McGOEY, HAUSER and EDSALL
CONSULTING ENGINEERS D.P.C.

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TOWN OF NEWBURGH
PLANNING BOARD
TECHNICAL REVIEW COMMENTS

PROJECT:	**HEALEY KIA**
PROJECT NO.:	**15-25**
PROJECT LOCATION:	**SECTION 95, BLOCK 1, LOT 53**
PROJECT REPRESENTATIVE:	**JCM ENGINEERING**
REVIEW DATE:	**30 OCTOBER 2015**
MEETING DATE:	**5 NOVEMBER 2015**

1. Status of the City of Newburgh revised flow acceptance letter should be addressed.

2. The Planning Board should evaluate the project with regard to any additional issues regarding SEQRA. The building is within the existing developed envelope. Our office would recommend a SEQRA consistency determination for the slightly larger square footage modification to the site plans.

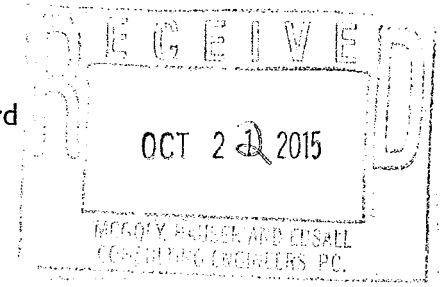
Respectfully submitted,

McGoey, Hauser and Edsall
Consulting Engineers, D.P.C.

_____
Patrick J. Hines
Principal

Site Planning
Civil Engineering
Landscape Architecture
Land Surveying
Transportation Engineering
Environmental Studies
Entitlements
Construction Services
3D Visualization
Laser Scanning

October 19, 2015



Chairman John P Ewasutyn and Members of the Planning Board
Newburgh Town Hall
308 Gardner Town Road
Newburgh, NY 12550

RE: JMC Project 14139
Healey KIA
Route 17K
Town of Newburgh, NY

Amended Site Plan Approval Submission Healey KIA (Formerly Newburgh VW) Town Project No. 2015-25)

Dear Chairman Ewasutyn and Members of the Planning Board:

We are in receipt of comment memorandums from MH & E, dated 09/11/2015 and Creighton Manning, dated 9/15/2015. We are pleased to submit 10 copies of the enclosed "Healey KIA Traffic Sensitivity Analysis", dated 10/19/2015. For your convenience we have identified the comments noted in the two memorandum letters below, which are followed by our responses:

MH&E DPC Memorandum of 09/11/2015:

Comment No. 1

Project is before the Board to amend a previously approved auto dealership site plan. Original approval was for a 23,340 square foot dealership, current proposal is for 29,748. Previous proposal had land banked inventory storage parking while it is proposed to construct all parking under the current proposal.

Response No. 1

So noted.

Comment No. 2

City of Newburgh Flow Acceptance letter may need to be modified. Hydraulic loading calculations for previously approved structure vs. newly proposed structure should be provided.

Response No. 2

See attached letter to Mr. James Osborne, PE, dated October 5, 2015 requesting a revised sanitary sewer acceptance letter from the City of Newburgh.

Comment No. 3

Previously approved storm water management plan remains in place for the modified site plan. Additional pervious pavement has been included in the vehicle storage areas to offset larger building footprint. Building footprint has increased in areas previously identified as impervious surface during site plan review.

Response No. 3

So noted.

Comment No. 4

Dumpster enclosure is depicted in front yard setback along Mulberry Lane. Jerry Canfield's comments regarding dumpsters located in the front yard setback should be received.

Response No. 4

We do not believe Mr. Canfield noted a problem with the dumpster as located at the last Planning Board meeting when the project was discussed. If there are any comments regarding the dumpster location, we will address the issue.

Comment No. 5

Planning Board should declare Intent for Lead Agency and circulate to Orange County Planning Department and NYSDOT.

Response No. 5

So noted.

Comment No. 6

Architectural review of the revised structure should be presented to the Planning Board.

Response No. 6

The project architect presented the revised structure/building to the Planning Board at the September 17, 2015 meeting.

Comment No. 7

Storm water maintenance agreement must be executed by current property owner requiring operation and maintenance of the Best Management Practices provided in the SWPPP.

Response No. 7

The stormwater maintenance agreement will be executed by the current property owner upon approval of the amended Site Plan.

Comment No. 8

Any proposed changes to site signage for the revised site plan should be discussed with the Planning Board.

Response No. 8

The proposed signed changes were presented to the Planning Board and it was understood that the changes were acceptable to the Board.

Creigthon Manning Letter of September 15, 2015:

Comment No. 1

The project replaces and expands the previous VW of Newburgh project (Town project 2013-11, NYSDOT SEQR#13-0166).

Response No. 1

So noted.

Comment No. 2

The VW project was ???SF, generating approximately 65 to 85 trips in the weekday PM and Saturday peak periods. The proposed Kia expands to 29, 750 SF (27%) and is expected to increase the trip generation to the site over what was previously studied (JMC Traffic Study dated July 31, 2013). The applicant's engineer should submit a sensitivity analysis discussing any potential increases in traffic impacts and if any changes are necessary in the proposed mitigation.

Response No. 2

Please see attached JMC Healey KIA Traffic Sensitivity Analysis, dated 10/19/2015.

Comment No. 3

The signal improvements previously proposed should be included in future site plan submissions.

Response No. 3

We have prepared and attached the requested sensitivity analysis. The proposed development continues to propose a Route 17K eastbound left turn lane into the property with traffic signal improvements. The traffic signal is proposed to be modified to provide leading protected/permitted left turns movements along Route 17K as suggested by NYSDOT. Additionally, the site driveway and the new eastbound left turn lane proposes vehicle detectors to provide demand responsive actuation when a vehicle is arriving to be processed through the traffic signal. The overall levels of service under the sensitivity analysis essentially remain the same as experienced under the build condition for the previously proposed building during both studied peak hours. During the peak weekday PM hour, the McDonald Street right turn movement is projected to operate at level of service F under the sensitivity analysis utilizing the HCM 2010 analysis. Even though the HCM 2010 analysis represents a delay of 153.3 seconds per vehicle, the simtraffic analysis does not reflect this condition and states the delay is actually 25.7 seconds per vehicle which represents a level of service C. Based on the sensitivity analysis and the simtraffic traffic simulation, it is the professional opinion of JMC that proposed KIA dealership will not have a significant impact on traffic operations in the study area with the proposed improvements.

Comment No. 4

NYSDOT should be updated on the changes.

Response No. 4

The NYSDOT has been made aware of the KIA dealership change, since the submitted drawings, which accompanied the Highway Work Permit Application, illustrated on the revised Healey KIA Site Plan.

Comment No. 5

The site plan largely remains unchanged from the previous submission. We have no additional comments.

Response No. 5

Comment noted.

Comment No. 6

It is noted that there is an application for a warehouse project (Matrix, Town project 2015-26) approximately 400 feet east of the Kia site opposite Orr Avenue. An undeveloped property (N/F Biss Realty) separates the two proposed sites. Two projects are proposed on Crossroads Court for which traffic volumes are being monitored for a traffic signal. The Town and NYSDOT should review the proposed and potential access points through this corridor and advise on any recommended site plan changes.

Response No. 6

Comment noted.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Joseph Sarchino, RLA
Principal

cc: Mr. Patrick Hines, w/enc. (1 copy via overnight mail)
Mr. Ken Wersted, PE, w/enc. (1 copy via overnight mail)
Michael H. Donnelley, Esq., w/enc. (1 copy via overnight mail)
Mr. Paul Healy, w/enc.
Mr. Dwight Healy, w/enc.
Mr. Kenneth Syvertsen, w/enc.
Dominic Cordisco, Esq., w/enc.

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Site Planning
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Laser Scanning

October 5, 2015

Mr. James Osborne, PE
Town Engineer
Town of Newburgh
1496 Route 300
Newburgh, NY 12550

RE: JMC Project 14139
Healey KIA
Route 17K
Town of Newburgh, NY

Dear Mr. Osborne

The Newburgh VW dealership received approval from the City of Newburgh for their proposed sanitary sewer as per the attached City of Newburgh letter, dated April 17, 2014. The VW proposal was to construct a 23,340 square foot dealership, with a total sanitary sewer flow of 2,197 gpd. The VW application has been withdrawn and the property sold to PDH Realty, LLC, who are now proposing to construct a KIA dealership (Healey KIA). The building square footage has increased to 29,748 s.f. based on the information provided by the project architect. Below is an analysis of the KIA sanitary sewer projected flow:

1. Project Building square footage summary:

   Dealership total square footage = 29,748 sf.
   a) Office/Showroom = 12,871 sf.
   b) Service and Storage Area = 16,717 sf.

2. Sanitary sewer flow:

   a) Office/Showroom – the NYSDEC "Design Standards for Wastewater Treatment Works" 1988, indicate a flow rate of 0.1 gpd for office use.
   b) Service Area – the NYSDEC "Design Standards for Wastewater Treatment Works" 1988, indicate a flow rate of 400 gpd/per toilet for service stations. The service area has 4 toilets dedicated to the service employees and customers.
   c) The Car Wash manufacture has indicated 30 gallons per car wash. The KIA dealership owners have indicated that they anticipate washing approximately 26 cars per day (service is closed on Sunday).

3. Sanitary sewer flow calculation:

a)	Office/Showroom	12,871 x 0.1	= 1,287 gpd
b)	Service and Storage Area	4 x 400	= 1,600 gpd
c)	Car Wash	26 x 30	= 780 gpd
Total proposed sanitary sewer flow			= 3,667 gpd

Total sanitary sewer flow minus 20% (733.4 gpd) for mandatory water saving fixtures for office/showroom and service area plumbing = **2,933.6 gpd** (+736.6 gpd).

We trust the above information is adequate for your use in preparing the revised flow request from the City of Newburgh. Should you have any question or require any additional information, please do not hesitate to contact me at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying PLLC

Joseph Sarchino, RLA
Principal

cc: Town of Newburgh Planning Board, w/enc. (via email)
Mr. Patrick Hines, w/enc. (via email)
Dominic Cordisco, Esq., w/enc. (via email)
Mr. Paul Healey, w/enc. (via email)
Mr. Dwight Healey, w/enc. (via email)
Mr. Chris Wilson, w/enc. (via email)

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October 5, 2015

Mr. James Osborne, PE
Town Engineer
Town of Newburgh
1496 Route 300
Newburgh, NY 12550

RE: JMC Project 14139
Healey KIA
Route 17K
Town of Newburgh, NY

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We trust the above information is adequate for your use in preparing the revised flow request from the City of Newburgh. Should you have any question or require any additional information, please do not hesitate to contact me at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying PLLC

Joseph Sarchino, RLA
Principal

cc: Town of Newburgh Planning Board, w/enc. (via email)
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Dominic Cordisco, Esq., w/enc. (via email)
Mr. Paul Healey, w/enc. (via email)
Mr. Dwight Healey, w/enc. (via email)
Mr. Chris Wilson, w/enc. (via email)

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October 19, 2015

Chairman John P Ewasutyn and Members of the Planning Board
Town Hall
308 Gardner Town Road
Newburgh, NY 12550

RE: JMC Project 14139
Healey KIA
Route 17K
Town of Newburgh, NY

Healey Kia Traffic Sensitivity Analysis (Town Project #2015-25)

Dear Chairman Ewasutyn and Members of the Planning Board:

We have prepared the enclosed traffic sensitivity analysis based on comments from the Town's traffic consultant. This analysis supplements the Traffic Study, dated July 31, 2013, prepared for the previous VW of Newburgh application.

The proposed development continues to propose a Route 17K eastbound left turn lane into the property with traffic signal improvements. The traffic signal is proposed to be modified to provide leading protected/permitted left turns movements along Route 17K as suggested by NYSDOT. Additionally, the site driveway and the new eastbound left turn lane proposes vehicle detectors to provide demand responsive actuation when a vehicle is arriving to be processed through the traffic signal.

The overall levels of service under the sensitivity analysis essentially remain the same as experienced under the build condition for the previously proposed building during both studied peak hours. During the peak weekday PM hour, the McDonald Street right turn movement is projected to operate at level of service F under the sensitivity analysis utilizing the HCM 2010 analysis. Even though the HCM 2010 analysis represents a delay of 153.3 seconds per vehicle, the simtraffic analysis does not reflect this condition and states the delay is actually 25.7 seconds per vehicle which represents a level of service C.

Based on the sensitivity analysis and the simtraffic traffic simulation, it is the professional opinion of JMC that proposed KIA dealership will not have a significant impact on traffic operations in the study area with the proposed improvements.

We trust the enclosed information sufficiently addresses the Town traffic consultant's comment and look forward discussing the analysis at the next Planning Board meeting. In the interim, should you have any questions regarding the application please do not hesitate to contact our office at (914) 273-5225.

Sincerely,

JMC Planning Engineering Landscape Architecture & Land Surveying, PLLC

Richard Pearson, PE, PTOE
Senior Associate Principal

Marc Petroro, PE
Project Manager

cc: Mr. Dwight Healey
Mr. Paul Healey
Dominic Cordisco, Esq.
Mr. Chris Wilson

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TABLE 1A

PROPOSED DEVELOPMENT VOLUMES[1]

DESCRIPTION	PEAK WEEKDAY PM HOUR			PEAK SATURDAY HOUR		
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
a. Previously proposed 21,100 s.f. Volkswagen Dealership (ITE Code 841)[2]	26	38	64	43	42	85
b. Proposed 29,750 s.f. Healy Kia Dealership (ITE Code 220)[3]	32	49	81	60	60	120
c. Net Additional Primary Trips (Row c = Row b - Row a)	**6**	**11**	**17**	**17**	**18**	**35**

Notes:

(1) Trip generation is based on ITE (Institute of Transportation Engineers) Trip Generation Manual, 9th Edition.

(2) Automobile Sales (ITE Code 841) is defined by ITE as automobile sales dealerships where automobile services, parts sales and substantial used car sales may also be availble.

TABLE 2A

INTERSECTION OPERATIONS-PEAK WEEKDAY PM HOUR

INTERSECTION	APPROACH	LANE GROUP	2013 EXISTING			2015 NO BUILD			2015 BUILD			2015 BUILD SENSITIVITY ANALYSIS		
			V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)
1. Route 17K & McDonald Street (Signalized)	EASTBOUND	THRU	1.02	58.8	F	1.15	105.4	F						
		RIGHT	-	-	-	-	-	-						
		COMPOSITE	-	58.8	E	-	105.4	F						
	WESTBOUND	LEFT	0.10	30.4	C	0.10	30.8	C						
		THRU	0.75	14.6	B	0.84	19.2	B		N/A			N/A	
		COMPOSITE	-	15.1	B	-	19.6	B						
	NORTHBOUND	LEFT	0.22	25.4	C	0.23	25.3	C						
		RIGHT	0.87	46.1	D	0.88	48.6	D						
		COMPOSITE	-	41.6	D	-	43.4	D						
	INTERSECTION	COMPOSITE	-	37.6	D	-	59.0	E						
1a.Route 17K & McDonald Street (Signalized w/ Improvements)	EASTBOUND	LEFT							0.08	18.0	B	0.06	17.7	B
		THRU							0.98	43.2	D	0.91	29.6	C
		RIGHT							-	-	-	-	-	-
		COMPOSITE							-	42.9	D	-	29.4	C
	WESTBOUND	LEFT							0.15	17.8	B	0.12	15.0	B
		THRU/RIGHT		N/A			N/A		0.96	37.1	D	0.98	42.8	D
		COMPOSITE							-	36.4	D	-	41.9	D
	NORTHBOUND	LEFT/THRU							0.23	27.3	C	0.28	30.3	C
		RIGHT							0.97	74.4	E	1.20	153.3	F
		COMPOSITE							-	63.9	E	-	125.8	F
	SOUTHBOUND	LEFT/THRU/RIGHT							0.15	26.9	C	0.24	30.9	C
	INTERSECTION	COMPOSITE							-	43.5	D	-	50.8	D
2. Route 17K & Route 300 (Signalized)	EASTBOUND	LEFT	0.66	46.2	D	0.76	52.8	D	0.77	53.6	D	0.77	53.8	D
		THRU	0.58	44.2	D	0.65	48.8	D	0.67	49.3	D	0.67	49.4	D
		RIGHT	0.99	78.1	E	1.18	143.0	F	1.20	151.1	F	1.20	153.8	F
		COMPOSITE	-	57.8	E	-	87.1	F	-	90.6	F	-	91.8	F
	WESTBOUND	LEFT	0.32	41.1	D	0.39	44.5	D	0.39	44.6	D	0.39	44.6	D
		THRU	0.7	47.6	D	0.77	54.1	D	0.79	55.0	D	0.79	55.1	E
		RIGHT	0.75	43.0	D	0.85	53.5	D	0.85	53.5	D	0.85	53.6	D
		COMPOSITE	-	44.6	D	-	51.9	D	-	52.3	D	-	52.4	D
	NORTHBOUND	LEFT	0.88	66.1	E	1.04	108.3	F	1.06	113.8	F	1.07	115.4	F
		THRU	0.73	35.5	D	0.84	41.4	D	0.84	41.3	D	0.84	41.3	D
		RIGHT	0.14	26.8	C	0.18	27.6	C	0.18	27.5	C	0.18	27.5	C
		COMPOSITE	-	43.9	D	-	59.2	E	-	61.0	E	-	61.5	E
	SOUTHBOUND	LEFT	0.81	53.9	D	0.85	60.3	E	0.85	60.4	E	0.85	60.4	E
		THRU/RIGHT	0.86	44.5	D	0.92	54.6	D	0.93	55.2	E	0.93	55.3	E
		COMPOSITE	-	46.8	D	-	55.9	E	-	56.4	E	-	56.5	E
	INTERSECTION	COMPOSITE	-	48.4	D	-	63.9	E	-	65.6	E	-	66.1	E

Notes:

(1) V/C represents volume/capacity ratio

(2) Delay is average seconds delay per vehicle

(3) LOS represents level of service

TABLE 3A

INTERSECTION OPERATIONS-PEAK SATURDAY HOUR

INTERSECTION	APPROACH	LANE GROUP	2013 EXISTING			2015 NO BUILD			2015 BUILD			2015 BUILD SENSITIVITY ANALYSIS		
			V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)	V/C(1)	DELAY(2)	LOS(3)
1. Route 17K & McDonald Street (Signalized)	EASTBOUND	THRU	0.78	17.6	B	0.91	26.4	C						
		RIGHT	-	-	-	-	-	-						
		COMPOSITE	-	17.6	B	-	26.4	C						
	WESTBOUND	LEFT	0.01	15.0	B	0.01	20.1	C						
		THRU	0.60	5.0	A	0.71	6.7	A		N/A			N/A	
		COMPOSITE	-	5.0	A	-	6.8	A						
	NORTHBOUND	LEFT	0.01	29.4	C	0.01	29.3	C						
		RIGHT	0.25	31.5	C	0.24	31.4	C						
		COMPOSITE	-	31.4	C	-	31.3	C						
	INTERSECTION	COMPOSITE	-	11.3	B	-	16.4	B						
1a.Route 17K & McDonald Street (Signalized w/ Improvements)	EASTBOUND	LEFT							0.08	16.0	B	0.10	17.1	B
		THRU							0.85	20.8	C	0.84	20.3	C
		RIGHT							-	-	-	-	-	-
		COMPOSITE							-	20.7	C	-	20.2	C
	WESTBOUND	LEFT							0.01	10.3	B	0.01	10.5	B
		THRU/RIGHT		N/A			N/A		0.99	40.7	D	0.99	40.3	D
		COMPOSITE							-	40.6	D	-	40.2	D
	NORTHBOUND	LEFT/THRU							0.00	28.3	C	0.00	29.4	C
		RIGHT							0.09	28.8	C	0.08	29.8	C
		COMPOSITE							-	28.8	C	-	29.8	C
	SOUTHBOUND	LEFT/THRU/RIGHT							0.20	29.5	C	0.27	31.2	C
	INTERSECTION	COMPOSITE							-	31.0	C	-	30.7	C
2. Route 17K & Route 300 (Signalized)	EASTBOUND	LEFT	0.44	43.4	D	0.52	47.1	D	0.53	47.4	D	0.54	47.5	D
		THRU	0.48	43.8	D	0.54	47.4	D	0.56	47.8	D	0.56	47.9	D
		RIGHT	0.59	36.6	D	0.74	45.6	D	0.76	47.0	D	0.77	47.7	D
		COMPOSITE	-	41.2	D	-	46.6	D	-	47.4	D	-	47.7	D
	WESTBOUND	LEFT	0.38	42.6	D	0.47	46.4	D	0.47	46.6	D	0.47	46.6	D
		THRU	0.5	43.8	D	0.58	48.3	D	0.60	48.9	D	0.61	49.0	D
		RIGHT	0.81	49.5	D	0.94	70.6	E	0.94	71.0	E	0.94	71.0	E
		COMPOSITE	-	45.9	D	-	57.4	E	-	57.7	E	-	57.7	E
	NORTHBOUND	LEFT	0.94	78.8	E	1.18	157.4	F	1.21	169.2	F	1.22	173.2	F
		THRU	0.83	39.0	D	0.97	57.7	E	0.97	57.0	E	0.97	57.0	E
		RIGHT	0.27	27.3	C	0.32	28.8	C	0.32	28.7	C	0.32	28.7	C
		COMPOSITE	-	48.0	D	-	79.9	E	-	83.0	F	-	84.2	F
	SOUTHBOUND	LEFT	0.80	53.9	D	0.84	60.5	E	0.84	60.7	E	0.84	60.7	E
		THRU/RIGHT	0.86	44.9	D	0.97	64.5	E	0.97	65.4	E	0.98	66.3	E
		COMPOSITE	-	45.0	D	-	63.1	E	-	63.8	E	-	64.5	E
	INTERSECTION	COMPOSITE	-	47.1	D	-	65.0	E	-	66.3	E	-	67.0	E

Notes:

(1) V/C represents volume/capacity ratio

(2) Delay is average seconds delay per vehicle

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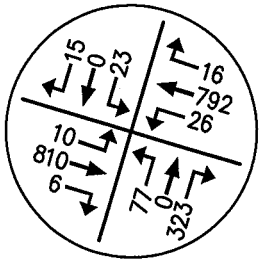
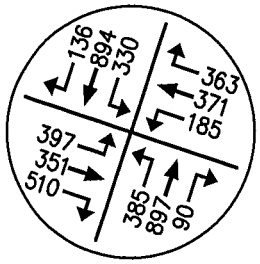
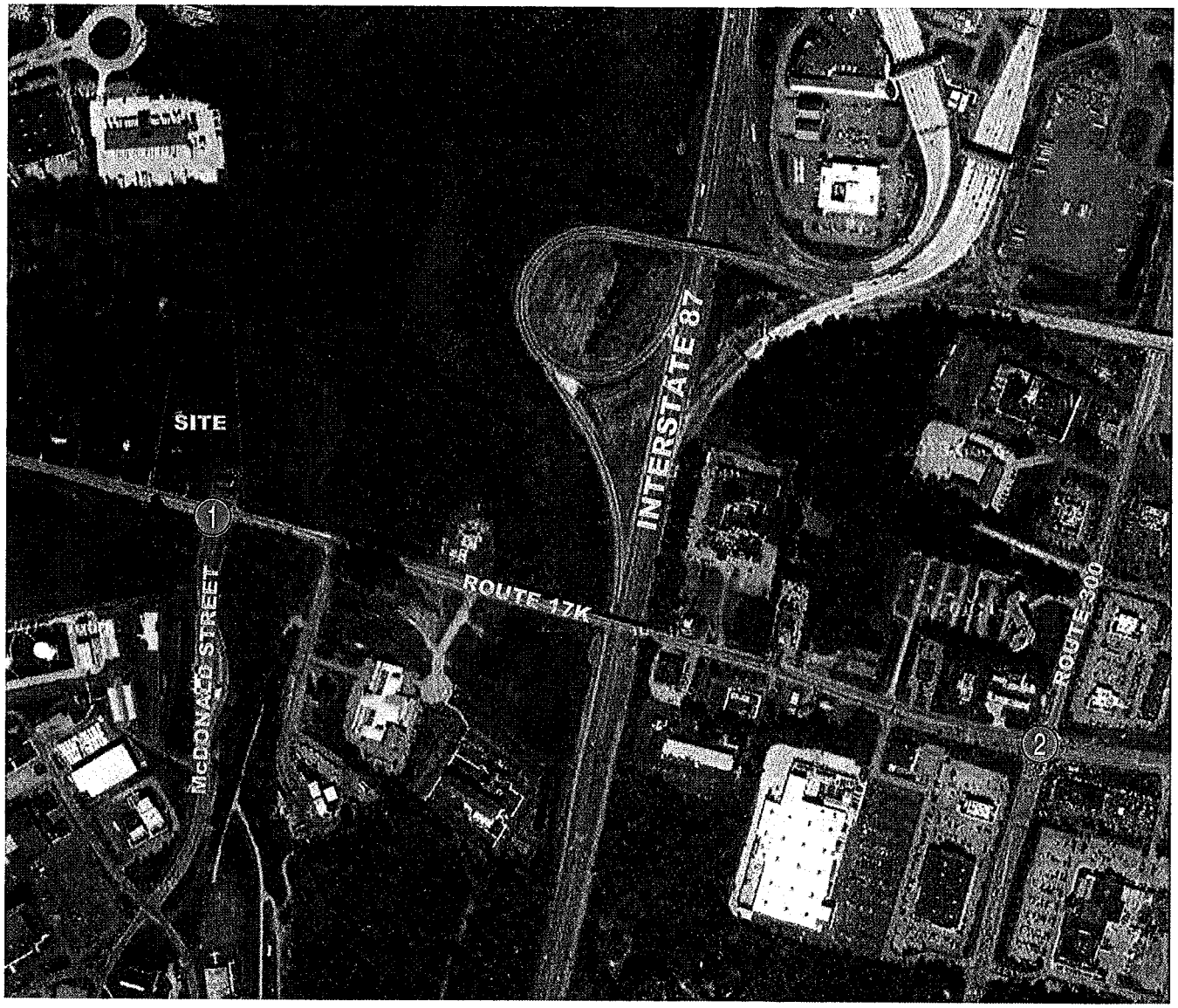


1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300



VOLKSWAGEN OF NEWBURGH

2015 BUILD VOLUMES

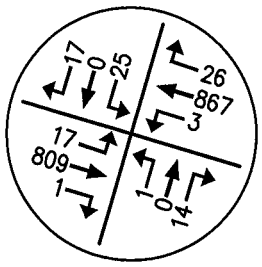
PEAK WEEKDAY PM HOUR (4:15 - 5:15)

DATE: 07/26/2013 JMC PROJECT: 13021

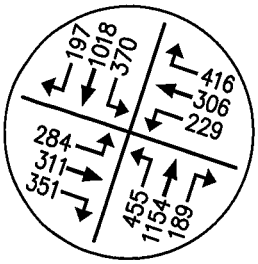
FIGURE: 13

JMC

13021-TRAF-FIG.dwg PROPOSED.tab



1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300

VOLKSWAGEN OF NEWBURGH

2015 BUILD VOLUMES

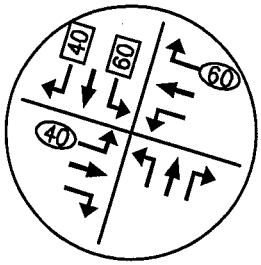
PEAK SATURDAY HOUR (12:00 - 1:00)

DATE: 07/26/2013 JMC PROJECT: 13021

FIGURE: 14

JMC

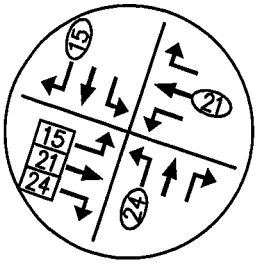
13021-TRAF-FIG.dwg PROPOSED.tab



LEGEND

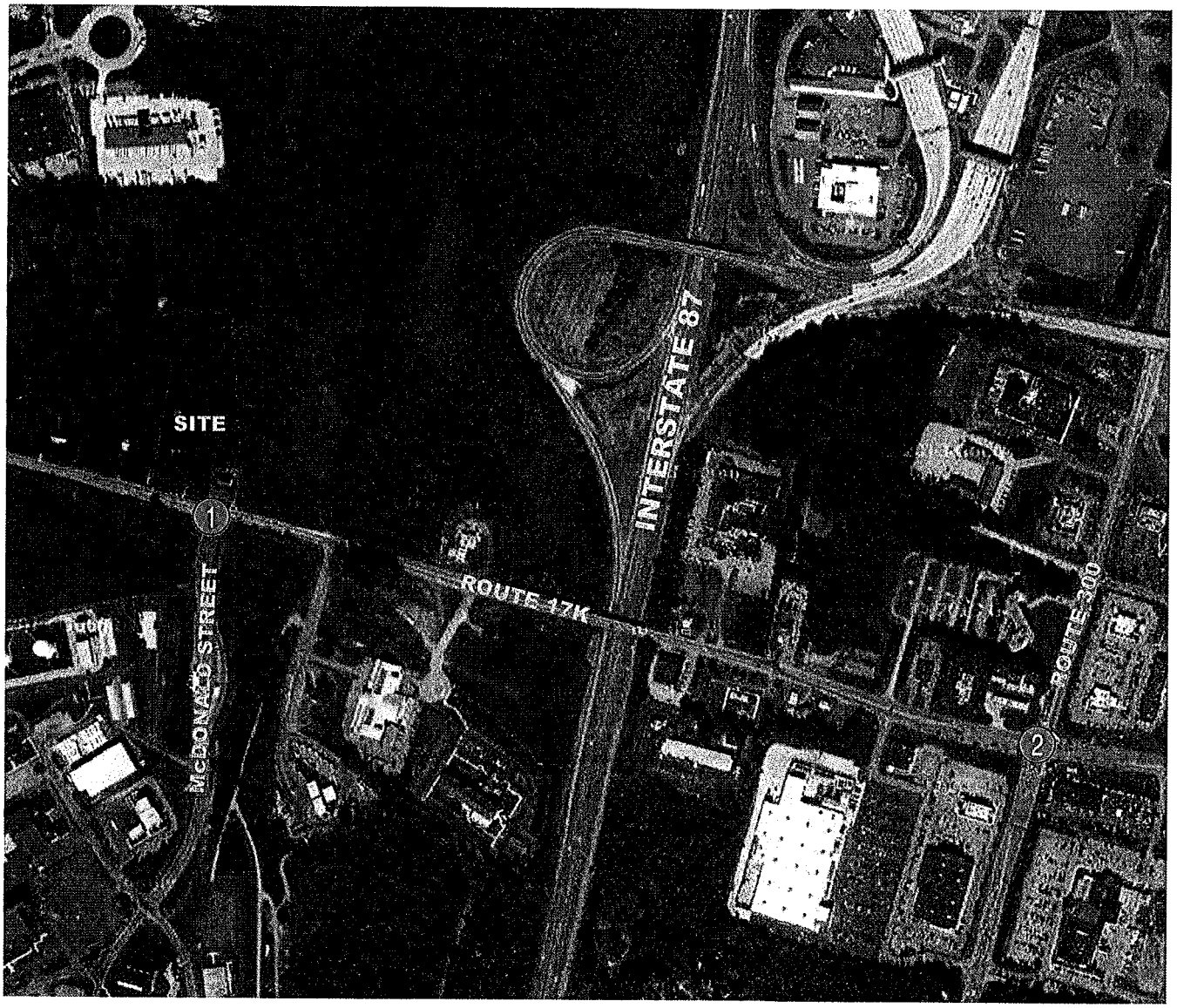
% ENTERING

% EXITING



1 ROUTE 17K & McDONALD STREET

2 ROUTE 17K & ROUTE 300



HEALEY KIA

ROUTE 17K — TOWN OF NEWBURGH, NEW YORK

PRIMARY TRIP DISTRIBUTIONS

DATE: 10/01/2015 — JMC PROJECT: 14139

FIGURE: 15 — SCALE: NTS

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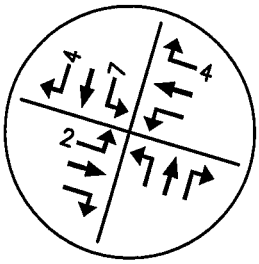
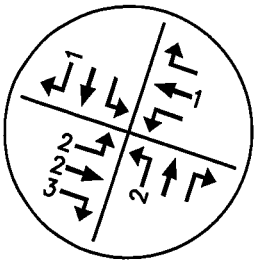


1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300

HEALEY KIA

ROUTE 17K — TOWN OF NEWBURGH, NEW YORK

NET ADDITIONAL PRIMARY TRIP VOLUMES

PEAK WEEKDAY PM HOUR

DATE: 10/01/2015 — JMC PROJECT: 14139

FIGURE: 16 — SCALE: NTS

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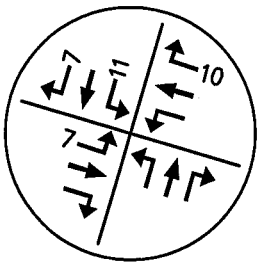
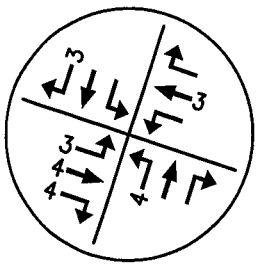


1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300

HEALEY KIA

ROUTE 17K — TOWN OF NEWBURGH, NEW YORK

NET ADDITIONAL PRIMARY TRIP VOLUMES

PEAK SATURDAY HOUR

DATE: 10/01/2015 — JMC PROJECT: 14139

FIGURE: 17 — SCALE: NTS

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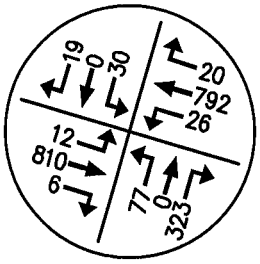
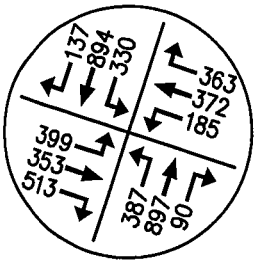
14139–TRAF–FIG.dwg; SA–FIGS.tab



1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300

HEALEY KIA

ROUTE 17K — TOWN OF NEWBURGH, NEW YORK

2015 SENSITIVITY ANALYSIS BUILD VOLUMES

PEAK WEEKDAY PM HOUR (4:15 - 5:15)

DATE: 10/01/2015 — JMC PROJECT: 14139

FIGURE: 18 — SCALE: NTS

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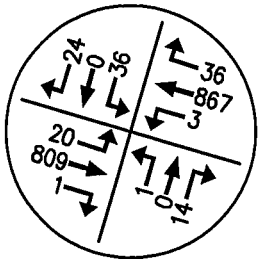
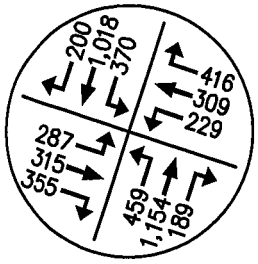


1 ROUTE 17K & McDONALD STREET



2 ROUTE 17K & ROUTE 300

HEALEY KIA

ROUTE 17K — TOWN OF NEWBURGH, NEW YORK

2015 SENSITIVITY ANALYSIS BUILD VOLUMES

PEAK SATURDAY HOUR (12:00 - 1:00)

DATE: 10/01/2015 — JMC PROJECT: 14139

FIGURE: 19 — SCALE: NTS

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JMC

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	724	6	25	714	71	311
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1957	1862	1773	1910	1910
Adj Flow Rate, veh/h	852	0	29	840	84	301
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	0	0	5	0	0
Cap, veh/h	833	729	299	1121	388	346
Arrive On Green	0.44	0.00	0.12	0.63	0.21	0.21
Sat Flow, veh/h	1900	1663	1773	1773	1819	1623
Grp Volume(v), veh/h	852	0	29	840	84	301
Grp Sat Flow(s),veh/h/ln	1900	1663	1773	1773	1819	1623
Q Serve(g_s), s	34.0	0.0	0.0	25.7	3.0	13.9
Cycle Q Clear(g_c), s	34.0	0.0	0.0	25.7	3.0	13.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	833	729	299	1121	388	346
V/C Ratio(X)	1.02	0.00	0.10	0.75	0.22	0.87
Avail Cap(c_a), veh/h	833	729	299	1121	446	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	30.3	10.0	25.2	29.5
Incr Delay (d2), s/veh	37.0	0.0	0.1	4.6	0.3	16.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	0.0	0.6	13.8	1.5	7.8
LnGrp Delay(d),s/veh	58.8	0.0	30.4	14.6	25.4	46.1
LnGrp LOS	F		C	B	C	D
Approach Vol, veh/h	852			869	385	
Approach Delay, s/veh	58.8			15.1	41.6	
Approach LOS	E			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.0	40.0				55.0		22.5
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	9.0	34.0				49.0		19.0
Max Q Clear Time (g_c+I1), s	2.0	36.0				27.7		15.9
Green Ext Time (p_c), s	1.7	0.0				2.5		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	37.6
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰	↱
Volume (veh/h)	697	1	3	740	1	13
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1919	1957	1862	1825	1910	1910
Adj Flow Rate, veh/h	801	0	3	851	1	15
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	0	0	2	0	0
Cap, veh/h	1028	891	481	1410	70	63
Arrive On Green	0.54	0.00	0.14	0.77	0.04	0.04
Sat Flow, veh/h	1919	1663	1773	1825	1819	1623
Grp Volume(v), veh/h	801	0	3	851	1	15
Grp Sat Flow(s),veh/h/ln	1919	1663	1773	1825	1819	1623
Q Serve(g_s), s	21.1	0.0	0.0	12.6	0.0	0.6
Cycle Q Clear(g_c), s	21.1	0.0	0.0	12.6	0.0	0.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1028	891	481	1410	70	63
V/C Ratio(X)	0.78	0.00	0.01	0.60	0.01	0.24
Avail Cap(c_a), veh/h	1028	891	481	1410	545	486
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	15.0	3.1	29.3	29.6
Incr Delay (d2), s/veh	5.8	0.0	0.0	1.9	0.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	0.0	0.0	6.9	0.0	0.3
LnGrp Delay(d),s/veh	17.6	0.0	15.0	5.0	29.4	31.5
LnGrp LOS	B		B	A	C	C
Approach Vol, veh/h	801			854	16	
Approach Delay, s/veh	17.6			5.0	31.4	
Approach LOS	B			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.0	40.0				55.0		8.5
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	9.0	34.0				49.0		19.0
Max Q Clear Time (g_c+I1), s	2.0	23.1				14.6		2.6
Green Ext Time (p_c), s	1.7	1.9				2.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.3
HCM 2010 LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	810	6	26	792	77	323
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1957	1862	1773	1910	1910
Adj Flow Rate, veh/h	953	0	31	932	91	316
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	3	0	0	5	0	0
Cap, veh/h	825	723	296	1110	401	358
Arrive On Green	0.43	0.00	0.11	0.63	0.22	0.22
Sat Flow, veh/h	1900	1663	1773	1773	1819	1623
Grp Volume(v), veh/h	953	0	31	932	91	316
Grp Sat Flow(s),veh/h/ln	1900	1663	1773	1773	1819	1623
Q Serve(g_s), s	34.0	0.0	0.0	32.4	3.2	14.7
Cycle Q Clear(g_c), s	34.0	0.0	0.0	32.4	3.2	14.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	825	723	296	1110	401	358
V/C Ratio(X)	1.15	0.00	0.10	0.84	0.23	0.88
Avail Cap(c_a), veh/h	825	723	296	1110	441	394
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	30.7	11.5	25.0	29.5
Incr Delay (d2), s/veh	83.2	0.0	0.2	7.7	0.3	19.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.7	0.0	0.6	17.9	1.6	8.5
LnGrp Delay(d),s/veh	105.4	0.0	30.8	19.2	25.3	48.6
LnGrp LOS	F		C	B	C	D
Approach Vol, veh/h	953			963	407	
Approach Delay, s/veh	105.4			19.6	43.4	
Approach LOS	F			B	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.0	40.0				55.0		23.3
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	9.0	34.0				49.0		19.0
Max Q Clear Time (g_c+I1), s	2.0	36.0				34.4		16.7
Green Ext Time (p_c), s	2.0	0.0				2.8		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	59.0
HCM 2010 LOS	E

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↱	↰	↑	↰	↱
Volume (veh/h)	809	1	3	867	1	14
Number	2	12	1	6	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1919	1957	1862	1825	1910	1910
Adj Flow Rate, veh/h	930	0	3	997	1	16
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	0	0	2	0	0
Cap, veh/h	1026	889	403	1407	74	66
Arrive On Green	0.53	0.00	0.14	0.77	0.04	0.04
Sat Flow, veh/h	1919	1663	1773	1825	1819	1623
Grp Volume(v), veh/h	930	0	3	997	1	16
Grp Sat Flow(s),veh/h/ln	1919	1663	1773	1825	1819	1623
Q Serve(g_s), s	27.8	0.0	0.0	17.6	0.0	0.6
Cycle Q Clear(g_c), s	27.8	0.0	0.0	17.6	0.0	0.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1026	889	403	1407	74	66
V/C Ratio(X)	0.91	0.00	0.01	0.71	0.01	0.24
Avail Cap(c_a), veh/h	1026	889	403	1407	543	485
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	0.0	20.1	3.7	29.3	29.5
Incr Delay (d2), s/veh	13.0	0.0	0.0	3.0	0.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	0.0	0.0	9.5	0.0	0.3
LnGrp Delay(d),s/veh	26.4	0.0	20.1	6.7	29.3	31.4
LnGrp LOS	C		C	A	C	C
Approach Vol, veh/h	930			1000	17	
Approach Delay, s/veh	26.4			6.8	31.3	
Approach LOS	C			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	15.0	40.0				55.0		8.6
Change Period (Y+Rc), s	6.0	6.0				6.0		6.0
Max Green Setting (Gmax), s	9.0	34.0				49.0		19.0
Max Q Clear Time (g_c+I1), s	2.0	29.8				19.6		2.6
Green Ext Time (p_c), s	2.1	1.3				3.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	16.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	810	6	26	792	16	77	0	323	23	0	15
Number	5	2	12	1	6	16	3	8	18	7	4	14
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	1957	1900	1957	1862	1775	1862	1910	1910	1910	1900	1900	1900
Adj Flow Rate, veh/h	12	953	0	31	932	19	91	0	316	27	0	17
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	3	0	0	5	5	0	0	0	0	0	0
Cap, veh/h	148	974	853	214	971	20	393	0	325	192	17	86
Arrive On Green	0.01	0.51	0.00	0.06	0.56	0.56	0.20	0.00	0.20	0.20	0.00	0.20
Sat Flow, veh/h	1864	1900	1663	1773	1733	35	1516	0	1623	597	86	430
Grp Volume(v), veh/h	12	953	0	31	0	951	91	0	316	44	0	0
Grp Sat Flow(s),veh/h/ln	1864	1900	1663	1773	0	1769	1516	0	1623	1112	0	0
Q Serve(g_s), s	0.2	39.2	0.0	0.6	0.0	40.9	0.0	0.0	15.5	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.2	39.2	0.0	0.6	0.0	40.9	3.4	0.0	15.5	4.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	0.61		0.39
Lane Grp Cap(c), veh/h	148	974	853	214	0	991	393	0	325	295	0	0
V/C Ratio(X)	0.08	0.98	0.00	0.15	0.00	0.96	0.23	0.00	0.97	0.15	0.00	0.00
Avail Cap(c_a), veh/h	237	974	853	214	0	991	393	0	325	295	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	19.1	0.0	17.5	0.0	16.7	27.0	0.0	31.8	26.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	24.1	0.0	0.3	0.0	20.3	0.3	0.0	42.6	0.2	0.0	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	0.1	26.9	0.0	0.4	0.0	25.1	1.7	0.0	10.8	0.9	0.0	0.0
LnGrp Delay(d),s/veh	18.0	43.2	0.0	17.8	0.0	37.1	27.3	0.0	74.4	26.9	0.0	0.0
LnGrp LOS	B	D		B		D	C		E	C		
Approach Vol, veh/h		965			982			407			44	
Approach Delay, s/veh		42.9			36.4			63.9			26.9	
Approach LOS		D			D			E			C	

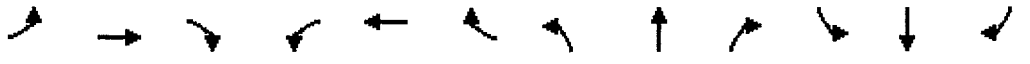
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	47.0		22.0	7.2	50.8		22.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	5.0	41.0		16.0	5.0	41.0		16.0
Max Q Clear Time (g_c+I1), s	2.6	41.2		6.1	2.2	42.9		17.5
Green Ext Time (p_c), s	0.0	0.0		1.9	0.0	0.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	43.5	
HCM 2010 LOS	D	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	809	1	3	867	26	1	0	14	25	0	17
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1957	1919	1957	1862	1827	1862	1910	1910	1910	1900	1900	1900
Adj Flow Rate, veh/h	20	930	0	3	997	30	1	0	15	29	0	19
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	2	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	242	1094	949	329	1006	30	258	0	165	158	19	62
Arrive On Green	0.07	0.57	0.00	0.07	0.57	0.57	0.10	0.00	0.10	0.10	0.00	0.10
Sat Flow, veh/h	1864	1919	1663	1773	1764	53	1525	0	1623	742	190	610
Grp Volume(v), veh/h	20	930	0	3	0	1027	1	0	15	48	0	0
Grp Sat Flow(s),veh/h/ln	1864	1919	1663	1773	0	1817	1525	0	1623	1542	0	0
Q Serve(g_s), s	0.3	28.3	0.0	0.0	0.0	39.2	0.0	0.0	0.6	0.6	0.0	0.0
Cycle Q Clear(g_c), s	0.3	28.3	0.0	0.0	0.0	39.2	0.0	0.0	0.6	1.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.60		0.40
Lane Grp Cap(c), veh/h	242	1094	949	329	0	1037	258	0	165	239	0	0
V/C Ratio(X)	0.08	0.85	0.00	0.01	0.00	0.99	0.00	0.00	0.09	0.20	0.00	0.00
Avail Cap(c_a), veh/h	349	1094	949	430	0	1037	377	0	301	364	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.8	12.6	0.0	10.3	0.0	14.9	28.3	0.0	28.6	29.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	8.3	0.0	0.0	0.0	25.8	0.0	0.0	0.2	0.4	0.0	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	0.2	17.2	0.0	0.0	0.0	26.8	0.0	0.0	0.3	0.9	0.0	0.0
LnGrp Delay(d),s/veh	16.0	20.8	0.0	10.3	0.0	40.7	28.3	0.0	28.8	29.5	0.0	0.0
LnGrp LOS	B	C		B		D	C		C	C		
Approach Vol, veh/h		950			1030			16			48	
Approach Delay, s/veh		20.7			40.6			28.8			29.5	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	46.0		13.1	11.0	46.0		13.1
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	9.0	40.0		13.0	9.0	40.0		13.0
Max Q Clear Time (g_c+I1), s	2.3	41.2		2.6	2.0	30.3		3.8
Green Ext Time (p_c), s	0.0	0.0		0.1	0.0	4.8		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.0
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	12	810	6	26	792	20	77	0	323	30	0	19
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1957	1900	1957	1862	1775	1862	1910	1910	1910	1900	1900	1900
Adj Flow Rate, veh/h	14	953	0	31	932	24	91	0	316	35	0	21
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	3	0	0	5	5	0	0	0	0	0	0
Cap, veh/h	219	1045	915	258	948	24	326	0	264	156	17	60
Arrive On Green	0.06	0.55	0.00	0.06	0.55	0.55	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1864	1900	1663	1773	1723	44	1451	0	1623	512	103	369
Grp Volume(v), veh/h	14	953	0	31	0	956	91	0	316	56	0	0
Grp Sat Flow(s),veh/h/ln	1864	1900	1663	1773	0	1768	1451	0	1623	984	0	0
Q Serve(g_s), s	0.2	36.2	0.0	0.6	0.0	42.4	0.0	0.0	13.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.2	36.2	0.0	0.6	0.0	42.4	4.4	0.0	13.0	5.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		1.00	0.62		0.37
Lane Grp Cap(c), veh/h	219	1045	915	258	0	972	326	0	264	233	0	0
V/C Ratio(X)	0.06	0.91	0.00	0.12	0.00	0.98	0.28	0.00	1.20	0.24	0.00	0.00
Avail Cap(c_a), veh/h	219	1045	915	258	0	972	326	0	264	233	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.6	16.3	0.0	14.8	0.0	17.6	29.9	0.0	33.5	30.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	13.3	0.0	0.2	0.0	25.1	0.5	0.0	119.8	0.5	0.0	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	0.2	22.7	0.0	0.3	0.0	27.2	1.8	0.0	14.6	1.2	0.0	0.0
LnGrp Delay(d),s/veh	17.7	29.6	0.0	15.0	0.0	42.8	30.3	0.0	153.3	30.9	0.0	0.0
LnGrp LOS	B	C		B		D	C		F	C		
Approach Vol, veh/h		967			987			407			56	
Approach Delay, s/veh		29.4			41.9			125.8			30.9	
Approach LOS		C			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	50.0		19.0	11.0	50.0		19.0
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	5.0	44.0		13.0	5.0	44.0		13.0
Max Q Clear Time (g_c+I1), s	2.2	44.4		15.0	2.6	38.2		7.9
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	3.3		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		50.8
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	809	1	3	867	36	1	0	14	36	0	24
Number	1	6	16	5	2	12	7	4	14	3	8	18
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	1957	1919	1957	1862	1827	1862	1910	1910	1910	1900	1900	1900
Adj Flow Rate, veh/h	23	930	0	3	997	41	1	0	15	41	0	27
Adj No. of Lanes	1	1	1	1	1	0	0	1	1	0	1	0
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	0	2	0	0	2	2	0	0	0	0	0	0
Cap, veh/h	232	1111	964	326	1009	42	269	0	180	162	19	68
Arrive On Green	0.07	0.58	0.00	0.07	0.58	0.58	0.11	0.00	0.11	0.11	0.00	0.11
Sat Flow, veh/h	1864	1919	1663	1773	1743	72	1555	0	1623	759	167	610
Grp Volume(v), veh/h	23	930	0	3	0	1038	1	0	15	68	0	0
Grp Sat Flow(s),veh/h/ln	1864	1919	1663	1773	0	1814	1555	0	1623	1536	0	0
Q Serve(g_s), s	0.3	29.4	0.0	0.0	0.0	41.8	0.0	0.0	0.6	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.3	29.4	0.0	0.0	0.0	41.8	0.0	0.0	0.6	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	0.60		0.40
Lane Grp Cap(c), veh/h	232	1111	964	326	0	1051	269	0	180	248	0	0
V/C Ratio(X)	0.10	0.84	0.00	0.01	0.00	0.99	0.00	0.00	0.08	0.27	0.00	0.00
Avail Cap(c_a), veh/h	332	1111	964	422	0	1051	303	0	219	284	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.9	12.7	0.0	10.5	0.0	15.4	29.4	0.0	29.6	30.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	7.5	0.0	0.0	0.0	25.0	0.0	0.0	0.2	0.6	0.0	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	0.3	17.6	0.0	0.0	0.0	27.8	0.0	0.0	0.3	1.3	0.0	0.0
LnGrp Delay(d),s/veh	17.1	20.3	0.0	10.5	0.0	40.3	29.4	0.0	29.8	31.2	0.0	0.0
LnGrp LOS	B	C		B		D	C		C	C		
Approach Vol, veh/h		953			1041			16			68	
Approach Delay, s/veh		20.2			40.2			29.8			31.2	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	49.0		14.2	11.0	49.0		14.2
Change Period (Y+Rc), s	6.0	6.0		6.0	6.0	6.0		6.0
Max Green Setting (Gmax), s	9.0	43.0		10.0	9.0	43.0		10.0
Max Q Clear Time (g_c+I1), s	2.3	43.8		2.6	2.0	31.4		4.9
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	5.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C