1	0.0	31.2	1.1	0.0	14.7	1.7
Cycle Q Clear(g_c), s	0.0	0.0	11.3	0.0	0.0	9.1	0.0	31.2	1.1	0.0	14.7	1.7
Prop In Lane	1.00		0.39	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	0	246	99	0	196	508	1109	980	311	1109	980
V/C Ratio(X)	0.35	0.00	0.82	0.23	0.00	0.79	0.18	0.71	0.04	0.12	0.43	0.06
Avail Cap(c_a), veh/h	169	0	452	142	0	433	530	1109	980	333	1109	980
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	0.00	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	47.6	0.0	43.8	50.7	0.0	45.1	15.7	14.9	8.8	25.3	11.5	8.9
Incr Delay (d2), s/veh	1.3	0.0	6.7	1.2	0.0	7.1	0.2	3.9	0.1	0.2	1.2	0.1
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	1.7	0.0	6.1	0.7	0.0	4.7	1.5	17.0	0.5	0.8	7.8	0.8
LnGrp Delay(d),s/veh	48.9	0.0	50.5	51.9	0.0	52.2	15.9	18.8	8.9	25.4	12.7	9.0
LnGrp LOS	D		D	D		D	B	B	A	C	B	A
Approach Vol, veh/h		261			178			925			578	
Approach Delay, s/veh		50.1			52.1			18.0			13.1	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	68.0	7.5	20.2	8.7	68.0	9.9	17.7
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 62	4.0	26.0	* 4.1	* 62	4.0	26.0
Max Q Clear Time (g_c+I1), s	2.0	33.2	2.0	13.3	2.0	16.7	2.0	11.1
Green Ext Time (p_c), s	0.1	5.9	0.0	0.9	0.1	3.2	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Future Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	59	124	80	23	93	64	92	799	44	36	485	63
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	151	97	99	117	81	503	1107	979	305	1107	979
Arrive On Green	0.04	0.14	0.14	0.01	0.11	0.11	0.03	0.59	0.59	0.03	0.59	0.59
Sat Flow, veh/h	1774	1101	711	1774	1029	708	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	59	0	204	23	0	157	92	799	44	36	485	63
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1738	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	11.4	0.0	0.0	9.2	0.0	31.8	1.2	0.0	14.9	1.7
Cycle Q Clear(g_c), s	0.0	0.0	11.4	0.0	0.0	9.2	0.0	31.8	1.2	0.0	14.9	1.7
Prop In Lane	1.00		0.39	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	0	248	99	0	198	503	1107	979	305	1107	979
V/C Ratio(X)	0.35	0.00	0.82	0.23	0.00	0.79	0.18	0.72	0.04	0.12	0.44	0.06
Avail Cap(c_a), veh/h	168	0	451	142	0	432	525	1107	979	327	1107	979
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	0.00	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	47.7	0.0	43.8	50.7	0.0	45.1	15.9	15.0	8.8	25.8	11.6	8.9
Incr Delay (d2), s/veh	1.3	0.0	6.7	1.2	0.0	7.1	0.2	4.1	0.1	0.2	1.3	0.1
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	1.7	0.0	6.2	0.7	0.0	4.8	1.6	17.5	0.6	0.8	7.9	0.8
LnGrp Delay(d),s/veh	49.0	0.0	50.5	51.9	0.0	52.2	16.1	19.1	8.9	26.0	12.9	9.1
LnGrp LOS	D		D	D		D	B	B	A	C	B	A
Approach Vol, veh/h		263			180			935			584	
Approach Delay, s/veh		50.2			52.1			18.3			13.3	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	68.0	7.5	20.3	8.7	68.0	9.9	17.9
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 62	4.0	26.0	* 4.1	* 62	4.0	26.0
Max Q Clear Time (g_c+I1), s	2.0	33.8	2.0	13.4	2.0	16.9	2.0	11.2
Green Ext Time (p_c), s	0.1	6.0	0.0	0.9	0.1	3.2	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	114	74	21	86	61	85	758	40	34	458	60
Future Volume (veh/h)	56	114	74	21	86	61	85	758	40	34	458	60
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	61	124	80	23	93	66	92	824	43	37	498	65
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	151	97	100	117	83	493	1107	979	290	1107	979
Arrive On Green	0.04	0.14	0.14	0.01	0.12	0.12	0.03	0.59	0.59	0.03	0.59	0.59
Sat Flow, veh/h	1774	1101	711	1774	1015	720	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	61	0	204	23	0	159	92	824	43	37	498	65
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1736	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	11.4	0.0	0.0	9.3	0.0	33.6	1.1	0.0	15.5	1.7
Cycle Q Clear(g_c), s	0.0	0.0	11.4	0.0	0.0	9.3	0.0	33.6	1.1	0.0	15.5	1.7
Prop In Lane	1.00		0.39	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	164	0	248	100	0	200	493	1107	979	290	1107	979
V/C Ratio(X)	0.37	0.00	0.82	0.23	0.00	0.80	0.19	0.74	0.04	0.13	0.45	0.07
Avail Cap(c_a), veh/h	168	0	451	143	0	432	515	1107	979	312	1107	979
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	0.00	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	47.8	0.0	43.8	50.7	0.0	45.0	16.3	15.4	8.8	27.2	11.7	8.9
Incr Delay (d2), s/veh	1.4	0.0	6.7	1.2	0.0	7.1	0.2	4.5	0.1	0.2	1.3	0.1
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	0.0	6.2	0.7	0.0	4.9	1.6	18.6	0.5	0.8	8.3	0.8
LnGrp Delay(d),s/veh	49.2	0.0	50.5	51.9	0.0	52.1	16.5	20.0	8.9	27.4	13.0	9.1
LnGrp LOS	D		D	D		D	B	B	A	C	B	A
Approach Vol, veh/h		265			182			959			600	
Approach Delay, s/veh		50.2			52.1			19.1			13.5	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	68.0	7.5	20.3	8.7	68.0	9.8	18.0
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 62	4.0	26.0	* 4.1	* 62	4.0	26.0
Max Q Clear Time (g_c+I1), s	2.0	35.6	2.0	13.4	2.0	17.5	2.0	11.3
Green Ext Time (p_c), s	0.1	6.2	0.0	0.9	0.1	3.3	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.5
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	23	15	26	849	537	16
Future Vol, veh/h	23	15	26	849	537	16
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	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	16	28	923	584	17

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1571	592	601	0	-	0
Stage 1	592	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	122	506	976	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	364	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	119	506	976	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	553	-	-	-	-	-
Stage 2	354	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.4	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	976	-	310	-	-
HCM Lane V/C Ratio	0.029	-	0.133	-	-
HCM Control Delay (s)	8.8	-	18.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Future Volume (veh/h)	54	113	73	21	85	58	84	728	40	33	442	57
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	61	128	83	24	96	66	95	823	45	37	500	64
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	168	155	100	98	120	83	488	1102	974	286	1102	974
Arrive On Green	0.04	0.14	0.14	0.01	0.12	0.12	0.03	0.59	0.59	0.03	0.59	0.59
Sat Flow, veh/h	1774	1099	713	1774	1030	708	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	61	0	211	24	0	162	95	823	45	37	500	64
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1738	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	11.9	0.0	0.0	9.5	0.0	33.9	1.2	0.0	15.7	1.7
Cycle Q Clear(g_c), s	0.0	0.0	11.9	0.0	0.0	9.5	0.0	33.9	1.2	0.0	15.7	1.7
Prop In Lane	1.00		0.39	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	0	255	98	0	203	488	1102	974	286	1102	974
V/C Ratio(X)	0.36	0.00	0.83	0.25	0.00	0.80	0.19	0.75	0.05	0.13	0.45	0.07
Avail Cap(c_a), veh/h	168	0	449	140	0	430	510	1102	974	308	1102	974
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	0.00	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	47.8	0.0	43.9	51.0	0.0	45.2	16.7	15.7	9.0	27.7	12.0	9.1
Incr Delay (d2), s/veh	1.3	0.0	6.7	1.3	0.0	7.1	0.2	4.6	0.1	0.2	1.3	0.1
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	0.0	6.5	0.7	0.0	5.0	1.7	18.8	0.6	0.8	8.5	0.8
LnGrp Delay(d),s/veh	49.1	0.0	50.6	52.3	0.0	52.3	16.9	20.3	9.1	27.9	13.3	9.2
LnGrp LOS	D		D	D		D	B	C	A	C	B	A
Approach Vol, veh/h		272			186			963			601	
Approach Delay, s/veh		50.2			52.3			19.5			13.8	
Approach LOS		D			D			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	68.0	7.5	20.8	8.7	68.0	10.0	18.2
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 62	4.0	26.0	* 4.1	* 62	4.0	26.0
Max Q Clear Time (g_c+I1), s	2.0	35.9	2.0	13.9	2.0	17.7	2.0	11.5
Green Ext Time (p_c), s	0.1	6.1	0.0	0.9	0.1	3.3	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	24.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	118	76	22	88	63	87	786	42	35	476	61
Future Volume (veh/h)	58	118	76	22	88	63	87	786	42	35	476	61
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	63	128	83	24	96	68	95	854	46	38	517	66
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	155	100	99	120	85	476	1102	974	267	1102	974
Arrive On Green	0.04	0.14	0.14	0.01	0.12	0.12	0.03	0.59	0.59	0.03	0.59	0.59
Sat Flow, veh/h	1774	1099	713	1774	1016	720	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	63	0	211	24	0	164	95	854	46	38	517	66
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1736	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	11.9	0.0	0.0	9.7	0.0	36.3	1.2	0.0	16.5	1.8
Cycle Q Clear(g_c), s	0.0	0.0	11.9	0.0	0.0	9.7	0.0	36.3	1.2	0.0	16.5	1.8
Prop In Lane	1.00		0.39	1.00		0.41	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	0	255	99	0	205	476	1102	974	267	1102	974
V/C Ratio(X)	0.38	0.00	0.83	0.24	0.00	0.80	0.20	0.78	0.05	0.14	0.47	0.07
Avail Cap(c_a), veh/h	168	0	449	142	0	430	498	1102	974	289	1102	974
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	0.00	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	48.0	0.0	43.9	51.0	0.0	45.1	17.2	16.2	9.0	29.6	12.1	9.1
Incr Delay (d2), s/veh	1.4	0.0	6.7	1.2	0.0	7.1	0.2	5.4	0.1	0.2	1.4	0.1
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	0.0	6.5	0.7	0.0	5.1	1.7	20.1	0.6	0.9	8.9	0.8
LnGrp Delay(d),s/veh	49.4	0.0	50.6	52.2	0.0	52.2	17.4	21.5	9.1	29.9	13.6	9.3
LnGrp LOS	D		D	D		D	B	C	A	C	B	A
Approach Vol, veh/h		274			188			995			621	
Approach Delay, s/veh		50.3			52.2			20.6			14.1	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	68.0	7.5	20.8	8.7	68.0	9.9	18.4
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 62	4.0	26.0	* 4.1	* 62	4.0	26.0
Max Q Clear Time (g_c+I1), s	2.0	38.3	2.0	13.9	2.0	18.5	2.0	11.7
Green Ext Time (p_c), s	0.1	6.3	0.0	0.9	0.1	3.5	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	30	19	34	873	553	22
Future Vol, veh/h	30	19	34	873	553	22
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	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	21	37	949	601	24

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1636	613	625	0	-	0
Stage 1	613	-	-	-	-	-
Stage 2	1023	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	111	492	956	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	492	956	-	-	-
Mov Cap-2 Maneuver	234	-	-	-	-	-
Stage 1	541	-	-	-	-	-
Stage 2	334	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.9	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	956	-	294	-	-
HCM Lane V/C Ratio	0.039	-	0.181	-	-
HCM Control Delay (s)	8.9	-	19.9	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Future Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	20	53	34	32	63	48	35	697	28	60	879	26
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	74	48	143	82	62	328	1234	1091	441	1234	1091
Arrive On Green	0.01	0.07	0.07	0.03	0.08	0.08	0.02	0.66	0.66	0.02	0.66	0.66
Sat Flow, veh/h	1774	1104	708	1774	982	748	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	20	0	87	32	0	111	35	697	28	60	879	26
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1731	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	5.1	0.0	0.0	6.8	0.0	22.0	0.6	0.0	32.8	0.6
Cycle Q Clear(g_c), s	0.0	0.0	5.1	0.0	0.0	6.8	0.0	22.0	0.6	0.0	32.8	0.6
Prop In Lane	1.00		0.39	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	0	122	143	0	144	328	1234	1091	441	1234	1091
V/C Ratio(X)	0.21	0.00	0.71	0.22	0.00	0.77	0.11	0.56	0.03	0.14	0.71	0.02
Avail Cap(c_a), veh/h	137	0	266	158	0	254	354	1234	1091	467	1234	1091
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	0.00	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	53.0	0.0	49.7	50.4	0.0	48.9	21.9	9.9	6.3	15.8	11.8	6.3
Incr Delay (d2), s/veh	1.1	0.0	7.5	0.8	0.0	8.3	0.1	1.9	0.0	0.1	3.5	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	0.6	0.0	2.8	1.0	0.0	3.6	0.7	11.9	0.3	1.0	17.8	0.3
LnGrp Delay(d),s/veh	54.1	0.0	57.3	51.2	0.0	57.1	22.1	11.8	6.4	16.0	15.3	6.3
LnGrp LOS	D		E	D		E	C	B	A	B	B	A
Approach Vol, veh/h		107			143			760			965	
Approach Delay, s/veh		56.7			55.8			12.1			15.1	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	78.0	9.1	13.3	8.4	78.0	7.4	15.1
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 72	4.0	16.0	* 4.1	* 72	4.0	16.0
Max Q Clear Time (g_c+I1), s	2.0	24.0	2.0	7.1	2.0	34.8	2.0	8.8
Green Ext Time (p_c), s	0.0	5.1	0.0	0.2	0.0	7.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Future Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	20	54	34	32	64	48	35	704	29	60	888	26
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	75	48	143	83	62	322	1233	1090	436	1233	1090
Arrive On Green	0.01	0.07	0.07	0.03	0.08	0.08	0.02	0.66	0.66	0.02	0.66	0.66
Sat Flow, veh/h	1774	1113	701	1774	990	742	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	20	0	88	32	0	112	35	704	29	60	888	26
Grp Sat Flow(s),veh/h/ln	1774	0	1814	1774	0	1732	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	5.2	0.0	0.0	6.9	0.0	22.4	0.7	0.0	33.5	0.6
Cycle Q Clear(g_c), s	0.0	0.0	5.2	0.0	0.0	6.9	0.0	22.4	0.7	0.0	33.5	0.6
Prop In Lane	1.00		0.39	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	0	123	143	0	145	322	1233	1090	436	1233	1090
V/C Ratio(X)	0.21	0.00	0.72	0.22	0.00	0.77	0.11	0.57	0.03	0.14	0.72	0.02
Avail Cap(c_a), veh/h	137	0	266	158	0	254	348	1233	1090	462	1233	1090
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	0.00	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	53.0	0.0	49.7	50.5	0.0	48.9	22.4	10.0	6.3	16.1	11.9	6.3
Incr Delay (d2), s/veh	1.1	0.0	7.5	0.8	0.0	8.3	0.1	1.9	0.0	0.1	3.7	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	0.6	0.0	2.8	1.0	0.0	3.6	0.7	12.0	0.3	1.0	18.3	0.3
LnGrp Delay(d),s/veh	54.2	0.0	57.3	51.2	0.0	57.1	22.6	11.9	6.4	16.2	15.5	6.4
LnGrp LOS	D		E	D		E	C	B	A	B	B	A
Approach Vol, veh/h		108			144			768			974	
Approach Delay, s/veh		56.7			55.8			12.2			15.3	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	78.0	9.1	13.4	8.4	78.0	7.4	15.1
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 72	4.0	16.0	* 4.1	* 72	4.0	16.0
Max Q Clear Time (g_c+I1), s	2.0	24.4	2.0	7.2	2.0	35.5	2.0	8.9
Green Ext Time (p_c), s	0.0	5.2	0.0	0.2	0.0	7.4	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.3
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	49	31	29	59	45	32	663	26	57	839	25
Future Volume (veh/h)	18	49	31	29	59	45	32	663	26	57	839	25
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	20	53	34	32	64	49	35	721	28	62	912	27
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	74	48	145	83	63	307	1232	1089	425	1232	1089
Arrive On Green	0.01	0.07	0.07	0.03	0.08	0.08	0.02	0.66	0.66	0.02	0.66	0.66
Sat Flow, veh/h	1774	1104	708	1774	980	750	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	20	0	87	32	0	113	35	721	28	62	912	27
Grp Sat Flow(s),veh/h/ln	1774	0	1812	1774	0	1730	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	5.1	0.0	0.0	7.0	0.0	23.3	0.6	0.0	35.4	0.6
Cycle Q Clear(g_c), s	0.0	0.0	5.1	0.0	0.0	7.0	0.0	23.3	0.6	0.0	35.4	0.6
Prop In Lane	1.00		0.39	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	122	145	0	146	307	1232	1089	425	1232	1089
V/C Ratio(X)	0.22	0.00	0.71	0.22	0.00	0.77	0.11	0.59	0.03	0.15	0.74	0.02
Avail Cap(c_a), veh/h	135	0	266	157	0	254	333	1232	1089	450	1232	1089
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	0.00	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	53.1	0.0	49.8	50.4	0.0	48.9	23.8	10.2	6.4	16.7	12.3	6.4
Incr Delay (d2), s/veh	1.2	0.0	7.5	0.8	0.0	8.3	0.2	2.0	0.0	0.2	4.0	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	0.6	0.0	2.8	1.0	0.0	3.7	0.7	12.5	0.3	1.1	19.4	0.3
LnGrp Delay(d),s/veh	54.3	0.0	57.3	51.2	0.0	57.2	23.9	12.2	6.4	16.9	16.3	6.4
LnGrp LOS	D		E	D		E	C	B	A	B	B	A
Approach Vol, veh/h		107			145			784			1001	
Approach Delay, s/veh		56.8			55.9			12.6			16.1	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	78.0	9.3	13.3	8.4	78.0	7.4	15.2
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 72	4.0	16.0	* 4.1	* 72	4.0	16.0
Max Q Clear Time (g_c+I1), s	2.0	25.3	2.0	7.1	2.0	37.4	2.0	9.0
Green Ext Time (p_c), s	0.0	5.4	0.0	0.2	0.0	9.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	19	24	17	709	897	21
Future Vol, veh/h	19	24	17	709	897	21
Conflicting Peds, #/hr	24	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	21	26	18	771	975	23

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1818	1010	1022	0	-	0
Stage 1	1010	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	86	291	679	-	-	-
Stage 1	352	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	80	284	679	-	-	-
Mov Cap-2 Maneuver	208	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	417	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.1	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	679	-	245	-	-
HCM Lane V/C Ratio	0.027	-	0.191	-	-
HCM Control Delay (s)	10.4	-	23.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Future Volume (veh/h)	18	49	31	29	58	44	32	641	26	55	809	24
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	20	55	35	33	66	50	36	725	29	62	915	27
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	76	49	145	85	64	304	1230	1087	421	1230	1087
Arrive On Green	0.01	0.07	0.07	0.03	0.09	0.09	0.02	0.66	0.66	0.02	0.66	0.66
Sat Flow, veh/h	1774	1108	705	1774	985	746	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	20	0	90	33	0	116	36	725	29	62	915	27
Grp Sat Flow(s),veh/h/ln	1774	0	1813	1774	0	1731	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	5.3	0.0	0.0	7.2	0.0	23.7	0.7	0.0	35.9	0.6
Cycle Q Clear(g_c), s	0.0	0.0	5.3	0.0	0.0	7.2	0.0	23.7	0.7	0.0	35.9	0.6
Prop In Lane	1.00		0.39	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	92	0	125	145	0	149	304	1230	1087	421	1230	1087
V/C Ratio(X)	0.22	0.00	0.72	0.23	0.00	0.78	0.12	0.59	0.03	0.15	0.74	0.02
Avail Cap(c_a), veh/h	135	0	266	157	0	254	329	1230	1087	446	1230	1087
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	0.00	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	53.2	0.0	49.8	50.5	0.0	48.9	24.2	10.3	6.4	17.0	12.4	6.4
Incr Delay (d2), s/veh	1.2	0.0	7.6	0.8	0.0	8.4	0.2	2.1	0.0	0.2	4.1	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	0.6	0.0	2.9	1.0	0.0	3.8	0.8	12.8	0.3	1.1	19.7	0.3
LnGrp Delay(d),s/veh	54.4	0.0	57.4	51.3	0.0	57.2	24.4	12.4	6.5	17.2	16.5	6.5
LnGrp LOS	D		E	D		E	C	B	A	B	B	A
Approach Vol, veh/h		110			149			790			1004	
Approach Delay, s/veh		56.9			55.9			12.7			16.3	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.4	78.0	9.3	13.5	8.4	78.0	7.4	15.4
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 72	4.0	16.0	* 4.1	* 72	4.0	16.0
Max Q Clear Time (g_c+I1), s	2.0	25.7	2.0	7.3	2.0	37.9	2.0	9.2
Green Ext Time (p_c), s	0.0	5.4	0.0	0.2	0.0	7.7	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	51	32	30	60	47	33	687	27	59	869	26
Future Volume (veh/h)	20	51	32	30	60	47	33	687	27	59	869	26
Number	7	4	14	3	8	18	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	1863	1937	1900	1863	1863	1976	1863	1863	1937	1863	1863	1937
Adj Flow Rate, veh/h	22	55	35	33	65	51	36	747	29	64	945	28
Adj No. of Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	76	49	147	84	66	285	1228	1085	406	1228	1085
Arrive On Green	0.01	0.07	0.07	0.03	0.09	0.09	0.02	0.66	0.66	0.02	0.66	0.66
Sat Flow, veh/h	1774	1108	705	1774	969	760	1774	1863	1647	1774	1863	1647
Grp Volume(v), veh/h	22	0	90	33	0	116	36	747	29	64	945	28
Grp Sat Flow(s),veh/h/ln	1774	0	1813	1774	0	1729	1774	1863	1647	1774	1863	1647
Q Serve(g_s), s	0.0	0.0	5.3	0.0	0.0	7.2	0.0	25.0	0.7	0.0	38.4	0.6
Cycle Q Clear(g_c), s	0.0	0.0	5.3	0.0	0.0	7.2	0.0	25.0	0.7	0.0	38.4	0.6
Prop In Lane	1.00		0.39	1.00		0.44	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	0	125	147	0	149	285	1228	1085	406	1228	1085
V/C Ratio(X)	0.24	0.00	0.72	0.22	0.00	0.78	0.13	0.61	0.03	0.16	0.77	0.03
Avail Cap(c_a), veh/h	135	0	265	157	0	253	310	1228	1085	431	1228	1085
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	0.00	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	53.2	0.0	49.9	50.5	0.0	48.9	26.1	10.6	6.5	17.9	12.9	6.5
Incr Delay (d2), s/veh	1.3	0.0	7.6	0.8	0.0	8.4	0.2	2.2	0.0	0.2	4.7	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	0.7	0.0	2.9	1.0	0.0	3.8	0.8	13.4	0.3	1.2	21.0	0.3
LnGrp Delay(d),s/veh	54.5	0.0	57.5	51.2	0.0	57.3	26.3	12.9	6.5	18.1	17.6	6.5
LnGrp LOS	D		E	D		E	C	B	A	B	B	A
Approach Vol, veh/h		112			149			812			1037	
Approach Delay, s/veh		56.9			56.0			13.2			17.3	
Approach LOS		E			E			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	78.0	9.4	13.5	8.5	78.0	7.5	15.4
Change Period (Y+Rc), s	* 5.9	* 5.9	6.0	6.0	* 5.9	* 5.9	6.0	6.0
Max Green Setting (Gmax), s	* 4.1	* 72	4.0	16.0	* 4.1	* 72	4.0	16.0
Max Q Clear Time (g_c+I1), s	2.0	27.0	2.0	7.3	2.0	40.4	2.0	9.2
Green Ext Time (p_c), s	0.0	5.7	0.0	0.2	0.0	8.0	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.6
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	25	31	22	732	923	28
Future Vol, veh/h	25	31	22	732	923	28
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	-	50	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	34	24	796	1003	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1861	1018	1034	0	-	0
Stage 1	1018	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	80	288	672	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	77	288	672	-	-	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	407	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	672	-	245	-	-
HCM Lane V/C Ratio	0.036	-	0.248	-	-
HCM Control Delay (s)	10.6	-	24.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1	-	-

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Attachment G: Resume of Preparer

CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE

Associate

Education
B.S., Civil Engineering, Transportation
Wayne State University 2000

M.S., C.E., Transportation
Wayne State University 2002

Professional Registration/ Certification
Professional Engineer, Michigan
No. 51514

Professional Traffic Operations Engineer
No. 1427

Affiliations
American Society of Civil Engineers

Institute of Transportation Engineers

Tau Beta Pi, The Engineering Honor Society

Women's Transportation Seminar

Intelligent Transportation Society of Michigan

Ms. Hill-Stramsak has been with HRC since 2002. She manages the Traffic Engineering Department and provides municipal traffic engineering services to several communities in Michigan. She prepares transportation studies, impact studies for land developments, traffic crash analysis, traffic operations, safety studies and traffic maintenance plans. She is responsible for modeling and simulating transportation networks to optimize, also evaluating safety and operational improvements. Software proficiency in Highway Capacity Software, Synchro/SimTraffic, CORSIM, ACCUSIM II, MicroStation, Autodesk Map 3D, RODEL and VISSIM. Ms. Hill-Stramsak is also responsible for preparing traffic control and detours plans, traffic signal design and layout plans. She conducted the Older Driver Highway Design Workshop while at Wayne State University. She is a past member of the International Board of Direction and the Great Lakes District President (2012-2014) of the Institute of Transportation Engineers and a member of the Michigan Section.

Professional Experience

I-75 & Sashabaw Road Interchange Improvements
Independence Township & RCOC
Independence Township received authorization from the FHWA and MDOT to modify Exit 89 of I-75 and the intersection of Sashabaw and Waldon Roads, immediately south of the interchange. Project manager responsible for preliminary engineering, utility coordination, traffic and safety engineering (including traffic signal design for four locations), preparation of cost estimate and bid documents.

Improvements to Belleville Road and Costco Truck Depot Driveway
V3 Companies
Project manager responsible for the off-site improvements for a private development in Van Buren Township. The project was designed to Wayne County Department of Public Services standards. Plans included the design of pavement and grading, traffic signal, pavement markings and signs to be included in the permit and bid packages submitted to Van Buren Township and Wayne County.

Tienken Road Rehabilitation, Adams to Livernois
Road Commission for Oakland County
Rehabilitation of Tienken Road from Adams Road to the roundabout at Livernois Road. HRC was responsible for preliminary engineering, utility coordination, traffic and safety engineering, preparation of cost estimate and bid documents. QAQC engineer for the traffic signals, maintenance of traffic, signing and pavement marking plans.

Evergreen Road Reconstruction, 10 Mile to 11 Mile
City of Southfield
Designed the reconstruction of 1.02 miles Evergreen Road to a four-lane boulevard , with two modern roundabouts, drainage, storm sewer, concrete pavement, curb, gutter, sidewalk and ramps, water main, landscaping, lighting, traffic signals, storm water retention and streetscaping. QA/QC engineer for traffic signals and construction assistance.

Farmington Road Reconstruction, 10 Mile to 11 Mile
City of Farmington Hills
Designed 1.0 mile reconstruction of 2-lane Farmington Road including bike lanes and pedestrian facilities in a rolling terrain. Project included new water main and was located adjacent to protected historical and

recreation properties. QAQC engineer for traffic signal design, signing and pavement marking plans, assistance in vertical alignment and detail grades, and cost estimates.

East Main Street Safety Project
Kalamazoo County Road Commission
Designed reconstruction of a 2-lane road section to 3-lanes and a 4-lane road section to 3-lanes on East Main Street from East Michigan Ave to Sprinkle Rd. Project included modernization of three existing traffic signals to facilitate communication and run coordinated timing plans. Project included modifications to signs, pavement markings, and pedestrian accessibility. Permanent new right-of-way was acquired. Project manager for signal design assistance and plan preparation.

US-24 Rehabilitation
Michigan Department of Transportation – Oakland TSC
The project includes 8.609 miles of cold milling and HMA overlay of the existing composite pavement, pavement repairs, miscellaneous replacement of driveway, sidewalk, drainage, guardrail and curb and gutter, signs and signal upgrades on US-24 (Dixie Highway) from N Telegraph Road to west of I-75 in Oakland County. HRC is responsible for preliminary engineering and preparation of bid documents. Traffic engineering tasks include intersection and segment crash analyses and recommendations for geometric improvements, turning radii analysis and sign upgrade plans specifications.

West Stadium Boulevard Reconstruction
City of Ann Arbor
Traffic engineer responsible for traffic data collection and traffic analysis of alternatives for project encompassing reconstruction of approximately 1.0 mile of an existing 4 lane road to a 3 lane road with bike lanes on both sides. Design included new water main, sanitary sewer, a new master storm system with in-line detention, decorative roadway lighting and underground power distribution for new and existing lighting. Maintenance of traffic plans considered that included the POE at UM Football Stadium, which anchors the eastern end of the corridor and is a major traffic generator. HRC developed several MOT concepts for consideration by city staff.

Van Dyke (M-53) Traffic Study
City of Warren DDA/TIFA
Project Manager to analyze the impact to traffic and mobility of converting Van Dyke Avenue from 7 lanes to 5 lanes with a bicycle lane in each direction between Eight Mile Road and Stephens Road. HRC collected traffic and travel time data. HRC prepared a report describing existing conditions with special emphasis on non-motorized network and public transit, alternatives considered, capacity analysis of existing conditions and future alternatives, safety analysis and recommendations. HRC also provided a conceptual plan for the 5 lane plus bike lane alternative.

Crosswalk Study and Design for 12 Mile and Woodward
City of Berkley
Traffic Engineer on a project to redesign the median on Woodward Avenue at 12 Mile Road in order to improve the movement of pedestrians without negatively impacting the movement of vehicles. The project included collecting traffic data for both vehicles and pedestrians, developing two alternate concepts for the median design, conducting capacity analysis

utilizing Synchro software for the AM and PM peak hours of existing configuration and two conceptual designs, and analyzing vehicle queues on the crossovers in order to recommend storage length. Based on analyses, made recommendation for reconfiguring median to City of Berkley and MDOT. Assisted city staff with securing funding to make the geometric improvements.

West Avenue and Fourth Street Traffic Study
City of Jackson
Project manager to conduct a corridor analysis to investigate the appropriate corridor design in preparation for the reconstruction and rehabilitation of portions of West Avenue and Fourth Street. Project included studying laneage and width to maximize green space while maintaining acceptable traffic flow based on desires by area residents and businesses. Tasks included data collection, analysis of various options for the intersection of Fourth Street/Greenwood Avenue/Griswold Street to mitigate the existing congestion and safety issues and preparation of optimized signal timing plans for the entire network.

Site Circulation and Traffic Impact Assessment
Yeshiva Beth Yehudah Schools
A traffic study was performed for the proposed school expansion of Yeshiva Beth Yehudah at the 10 Mile Road campus in the City of Oak Park, Michigan. Extensive data collection was conducted to analyze the site access, circulation and parking needs at the existing girls' school and the preschool center. Recommendations were provided for future traffic operations, site access and student drop off and pick areas for the proposed school building.

University of Michigan Central Campus Transit Center
University of Michigan Architecture, Engineering and Construction Department
Engineering services to design and develop complete construction documents to reconstruct North University Avenue between Fletcher Street and Church Street and to provide shelters for major transit transfer point. Stakeholders include the City of Ann Arbor, Ann Arbor Transportation Authority (AATA) and the University of Michigan's Parking and Transportation Services.

Mixed Use Development in Northville Township
Real Estate interests Group, Inc.
Project manager for comprehensive traffic data collection for a proposed mixed use development in Northville Township. Work included two traffic signal warrant studies.

Traffic Impact and Parking Analysis for Heritage Park North
Grand Sakwa of Grand Blanc, LLC
Traffic Engineer for traffic impact analysis of 600,000 SF mixed commercial development in Grand Blanc Township to accompany rezoning request and subsequent site plan review. Study included data collection, trip generation and comparisons, trip assignment, capacity analysis of existing and future traffic conditions, parking analysis, signal optimization and recommendations. Conducted signal warrant analysis and access management review. Retained to develop alternatives for access issues, design the new traffic signal on Saginaw Road and modify traffic signal on Dort Highway.

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE
Associate

Traffic Impact Analysis for White Lake Hill Mixed Use Development
Laurtec, Ltd.
Traffic Engineer for traffic impact analysis of mixed commercial development in White Lake Township to accompany rezoning request and site plan review. Study included data collection, trip generation and comparisons, trip assignment, capacity analysis of existing and future traffic conditions, signal optimization and recommendations.

Transportation and Infrastructure Assessment and Master Plan
Vandewalle & Associates
Traffic Engineer for Project Development Study to provide transportation and utilities planning and analysis for 640 acre planned unit development for the Lansing Township Downtown Development Authority Master Plan. Work involved conducting traffic volume studies, performing trip generation and traffic assignment; determining internal capture rate, developing traffic model using Synchro 6.0 and SimTraffic for existing and eight alternative scenarios.

Traffic Impact Study for Rezoning of Northwest Corner of 10 Mile Road and Beck Road, Novi
Ten & Beck, LLC
A traffic impact study was performed for the rezoning of 10 Mile Road and Beck Road in the City of Novi, Michigan. The study included estimation of background traffic, trip generation, trip distribution and assignment, capacity analysis, recommendations to mitigate impacts of additional traffic and a report summarizing results.

Traffic Circulation Analysis for Ann Arbor Huron High School
City of Ann Arbor
Staff engineer for circulation and safety study to improve overall safety in and around the school campus for drivers, bus users and pedestrians. Analyzed existing traffic conditions, identified deficiencies and suggested countermeasures. Conducted license plate survey to track traffic on the school premise. Performed capacity analysis using HCS and detailed crash analysis at two intersections and two driveways.

Traffic Signal Optimization Phase 2
City of Detroit
As a subconsultant to URS, HRC was responsible for traffic signal optimization for the W. Vernor Highway corridor as part of a project to analyze and retime 130 traffic signals in the City of Detroit. HRC's responsibilities include verification of geometric data, providing optimized timing plans for AM, PM and Off peak periods and post implementation review and recommendations for fine tuning final timings.

Traffic & Safety Design Services for Traffic Signal Optimization for 13 Intersections in Allegan and Cass Counties
MDOT Southwest Region
Project Manager for project to provide MDOT with optimized traffic signal operations. Work included collection of 24 hour vehicle counts by approach and turning movement counts during peak hours, development of Synchro model, crash analysis, optimizing signal timing plans by time of day and red-lining existing permits. Also performed signal warrants, calculated clearances and flash schedules, and evaluated left-turn warrants.

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE
Associate

Owen Road Signal Optimization
City of Fenton
Project manager on a signal optimization study to coordinate and provide progression at eight signalized intersections along the Owen/Shiawassee Road corridor as part of a signal modernization project funded by CMAQ. Work included data collection, development and calibration of Synchro model, optimizing signal timing plans by time of day and red-lining existing permits. Two of the intersections are controlled by MDOT as they are ramps to/from US-23. All work was done in accordance with current MDOT

Oakland County Signal Systems Optimization Project (Phase 2)
Road Commission for Oakland County
Performed QA/QC for transportation networks modeled and optimized through this project. Calculated clearance intervals as per RCOC accepted practice. Performed safety analysis for over 160 study intersections, performed traffic crash pattern analysis and prepared recommendations for safety improvements. Prepared red-lined traffic signal timing plans. Also assisted with field checks of installed signal timing plans and prepared recommendations for revised signal timing.

Mack Traffic Signal Design
Wayne County Department of Public Services
Project manager for a project to prepare plans, specifications and an estimate to upgrade the traffic signals at two intersections on Mack Avenue on the boarder of Detroit and Grosse Pointe. This is a CMAQ funded project. HRC was responsible for road survey, utility coordination, preparing plan sheets, special provisions, cost estimate and a bid proposal.

Traffic Signal Improvements-Silver Lake/Leroy and South Long Lake/Torrey
City of Fenton
Traffic engineer coordinating the preparation of traffic signal plans for the construction and installation of 2 traffic signals, one of which was incorporated into the adjacent rail-highway grade crossing. Prepared permanent pavement markings and signing plan; maintenance of traffic plans in accordance with MDOT standards and the Michigan MUTCD. Coordination of permits and scheduling with Canadian National Railroad.

Bloomfield Traffic Signals
Bloomfield Township and City of Bloomfield Hills
Traffic engineer responsible for preparing plans and special provisions per RCOC standards for the construction and installation of 2 traffic signals, one of which was incorporated into the adjacent rail-highway grade crossing. Plans were prepared in accordance with the Michigan MUTCD. Coordinated construction activities between Canadian National Railroad and Contractor. Prepared permanent pavement markings and signing plan; maintenance of traffic plans in accordance with MDOT standards and the Michigan MUTCD.

2006 Troy CMAQ Intersection Improvements
City of Troy
Traffic engineer responsible for preparing PS&E per RCOC standards for the redesign of three adaptive-controlled traffic signals affected by the addition of right turn lanes. Box span configuration with flashing yellow arrow used for permissive protected left turns.

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE
Associate

Big Beaver Road Traffic Signal Design
City of Troy
Design Engineer for redesign of four adaptive-controlled traffic signals affected by widening of Big Beaver Road from 4 to 6 lane boulevard. Mast arm configuration.

Rochester Road and South Boulevard Traffic Signal Design
City of Troy
Prepared plans and special provisions per RCOC standards for construction and installation of a redesigned traffic signal. Configured traffic signal contact height and sag using SIGSPAN.

Radar Speed Displays Project
J. Ranck Electric, Inc.
The City of Rochester Hills received a Community Oriented Policing Services (COPS) Grant from the U.S. Department of Justice. The Radar Speed Display Project was installed in 13 locations in established school speed zones. The project will enable speeds to be monitored and recorded when traffic volumes are highest and when children/pedestrian safety is most critical. The work consisted of three phases: a pre-implementation traffic study, utility coordination and design; the procurement and installation of approved materials and equipment; and a post installation evaluation study. Also conducted pre and post speed studies to support the effectiveness of the new signs.

Providence Park Hospital Parking Study
St. John Providence
Performed a site analysis of existing and future parking requirements at Providence Park Hospital. As Project Manager, evaluated the existing and projected future conditions based planned 32 bed expansion of the hospital. Aerial photographs were used to evaluate existing parking demand during typical weekday peak hours. Relocation of accessible parking spaces based on need was also included in the parking study.

Westmarket Square Parking Study
City of Novi
HRC performed a shared parking study for Westmarket Square for the peak design month of December and used the time of day factors for a peak day in December for the retail stores. HRC utilized the Urban Land Institute's Shared Parking, 2nd Edition to determine if the number of parking spaces provided met the requirements of the City of Novi Zoning Ordinance. The parking lot provided in excess of 1,570 spaces initially and was expanded during the various project phases while maintaining parking and access to the operational portion of the center.

Statewide Road Safety Audits
Michigan Department of Transportation – Safety
Project Manager on eight road safety audits (RSA) for programmed safety projects in Michigan. HRC has audited intersections, road segments, interchanges throughout the state of Michigan. For each, HRC prepared a comprehensive project reference book; conducted an in-depth crash analysis; planned and facilitated the RSA meetings meeting; led the field review of the study locations which included daytime, nighttime, peak and off-peak observations; evaluated the risks associated with each safety issue and the suggested improvements; developed cost estimates; performed an economic analysis using the methods in the Highway Safety Manual and prepared the RSA Findings Report.

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE
Associate

Road Safety Audit for the Proposed Brandon Elementary School
Charter Township of Brandon
Project Engineer for the road safety audit of a driveway onto Oakwood Road from the proposed Brandon Elementary School. The road safety audit included: 24 hour traffic volumes and speeds; sight distance evaluation; a detailed crash analysis; projected traffic volumes and patterns for the proposed elementary school. Performed a sight distance evaluation and a detailed crash analysis for the road segment to be accessed by the proposed driveway, and recommended road improvements for safe access to and from the site.

Dixie Highway Safety Study
Charter Township of Springfield
Project manager for safety study of Dixie Highway corridor from Big Lake Road north to Davisburg Road. The study included crash analysis, review and evaluation of safety countermeasures, access management techniques, signal warrant study, left-turn phasing study and possible realignment of Big Lake Road/Dixie Highway intersection with Deerhill Drive/Dixie Highway intersection. A comprehensive report was prepared and the results presented to the Township Board of Trustees.

Intersection Safety Studies
City of Wixom
Conducted safety studies at for two adjacent intersections on Beck Road in Wixom. Performed peak hour turning movement counts, collected 24-hour traffic volume and speed data, reviewed crash history, reviewed geometrics, and suggested countermeasures with cost estimates.

State Farm Intersection Safety Studies
Road Commission for Oakland County
Reviewed geometrics, traffic volume, traffic crash and traffic conflict characteristics for three high crash intersections. Evaluated existing safety issues, recommended potential traffic safety engineering countermeasures, and developed an implementation plan of action.

Upgrade and Rehabilitation of Non-Freeway Signing
Michigan Department of Transportation
Project Manager to upgrade 129 miles of non-freeway signing in Berrien County in the Southwest Region. The project required verification of the existing inventory, collecting new sign data, updating the MTSIS inventory and making recommendations to MDOT Lansing and MDOT Coloma TSC. HRC conducted a review of crashes and TCOs to see if there are possible safety improvements. HRC prepared sign plan sheets, created SignCAD details, and assembled the e-proposal for the bid package.

Non-Freeway Signing Upgrade on M-150 in Oakland County
Michigan Department of Transportation
Project manager for log job to upgrade all non-freeway signs on M-150 from M-59 to Tienken Road in Oakland County. The project required verification of the existing inventory, collecting new sign data, updating the MTSIS inventory and making recommendations to MDOT Lansing and MDOT Oakland TSC. A contract was prepared containing all upgrades needed to the existing signs.

HRC 100 YEARS
CONSULTING ENGINEERS SINCE 1915

Colleen Hill-Stramsak, P.E., PTOE
Associate

Sashabaw Road Corridor Study
Charter Township of Independence
Project Engineer who prepared a model of future transportation needs for Sashabaw Road corridor at interchange with I-75. Evaluated alternatives. Developed list of recommended geometric improvements.

Community Policy on Mid-Block Pedestrian Crossings
City of Wyoming
Researched and recommended practices and developed policy for approving and format for evaluating requests for mid-block crossings.

Traffic Impact Analysis for the Proposed National Street Extension
City of Howell
Developed traffic model of proposed extension of National Street from Grand River Avenue to D-19 at ramps to I-96 as a by-pass to downtown Howell. Developed methodology for calculating traffic to be diverted to National Street Extension and performed capacity analysis using Synchro for existing, background and 2015 traffic conditions. Evaluated alternatives to signalization and performed analysis of two recommended roundabouts using RODEL.

M-15 Access Management Plan
Michigan Department of Transportation
Performed driveway spacing analysis using MDOT, Oakland and Genesee County Standards. Responsible for performing traffic crash analysis for driveways and intersections along the M-15 corridor over its 20 mile length between I-75 and I-69.

Oakland County SCATS Clearance Interval Study
Road Commission for Oakland County
Coordinated the data collection effort for a total of 274 intersections included in the project. Each intersection was surveyed for approach speed, grade, pedestrian and vehicle clearance distances. Developed a user-friendly spreadsheet to calculate and report vehicle and pedestrian clearance intervals.

Squirrel Road Corridor Study
City of Auburn Hills
Involved in data collection, development and optimization of 35 mile network using Synchro for the study to evaluate the future capacity needs of the Squirrel Road Corridor. Study area encompassed 36 signalized intersections, 5 interchanges, and several unsignalized intersections.

Tienken Road Environmental Assessment
Road Commission for Oakland County
Worked on Environmental Assessment to reconstruct 1.5 miles of Tienken Road in the City of Rochester Hills to meet future volumes and safety concerns. Prepare traffic analysis report, conducted noise analysis in accordance with provisions of 23 CFR Section 772 of Federal Code of Regulations and conducted air quality analysis Conducted air quality analysis for microscale carbon monoxide pollution using CAL3QHC, version 2.

Abbott Road Environmental Assessment
City of East Lansing
Worked on Environmental Assessment to widen one mile of Abbott Road from a 2 to 5 lane road. Prepared crash analysis and responsible for design

concept report. Conducted noise analysis in accordance with provisions of 23 CFR Section 772 of Federal Code of Regulations. Type I project did not trigger noise abatement measures.

26 Mile Road Environmental Assessment
Road Commission of Macomb County
Collected turning movement counts and geometric information for 27 intersections along 26 Mile Road in Macomb County. Performed traffic crash analysis for intersections and segments in the study area. Modeled the 19 mile long corridor using Synchro software for Build and No Build scenarios.

Williams Lake Road Environmental Assessment
Road Commission for Oakland County
Conducted a traffic and safety analysis to better determine appropriate termini of the project and provide the necessary justification for the preferred alternative for a realigned Williams Lake Road. Conducted traffic crash analysis and license plate survey to determine the safety and traffic flow impacts of the proposed realignment. Conducted air quality analysis for microscale carbon monoxide pollution using CAL3QHC, Version 2.0. CO concentrations were all below NAAQS for 1-hour and 8-hour exposures.

Presentations/Publications

"Road Safety Audits," ACEC/MDOT (American Council of Engineering Companies of Michigan/Michigan Department of Transportation) Partnering Workshop January 2014 (with Jeffrey Bagdade, P.E., PTOE, and Steven Loveland, P.E., PTOE).

"Intersection Safety within a Signal Optimization Project," Institute of Transportation Engineers 2004 Technical Conference and Exhibit Compendium of Technical Papers, March 2004 (with Stephen B. Dearing, P.E.).

"Intersection Safety within a Signal Optimization Project," Presented Institute of Transportation Engineers 2004 Technical Conference and Exhibit, March 31, 2004.

"Intersection Safety within a Signal Optimization Project," Presented Institute of Transportation Engineers Michigan Section Technical Session, February 12, 2004.

"Michigan ITE Website Update," Presented Institute of Transportation Engineers Michigan Section Technical Session, February 12, 2004.

"Change and Clearance Interval Design on Red-Light Running and Late Exits," Transportation Research Record, No. 1856 (p. 193-201), Washington D.C., 2003 (with Kerrie L. Schattler and Tapan K. Datta).

FAÇADE REVIEW

DRN & ASSOCIATES, ARCHITECTS, PC
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E-Mail: dnecci@drnarchitects.com
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50850 Applebrooke Dr., Northville, MI 48167

April 6, 2016

Façade Review Status Summary:
Full Compliance, No waiver required

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

Re: FACADE ORDINANCE – **Revised Final Site Plan**
Learning Care Academy, PSP16-0030, FKA 15-0149
Façade Region: 1, Zoning District: OSC & PSLR

Dear Ms. McBeth;

The following is the Facade Review for Concept / Planned Suburban Low Rise Approval of the above referenced project, based on the drawings prepared by Greenberg Farrow Architects, dated 3/29/15. The percentages of materials proposed for each façade are as shown below. Materials that are in violation of the Ordinance, if any, are shown on bold.

Façade Region 1	East (Front)	South	West	North	Façade Ordinance Section 2520 Maximum (Minimum)
Brick	58%	72%	70%	58%	100% (30%MIN.)
"C" Brick (CMU)	13%	28%	30%	29%	25%
Fiber Cement Panels (Nchiha, Cedar)	16%	0%	0%	7%	50% (11)
Spanderal Glass (blue-green)	7%	0%	0%	0%	50%
Spanderal Glass (Grey)	5%	0%	0%	6%	50%
Flat Metal (Entrance Canopy)	1%	0%	0%	0%	50%

Façade Ordinance, Section 5.15 – As shown above all materials are in full compliance with the Façade ordinance.

Planned Suburban Low Rise Overlay Ordinance, Section 3.21.C – The proposed building is located in the Planned Suburban Low Rise Overlay District. This Ordinance promotes a "single family residential character". The proposed building is commercial in nature and would not be in technical compliance with this section. For example, the Ordinance prescribes 6:12 minimum sloped roofs with gables, hips, dormers, overhangs, shingles gutters. Although nicely designed with excellent propositions and attention to detail, the proposed design lacks these specific design features.

The intent of the PSLR Ordinance is to promote uses, including educational, that can serve as a transition between low-intensity residential and high-intensity office and commercial uses. It is noted that the project is located on the easterly edge of the PSLR district with high-intensity multiple residential and multi-story medical buildings nearby. We believe that the introduction of specific design features listed in the PLSR Ordinance to achieve residential character would in fact be detrimental to the overall design of the building and would diminish the compatibility with nearby buildings without contributing to the transitional intent of the Ordinance.

Recommendation – For the reasons stated above it is our recommendation that the proposed design is consistent with the intent and purpose of the PLSR Ordinance Section 3.21.C, and is in full compliance with the Façade Ordinance Section 5.15.

Notes to the Applicant:

1. Inspections – The Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board will be compared to materials delivered to the site. 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".

2. The Façade Ordinance requires screening of roof top equipment from all vantage points both on and off site. It is assumed that the parapets are raised sufficiently to screen any roof top equipment. If roof equipment screens are used they must be consistent with the Façade Ordinance.

http://www.cityofnovi.org/Services/CommDev/OnlineInspectionPortal.asp.

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

Sincerely,
DRN & Associates, Architects PC

Douglas R. Necci, AIA

FIRE REVIEW

April 6, 2016

TO: Barbara McBeth- Deputy Director of Community Development
Kirstein Mellem- Plan Review

RE: Everbrook Academy / Learning Care Academy

PSP#16-0030

Project Description: A 11,700sq. ft. pre-school facility located on Beck Rd. north of Eleven Mile.

Comments:

1) Fire apparatus access drives to and from buildings through parking lots shall have a minimum fifty (50) feet outside turning radius and designed to support a minimum of thirty-five(35)tons.(D.C.S. Sec 11-239(b)(5)) **10/7/15 Item Corrected**

2) All fire apparatus access roads (public and private) with a dead-end drive in excess of one hundred fifty (150) feet shall be designed with a turn-around designed in accordance with Figure VIII-I or a cul-de-sac designed in accordance with Figure VIII-F. ***(D.C.S. Sec 11-194 (a)(20)) 4/6/16 Item Corrected***

3) Include all hydrants and water mains on future submittals. **10/7/15 Item Corrected.**

4) No part of a commercial, industrial, or multiple residential area shall be more than 300 feet from a hydrant. (D.C.S. Sec. 11-68 (f)(1)c.1) **10/7/15 Item Corrected**

5) If a new building is more than 175 feet from a public fire hydrant, a hydrant shall be provided ten (10) to fifteen (15) feet off the right side of the drive entrance as recommended by the Fire Chief or his designee. ***(D.C.S. Sec. 101-68 (f)(1)h.) 4/6/16 Item Corrected***

6) Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access and within 100' of a hydrant or as otherwise approved by the code official. (International Fire Code) **10/7/15 Item Corrected**

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

cityofnovi.org

APPLICANT RESPONSE LETTER

March 30, 2016
Revised: May 3, 2016

City of Novi PSLR Preliminary Site Plan Submittal
RESPONSE to City Staff Comments dated April 20, 2016
Beck Road at 11 Mile – Everbrook Academy

Project Location:
The vacant 4.15 acre property located approximately 330 feet north of the northwest corner of Beck Road and 11 Mile Road having a parcel ID of 50-22-17-400-040 (the "Property").

Project Description:
On behalf of Learning Care Group, Inc., ICAP Development proposes to construct a state-of-the-art Everbrook Academy on the Property (the "Project"). Headquartered in Novi, MI, Learning Care Group is known as an international leader in child education and family solutions by providing early education and care services to children ages 6 week to 12 years. Learning Care Group currently operates over 900 school facilities across several countries.
The education-focused child care facility being proposed on the Property will have a maximum capacity of 138 children and have up to 22 staff members. The total cost of the improvements will exceed $3.0M.

This project received Concept Plan approval from the Plan Commission on November 4, 2015 and from the City Council on November 23rd, 2015. **Additionally, the PSLR Development Agreement, including plans and elevations, were approved by City Council on April 18, 2016.**

Scope of Project:
Since Concept Plan approval, the site and building design of the Project have been altered to address City Staff comments and Learning Care Group's refined business model. The most significant change was the removal of the proposed building and play area expansion. This expansion is no longer part of this requested Project approval and has been removed from the plans submitted for Preliminary Site Plan review.
The proposed Project continues to include the following improvements to the Property:

- An 11,844 sq. ft. free-standing child care facility.
- A 44 stall parking area with drive aisles designed to accommodate future shared access with adjacent properties.
- 20,700 square feet of fenced-in outdoor play area which will include shade areas, a basketball court, and playground equipment.

Included in this submittal are the following documents for reference:

(i) Site and Civil Plans showing all proposed improvements to the Property.
(ii) A complete Landscaping Plan for the Project.
(iii) Existing conditions survey of the Property.
(iv) The floor plan and exterior elevations for the proposed building.

Land-Use:

The Property is currently zoned R-3 with PSLR overlay. A child care facility is permitted under this zoning classification.
The Project also accomplishes the PSLR Intent of providing "high-quality uses" that are "low-density". The Project has a floor area ratio of 6.6% at full capacity and an impervious area of roughly 25%. Given the residential to the east and the high density medical to the north, this Project helps meet the desire of the PSLR to create a "transitional area between lower-intensity detached one-family residential and higher-intensity office and retail uses". The proposed user of the Property, a high-quality child care and educational facility, can also serve as an amenity for the citizens who live in the surrounding neighborhoods or work in the surrounding commercial buildings.

Deviations to the Ordinance:

No additional deviations to the Ordinance are requested with this submittal. All deviations were previously approved in the Concept Plan phase and incorporated into the PSLR Development Agreement approved by City Council.

Wetlands:

Per the existing conditions survey (included in this submittal) and the memorandum to the City of Novi from Environmental Consulting & Technology, Inc. dated August 13, 2015, the Property does not appear to contain any regulated wetlands. There is an existing drainage ditch along the west property line, however the Project avoids impacting the floodplain in that area.

Regulated Woodlands:

Based on the Regulated Woodland map dated February 20, 2015, there is a small portion of Regulated Woodlands near the drainage ditch along the west property line. This woodland area follows the western property line and is approximately 19' wide on the north and 33' wide on the south side of the Property. This area is depicted on the Site and Landscaping Plans. In accordance with the Woodland Protection Ordinance (Chpt 37), we have avoided impacting the Regulated Woodlands by avoiding any construction activities in this area of the Property.

Traffic and Cross-Access:

As required in the Plan Commission recommendations on November 4, 2015, which were approved by City Council on November 23rd, 2015, the Applicant has completed a Traffic Impact Study (TIS) for the Project which analyzed the traffic impact of this child care facility. The final TIS, dated January 6, 2016, is included with this submittal. The results of the TIS were as follows:

1. The trip generation from the Project does not exceed Novi's threshold for peak AM and PM hour trip generation.
2. The Project does not impact the level of service at the intersection of 11 Mile Road and Beck Road.
3. The driveway capacity analysis showed no issues with the Project.
4. The northern driveway warrants a taper lane according to the requirements in City Ordinance Section 11-216. NOTE: This taper lane has been added to the submitted plans.
5. The recommended driveway spacing per the City of Novi is not met; however, the conflicting driveways serve single-family residential properties and do not pose a concern.

As shown on the site plan, the Project contemplates two access points from Beck Road. During preliminary reviews of the Project, Planning Staff encouraged vehicular connection points between the Project and adjacent properties in order to increase cross-access between parcels. We have done this in several ways. First, we have created space for a future connection point from the Project's parking lot to the property to the north. Second, by locating the Access Drive along the current southern property boundary, we anticipate future connection(s) with the property to the south. To increase flexibility for access points, we have extended this roadway a far west as possible without

impacting the floodplain or Regulated Woodland along the west property line. Since the vacant land to the south and west of the Property is currently one larger parcel, we feel this roadway is designed appropriately to provide access to both southern and western portions of this property.

Preliminary Site Plan Comments from City Staff dated April 29, 2016.

As required, the Applicant has addressed all City Staff comments to the Preliminary Site Plan. The Applicant's comments are outlined below:

Ordinance Comments:

Comment #1: Setbacks: **The Applicant agrees to make adjusted measures on Final Site Plan Submittal.**

Comment #2: Loading Spaces: **A dedicated Loading Space is not required for the operation of this child care facility and is not contemplated for this Project. Truck traffic to this facility is limited to deliveries of food and school supplies. Both will be delivered by box truck or delivery van and all deliveries will be completed during non-business or non-peak hours. Given the nature of a child care operation, many of the parking stalls will only be used temporarily during peak hours in the morning and afternoon. This will allow delivery trucks to easily access the building during non-peak hours.**

Comment #3: Outdoor lighting: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #4: Hours of Operation: **The hours of operation for this Project is 6:30AM to 6:30PM. The Applicant agrees to add this information to the Final Site Plan Submittal.**

Comment #5: Building Design Standards: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #6: Accessory Buildings: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #7: Bicycle Parking: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #8: Dumpster Enclosure: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #9: Fences, Maintenance: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #10: Rooftop Equipment: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Comment #11: Pedestrian Connectivity: **The Applicant agrees to make adjustments on Final Site Plan Submittal.**

Engineering Comments:

Comment #39: Cost Estimate: **The Applicant agrees to include the estimate with the Final Site Plan Submittal.**

Landscaping Comments:

Adjacent to Public Rights-of-Way:

Comment #1: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Comment #2: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Street Tree Requirements:

Comment #1: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Comment #2: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Parking Lot Landscaping:

Comment #1: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Comment #2: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Comment #3: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Parking Lot Perimeter Canopy Trees:

Comment #1: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Comment #2: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Storm Basin Landscape:

Comment #2: **The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.**

Corner Clearance: The Applicant agrees to work with Staff to make adjustments on the Final Site Plan Submittal.

Traffic Review Comments:

No specific comments were shown as requiring a response from the Applicant. The Applicant agrees to address all comments included in the Traffic Review Memorandum from Matt Klawon, PE dated April 28, 2016, except EXTERNAL SITE ACCESS AND OPERATIONS Comment #2. The 40 foot taper along Beck Road at the northern entrance to the Project was designed at the maximum length possible given the existing location of a power pole within the right-of-way. If lengthened to the property line, the taper would be limited to a width of 5.5'. We believe the current design of the 40' taper will adequately accommodate the limited amount of traffic entering this property through this northern driveway.

Summary:

Leaning Care Group and ICAP Development are very excited to present this proposed child care development to the City of Novi. We look forward to your review and hope to begin construction in Spring 2016.

Respectfully Submitted,

Brian R Adamson
ICAP Development LLC