



February 3, 2016

Mr. Thomas R. Skebey
 Zoning Officer
 Town of Horseheads
 150 Wygant Road
 Horseheads, NY 14845

RE: Limited Traffic Analysis
 Southern Tier Senior Living
 FE Project #2014-054

Dear Tom:

As per the request of the Planning Board, Fagan Engineers has performed a limited analysis of the potential traffic impacts to the Biltmore Drive/Gardner Road intersection due to the development of the proposed 88-bed senior living complex.

Existing Conditions

FE performed traffic counts and documented vehicle movements for the AM and PM peak hours on October 7, 2015. The intersection was then analyzed with the use of *Highway Capacity Software* (HCS) developed by McTrans. As expected, the intersection performs at near optimal operation:

Biltmore Drive/ Gardner Road	AM Peak Hour	PM Peak Hour
Gardner Road – Eastbound	LOS A (7.5 sec/veh)	LOS A (7.6 sec/veh)
Biltmore Drive – Southbound	LOS B (10.7 sec/veh)	LOS B (10.6 sec/veh)

Trip Generation

The proposed project is the development of an 88-bed senior living complex. The trip generation was estimated with the use of the ITE *Trip Generation Manual* utilizing the Land Use Code (LUC) for Assisted Living. The estimated trip generation for the AM and PM peak hours are as follows:

Period	Enter	Exit	Total
AM Peak Hour	9 Trips	4 Trips	11 Trips
PM Peak Hour	9 Trips	11 Trips	20 Trips

Developed Conditions

The estimated trips were distributed amongst the intersection based on the existing movements for the AM and PM peak. The developed conditions were also analyzed with the use of *Highway Capacity Software* (HCS) developed by McTrans. As expected, the intersection performs at near optimal operation for the developed condition as well:

Biltmore Drive/ Gardner Road	AM Peak Hour	PM Peak Hour
Gardner Road – Eastbound	LOS A (7.6 sec/veh)	LOS A (7.6 sec/veh)
Biltmore Drive – Southbound	LOS B (10.8 sec/veh)	LOS B (10.8 sec/veh)

Summary/Recommendations

The proposed project will have negligible impacts to the operations of the Biltmore Drive / Gardner Road intersection. No additional traffic mitigation is warranted at this time.

Please feel free to contact me with any questions or comments.

Sincerely,

FAGAN ENGINEERS & LAND SURVEYORS, P.C.



James B. Gensel, P.E., CPESC
President

HCS2000: Unsignalized Intersections Release 4.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: JBG
 Agency/Co.: FAGAN ENGINEERS
 Date Performed: 11/30/2015
 Analysis Time Period: AM PEAK
 Intersection: BILTMORE/GARNDER
 Jurisdiction: TOWN
 Analysis Year: 2015 EXISTING
 Project ID: FE PROJECT #2014-054 STSL
 East/West Street: GARDNER ROAD
 North/South Street: BILTMORE DRIVE

Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		3	251		154	18	
Peak-Hour Factor, PHF		1.00	1.00		1.00	1.00	
Hourly Flow Rate, HFR		3	251		154	18	
Percent Heavy Vehicles		0	--	--	--	--	
Median Type	Undivided						
RT Channelized?							
Lanes		0	1		1	0	
Configuration		LT			TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					24	14	
Peak Hour Factor, PHF					1.00	1.00	
Hourly Flow Rate, HFR					24	14	
Percent Heavy Vehicles					0	0	
Percent Grade (%)		0			0		
Median Storage							
Flared Approach: Storage	Exists?				No		
RT Channelized?							
Lanes					0	0	
Configuration					LR		

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config	1 LT	4					LR	
v (vph)	3						38	
C(m) (vph)	1417						675	
v/c	0.00						0.06	
95% queue length	0.01						0.18	
Control Delay	7.5						10.7	
LOS	A						B	
Approach Delay							10.7	
Approach LOS							B	

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 Fagan Engineers
 113 E. Chemung Place
 Elmira, NY 14904

Assisted Living (254)

Average Vehicle Trip Ends vs: Beds
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Number of Studies: 7
 Average Number of Beds: 121
 Directional Distribution: 65% entering, 35% exiting

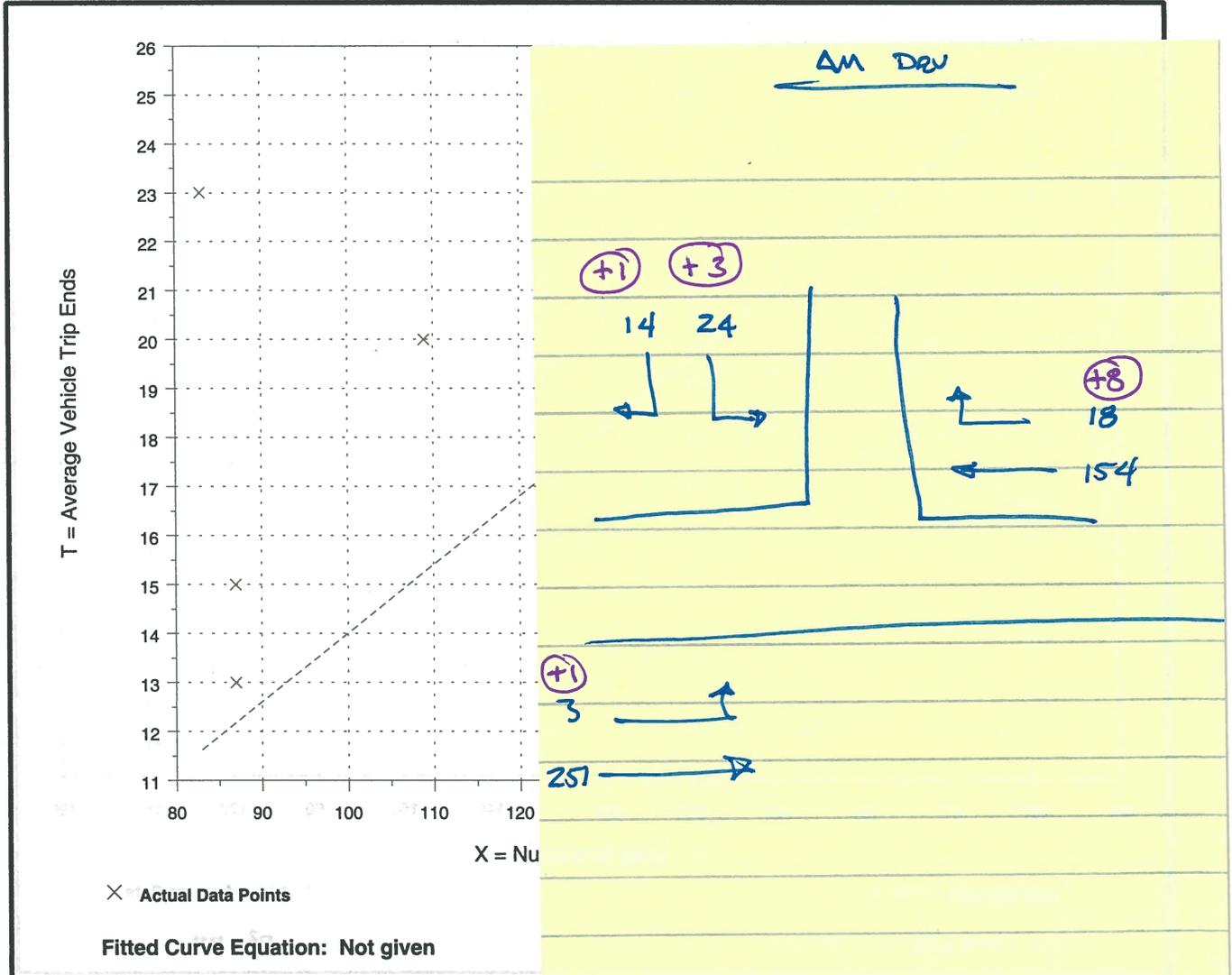
Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.14	0.08 - 0.28	0.37

88 BEDS x 0.14 = 12.3 = 13 TRIPS/HR

Data Plot and Equation

9 ENTER / 4 EXIT



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TWO-WAY STOP CONTROL SUMMARY

Analyst: JBG
 Agency/Co.: FAGAN ENGINEERS
 Date Performed: 11/30/2015
 Analysis Time Period: AM PEAK
 Intersection: BILTMORE/GARNDER
 Jurisdiction: TOWN
 Analysis Year: 2016 DEVELOPED
 Project ID: FE PROJECT #2014-054 STSL
 East/West Street: GARDNER ROAD
 North/South Street: BILTMORE DRIVE

Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		4	251		154	26	
Peak-Hour Factor, PHF		1.00	1.00		1.00	1.00	
Hourly Flow Rate, HFR		4	251		154	26	
Percent Heavy Vehicles		0	--	--	--	--	
Median Type		Undivided					
RT Channelized?							
Lanes		0	1		1	0	
Configuration		LT			TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					27	15	
Peak Hour Factor, PHF					1.00	1.00	
Hourly Flow Rate, HFR					27	15	
Percent Heavy Vehicles					0	0	
Percent Grade (%)		0			0		
Median Storage							
Flared Approach: Storage	Exists?	No					
RT Channelized?							
Lanes					0	0	
Configuration		LR					

Delay, Queue Length, and Level of Service							
Approach Movement	EB	WB	Northbound			Southbound	
			7	8	9	10	11
Lane Config	1 LT	4					LR
v (vph)	4					42	
C(m) (vph)	1408					667	
v/c	0.00					0.06	
95% queue length	0.01					0.20	
Control Delay	7.6					10.8	
LOS	A					B	
Approach Delay						10.8	
Approach LOS						B	

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Assisted Living (254)

Average Vehicle Trip Ends vs: Beds
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

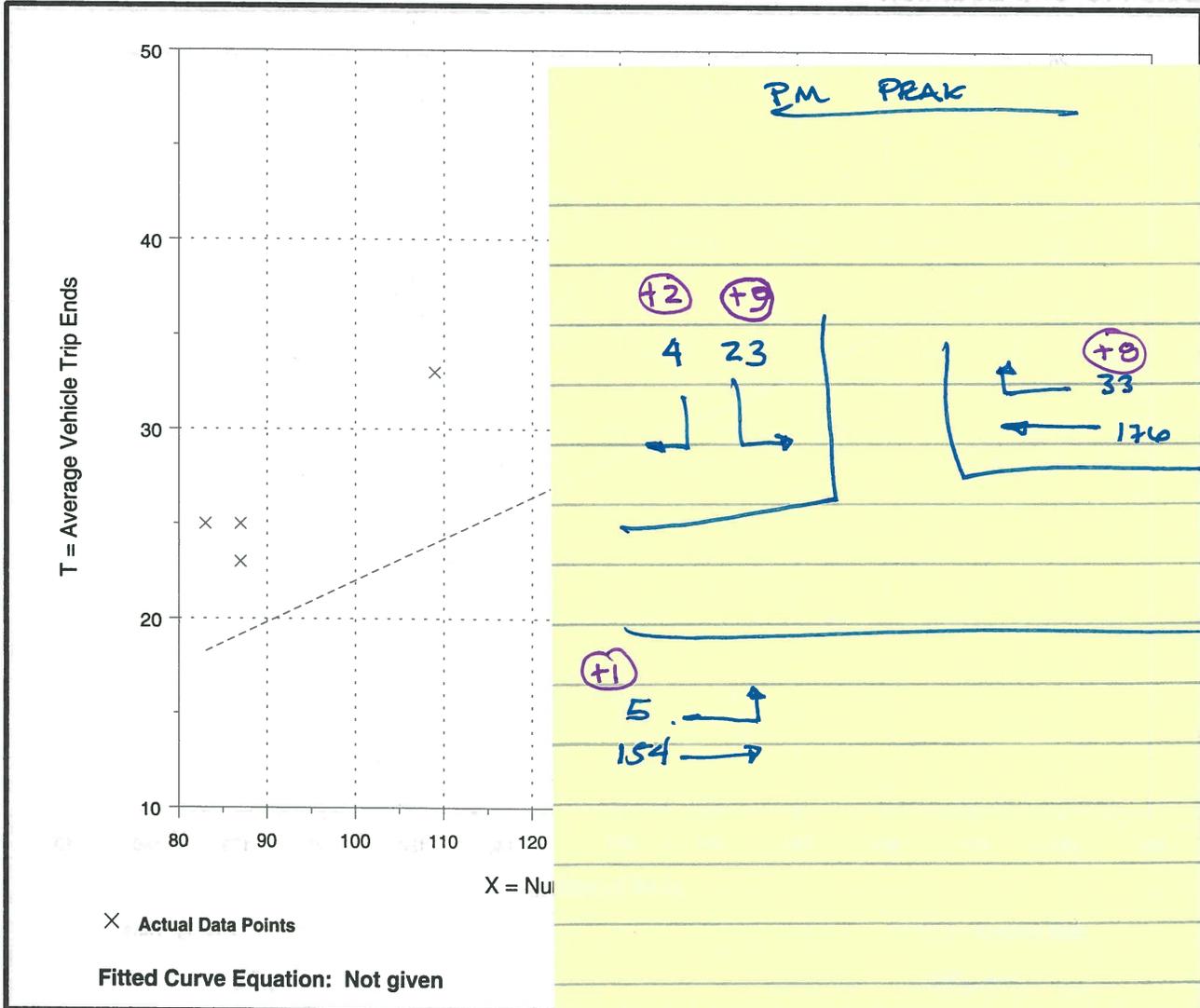
Number of Studies: 7
 Average Number of Beds: 121
 Directional Distribution: 44% entering, 56% exiting

Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.22	0.11 - 0.30	0.47

88 BED x 0.22 = 19.4 = 20 TRIPS / HR
 9 ENTER / 11 EXIT

Data Plot and Equation



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TWO-WAY STOP CONTROL SUMMARY

Analyst: JBG
 Agency/Co.: FAGAN ENGINEERS
 Date Performed: 11/30/2015
 Analysis Time Period: PM PEAK
 Intersection: BILTMORE/GARNDER
 Jurisdiction: TOWN
 Analysis Year: 2015 EXISTING
 Project ID:
 East/West Street: GARDNER ROAD
 North/South Street: BILTMORE DRIVE

Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		5	154		176	33	
Peak-Hour Factor, PHF		1.00	1.00		1.00	1.00	
Hourly Flow Rate, HFR		5	154		176	33	
Percent Heavy Vehicles		0	--	--	--	--	
Median Type	Undivided						
RT Channelized?							
Lanes		0	1		1	0	
Configuration			LT			TR	
Upstream Signal?			No		No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					23	4	
Peak Hour Factor, PHF					1.00	1.00	
Hourly Flow Rate, HFR					23	4	
Percent Heavy Vehicles					0	0	
Percent Grade (%)		0					
Median Storage							
Flared Approach: Exists?						No	
Storage							
RT Channelized?							
Lanes					0	0	
Configuration						LR	

Delay, Queue Length, and Level of Service							
Approach Movement	EB	WB	Northbound			Southbound	
			7	8	9	10	11
Lane Config	1 LT	4					LR
v (vph)	5						27
C(m) (vph)	1374						668
v/c	0.00						0.04
95% queue length	0.01						0.13
Control Delay	7.6						10.6
LOS	A						B
Approach Delay							10.6
Approach LOS							B

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 Intersection: BILTMORE/GARDNER
 Jurisdiction: TOWN
 Analysis Year: 2016 DEVELOPED
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 East/West Street: GARDNER ROAD
 North/South Street: BILTMORE DRIVE

Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		6	154			176	41
Peak-Hour Factor, PHF		1.00	1.00			1.00	1.00
Hourly Flow Rate, HFR		6	154			176	41
Percent Heavy Vehicles		0	--	--		--	--
Median Type	Undivided						
RT Channelized?							
Lanes		0	1			1	0
Configuration			LT				TR
Upstream Signal?			No			No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					32		6
Peak Hour Factor, PHF					1.00		1.00
Hourly Flow Rate, HFR					32		6
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Median Storage							
Flared Approach: Exists?						No	
Storage							
RT Channelized?							
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service							
Approach Movement	EB	WB	Northbound			Southbound	
			4	7	8	9	10
Lane Config	LT						LR
v (vph)	6						38
C(m) (vph)	1365						664
v/c	0.00						0.06
95% queue length	0.01						0.18
Control Delay	7.6						10.8
LOS	A						B
Approach Delay							10.8
Approach LOS							B