Attachment 7

Traffic Impact Analysis

IESI PA Bethlehem Landfill Corporation
Southeastern Realignment

LAND DEVELOPMENT PLAN SUPPORTING DOCUMENTATION

TRAFFIC

There is no change to the average daily or maximum daily tonnage to be accepted; nor to the routes to be traveled accessing the site. Per the attached report from Pennoni, the existing traffic route will not be impacted by this project.

Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

December 8, 2014

Mr. Rick Bodner, P.E.
Martin & Martin, Inc.
37 S. Main Street
Chambersburg, PA 17201

RE: Traffic Impact Evaluation
IESI Bethlehem Landfill Southeast Realignment

Dear Rick:

In response to your request, the following traffic impact assessment has been completed to determine if the current and proposed roadway system surrounding the IESI Bethlehem Landfill is adequate to accommodate the current permitted daily tonnages now and in the future. The extension of the Bethlehem Landfill will extend the operating life of the site; however, it will not increase the Average or Maximum Permitted Daily Tonnage and as such will not increase vehicular trips. Although it can be seen that there will be deficiencies in the design year 2025, these deficiencies are not due to the extension of the IESI Bethlehem Landfill; rather, they are a result of the substantial nearby developments that are under construction.

It is important to note that PennDOT's transportation impact study guidelines require intersections to be evaluated when a development is proposed to add 100 vehicle trips in a specific direction to an intersection. As such, if the landfill were a warehouse or other land use that generated the same number of trips, a transportation impact study would not be required by PennDOT given the low traffic volumes being added to the roadway network.

Project Description

IESI PA Bethlehem Landfill Corporation proposes to extend the life of the existing IESI Bethlehem Landfill by approximately 5.5 years. The IESI Bethlehem Landfill is situated on a tract of land on the northern side of Applebutter Road (SR 2012), east of Shimersville Road (SR 2014), in Lower Saucon Township, Northampton County (**Figure 1**). The proposal will provide additional disposal capacity within the current permit limits. However, it will not increase the Average or Maximum Daily Tonnage (currently 1375 tons and 1800 tons respectively). By maintaining the average and maximum tonnage, the vehicle trips to and from the site are expected to remain the same. The landfill is currently open to receive waste from 7 AM to 4 PM. No change in these hours is proposed. Access to the site will be provided via the existing full access driveway on Applebutter Road (SR 2012). No new access locations are proposed. For the purposes of this evaluation, the IESI Bethlehem Landfill modification is assumed to be completed by 2015 and a ten-year from opening year analysis is provided per Chapter 11 of Publication 46 (2025).

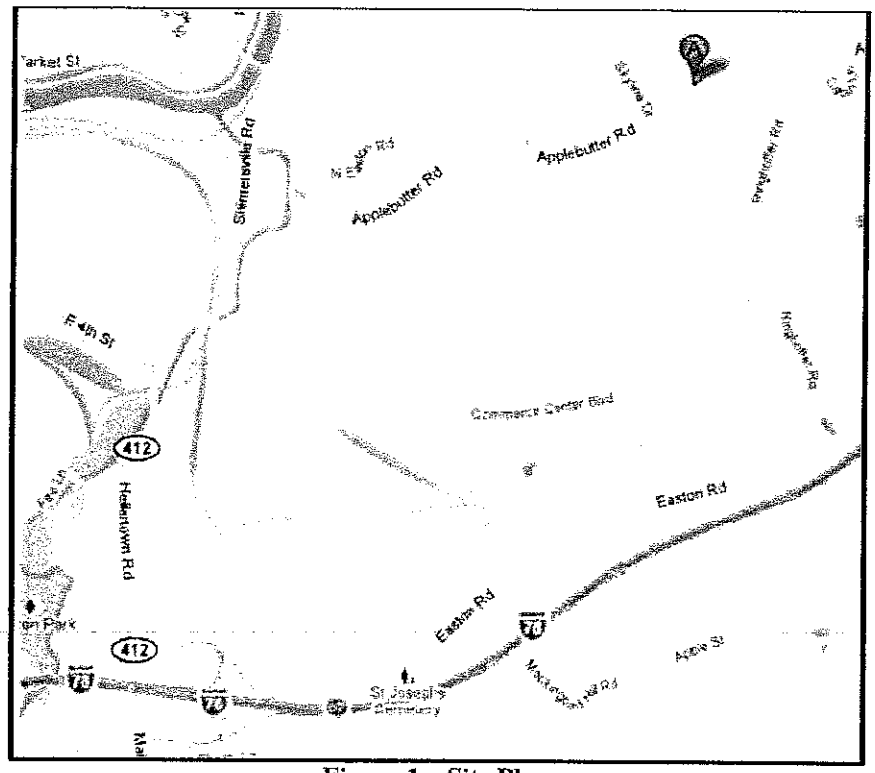


Figure 1 – Site Plan

Existing Roadway Characteristics

Applebutter Road (SR 2012) is an east-west State Road extending from Shimersville Road (SR 2014) to the west toward Island Park Road to the east. The road has one travel lane in each direction within the study area. Applebutter Road (SR 2012) is classified as an urban collector according to PENNDOT's Northampton County Federal Functional Class Map and has a roadway typology of neighborhood collector. The roadway is under PENNDOT jurisdiction and is posted with a speed limit of 40 MPH, but advisory speeds of 20 MPH are posted due to horizontal and vertical curvature of the roadway. The intersection of Applebutter Road (SR 2014) and Shimersville Road (SR 2014) is an unsignalized T-shaped intersection with stop control for the Applebutter Road (SR 2014) approach. This approach includes a stop-controlled channelized right turn lane.

Shimersville Road (SR 2014) is a north-south State Road west of the site. The road has one travel lane in each direction near East 4th Street/Hellertown Road (SR 0412) and widens to a four-lane roadway in the vicinity of Applebutter Road (SR 2012). Shimersville Road (SR 2014) is classified as an urban collector according to PENNDOT's Northampton County Federal Functional Class Map and has a roadway typology of community collector. The roadway is under PENNDOT jurisdiction and is posted with a speed limit of 40 MPH. Shimersville Road (SR 2014) terminates at East 4th Street/Hellertown Road (SR 0412). This intersection is signalized with a yield-controlled channelized westbound right turn lane from Hellertown Road (SR 0412) to Shimersville Road (SR 2014).

Hellertown Road (SR 0412) is a north-south State Road extending from Shimersville Road (SR 2014) south through the Borough of Hellertown. North of Shimersville Road (SR 2014), Hellertown Road (SR 0412) becomes East 4th Street (SR 0412), an East-West State Road in the City of Bethlehem. Under existing conditions, the road has one travel lane in each direction within the study area and widens to provide two northbound lanes in the vicinity of Shimersville Road (SR 2014). Upon completion of PENNDOT's SR 0412 project in 2015, SR 0412 will have three northbound and two southbound through lanes between Shimersville Road (SR 2014) and the I-78 interchange. Auxiliary lanes will also be added at the various intersections along the corridor. Hellertown Road/East 4th Street (SR 0412) is classified as an urban "other principal arterial" according to PENNDOT's Northampton County Federal Functional Class Map and has a roadway typology of regional arterial. The roadway is under PENNDOT jurisdiction and is posted with a speed limit of 35 MPH. The intersections of Hellertown Road (SR 0412) and the I-78 Ramps are signalized.

Interstate 78 (SR 0078) is an east-west roadway south of the site. The road is classified as an Urban Interstate according to PENNDOT's Northampton County Federal Functional Class Map. The intersections of the I-78 westbound and eastbound ramps and Hellertown Road (SR 0412) are signalized.

Existing Traffic Volumes

The scope of this evaluation was confirmed by PENNDOT officials and the Township Engineer when an increase in daily tonnage was previously proposed and includes the following intersections:

- Applebutter Road (SR 2012) and Site Driveway
- Applebutter Road (SR 2012) and Shimersville Road (SR 2014)
- Shimersville Road (SR 2014) and Hellertown Road (SR 0412)/East 4th Street (SR 0412)
- Hellertown Road (SR 0412) and I-78 WB Ramp/Silvex Road
- Hellertown Road (SR 0412) and I-78 EB Ramp/Kichline Road

Manual traffic turning movement counts were conducted for the weekday AM and weekday PM peak periods, which occur between 7:00 AM and 9:00 AM and between 3:00 PM and 6:00 PM, respectively. The intersection of Applebutter Road (SR 2012) and the Site Driveway was counted from 6:30 AM until 4:00 PM to capture the entire time period the site receives waste drop-offs. **Figure 2** illustrates existing volumes.

Back Ground Growth Rates

A growth rate of 1.57%, compounded for 4 years, was used to calculate future traffic for the opening design year (2015). A ten-year from opening year analysis is provided per Chapter 11 of Publication 46. A 1.57% growth rate, compounded for 14 years, was used to project peak hour traffic volumes to 2025. The 1.57% was obtained from current PENNDOT Table, "Growth Factors for September 2012 to July 2013" for Northampton County and the specific roadway classifications as found in the Federal Functional Class maps.

Other Area Development

In addition to the background growth rate used, traffic volumes from two other developments in the immediate area that were not fully constructed/occupied at the time of the traffic counts were included in the no-build traffic volumes for both analysis scenarios. These developments are the Majestic and LVIP VII.

The Majestic development will be located off SR 0412 along Commerce Center Boulevard. In 2015, it is anticipated that the development will include 3,103,000 SF (886 employees) of Warehouse. In 2025, it is anticipated that the development will be at full-build capacity and will include 6,126,000 SF (1,750 employees) of Warehouse, 1,290,000 SF of Manufacturing, and 108,000 SF of General Office Space. The anticipated development is directly related to the number of vehicles per day (6,458) that Majestic Realty property attributed to Commerce Center Boulevard as indicated on the Highway Occupancy Permit (HOP) issued for Commerce Center Boulevard. Because a formal traffic impact study was not required for this development by the City of Bethlehem, Majestic trips were computed using the Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition (2012) and distributed based on the directional distribution of existing traffic volumes. **Table 1** illustrates anticipated Majestic trip generation. **Figure 3** illustrates anticipated Majestic volumes distributed over the study intersections.

Majestic Bethlehem Center - Proposed by 2025

			AM Vehicle Trips		PM Vehicle Trips		Weekday ADT Trips	
ITE Land Use Code	Land Use	X	Entering	Exiting	Entering	Exiting	Entering	Exiting
140	Manufacturing (18%) X=KSF	1,290 KSF	815	230	358	636	2501	2500
150	Warehousing (80%) X=Employees	6,126 KSF = 1,750 Employees (3500 SF/Employee)	459	459	213	755	3246	3245
710	General Office (2%)	108 KSF	175	24	34	166	708	708
		Total	1449	713	605	1557	6455	6453

Table 1 – Majestic Trips

The LVIP VII development is a massive multi-use development with numerous access points along both sides of SR 0412 through our entire study area. After numerous discussions with staff at Hanover Engineering Associates, Inc., who are also the engineers for LVIP VII and serve as the Lower Saucon Township Engineer, it was concluded that the 2015 scenario would assume only "Slag 4", or 45% of the full-build development, would be open and the 2025 scenario would assume 90% of the full-build development would be open. Because a formal traffic impact study was never prepared for this development and the proposed development is ever evolving, the LVIP VII trip generation and distribution was interpolated from the best information available as directed by Hanover Engineering Associates, Inc. **Table 2** illustrates anticipated LVIP VII trip generation provided by Hanover Engineering Associates, Inc. The "with reductions" column refers to internal capture reductions. **Figure 4** illustrates anticipated LVIP VII volumes distributed over the study intersections.

LVIP DEVELOPMENTS TOTAL WEEKDAY TRAFFIC PROJECTIONS	WITHOUT REDUCTIONS					WITH REDUCTIONS					
	24 HR	AM Peak		PM Peak		24 HR	AM Peak			PM Peak	
		Enter	Exit	Enter	Exit		Enter	Exit	Pass-by	Enter	Exit	Pass-by
	59,271	4,359	1,222	2,018	4,854	49,805	3,635	1,022	126	1,715	4,061	412
		Peak Total= 5,581		Peak Total = 6,872			Peak Total= 4,657			Peak Total = 5,776		

Table 2 – LVIP VII Trips

Planned Roadway Improvements

In December 2011, PENNDOT bid a partial Design/Build project that will widen SR 0412 from the I-78 Ramp intersections through the Shimersville Road (SR 2014) intersection. The project is expected to be completed in Fall 2015. All existing analyses use existing geometry and timings for the SR 0412 study intersections. All opening year (2015) and design year (2025) analyses for the no-build scenarios use timings and geometry as proposed on PENNDOT's SR 0412 plans.

Trip Generation & Distribution

Since the daily tonnage and existing volumes are not proposed to be increased, new trip generation was not estimated. **Table 3** illustrates the total trips that are currently generated by the IESI Bethlehem Landfill and are based on the existing counts at the site driveway.

	Size (tonnage)	AM Peak Hour			PM Peak Hour			Weekday		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Existing Landfill	1269	24	15	39	9	13	22	172	172	344

Table 3 – Existing Landfill Trips

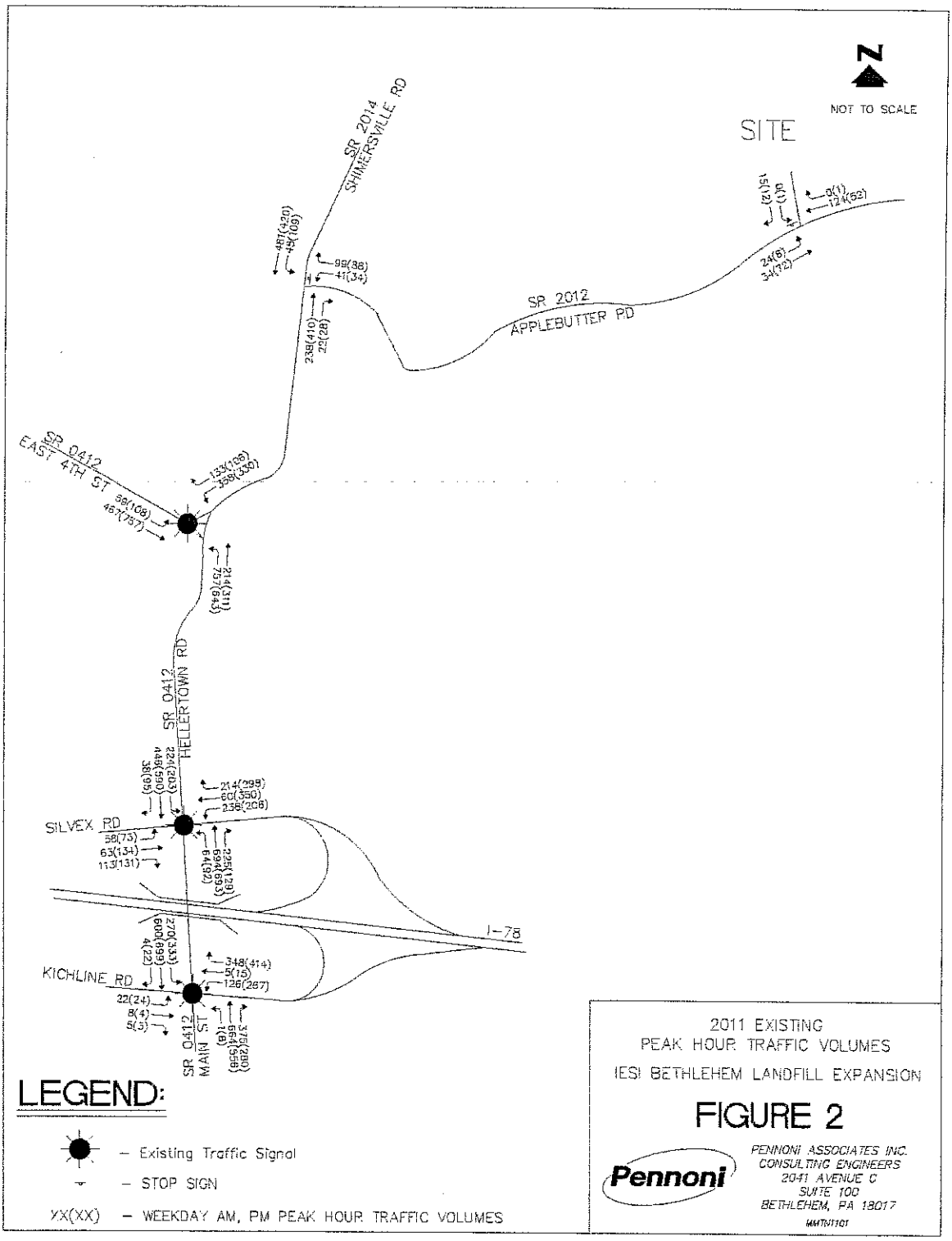
These trips were then assigned to the intersections by examination of current volume distributions among the roadway network in the vicinity of the site. It is assumed that existing landfill traffic arrives and departs the site via the following distribution:

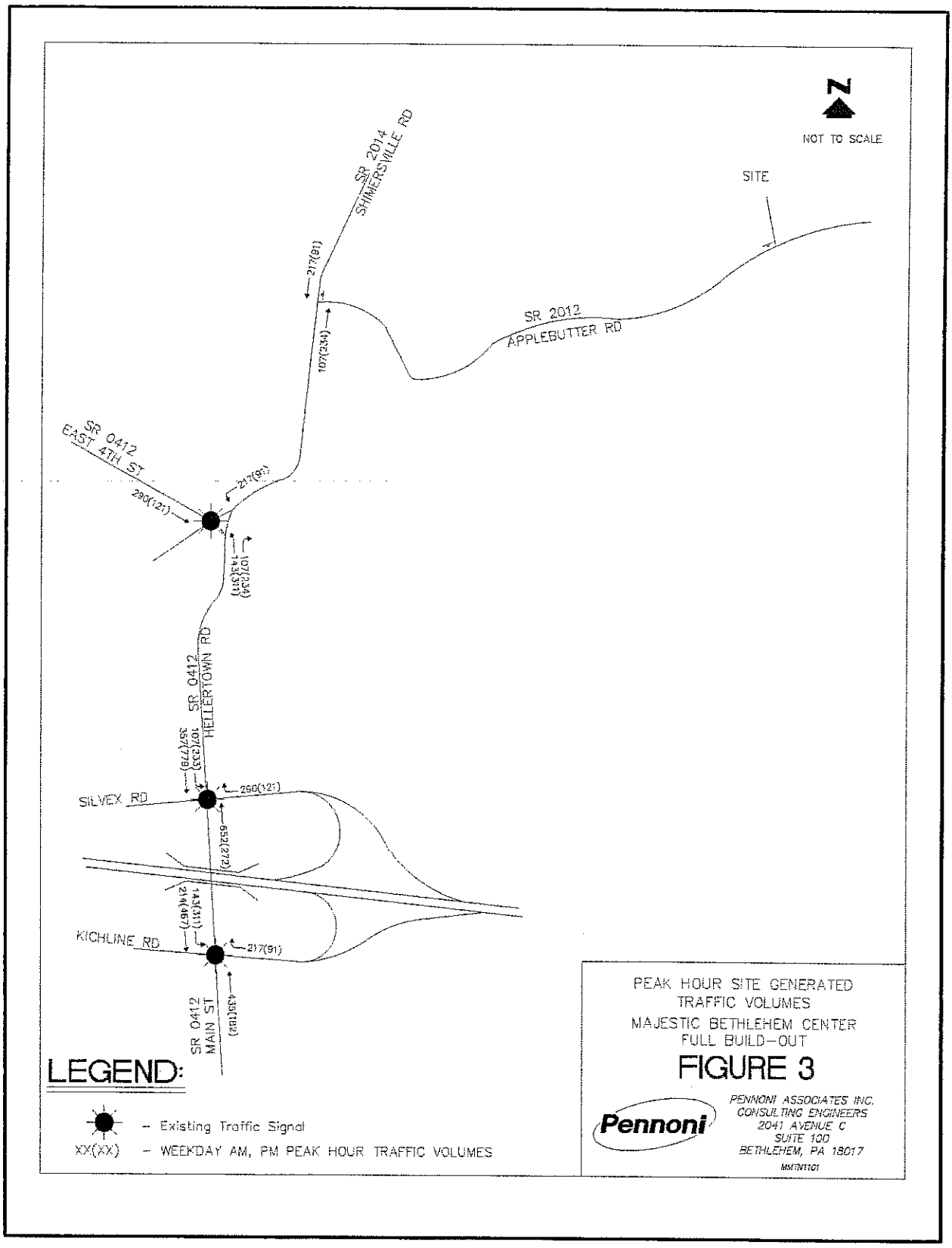
- 75% to/from the west via I-78; and
- 25% to/from the east via I-78.

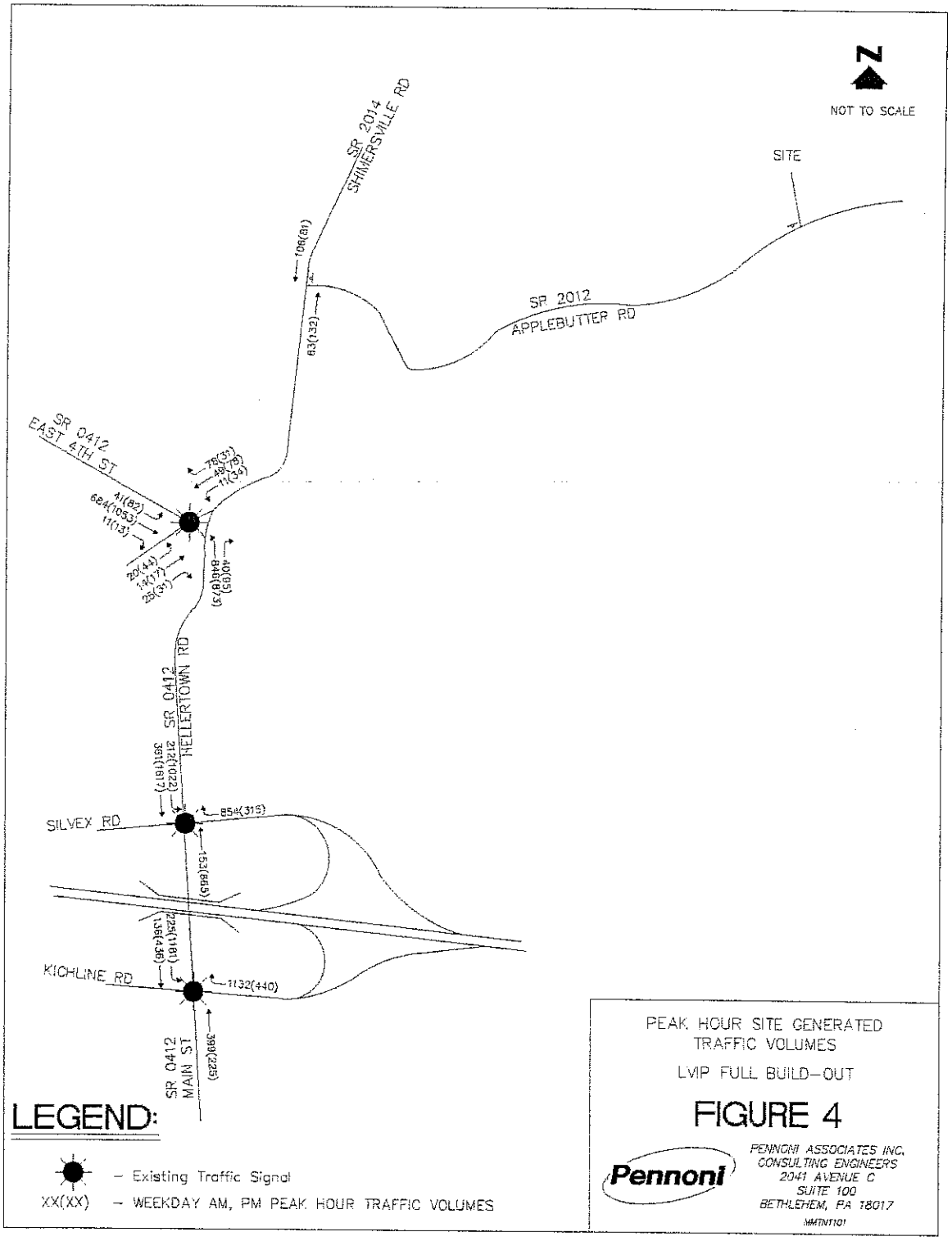
Figure 5 illustrates the trip generation distribution and assignments of the existing IESI Bethlehem Landfill volumes. It should be noted that access to the IESI Bethlehem Landfill Southeast Realignment will be provided via the existing access along Applebutter Road (SR 2012).

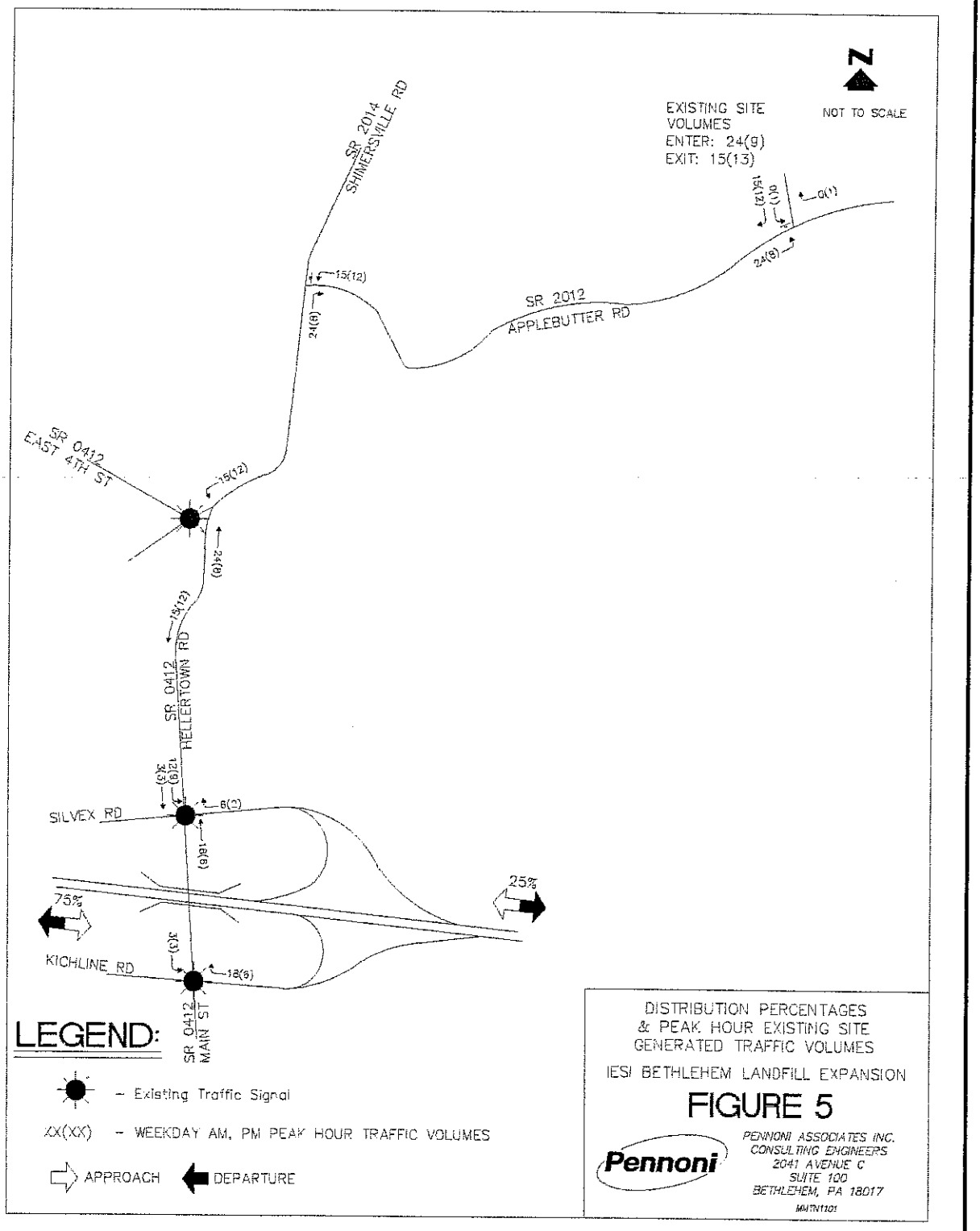
Volume Comparison

It can be seen by comparing the total AM and PM Peak Hour IESI Bethlehem Landfill trips to the total AM and PM Peak Hour Majestic and LVIP VII generated trips that the Bethlehem Landfill trips account for less than 1% of the traffic expected to be generated by the proposed developments in the vicinity.


N
NOT TO SCALE
SITE
SR 2014
SHIMERSVILLE RD
SR 2012
APPLEBUTTER RD
SR 0412
EAST 4TH ST
SR 0412
HELLERTOWN RD
SILVEX RD
KICHLINE RD
SR 0412
MAIN ST
I-78
LEGEND:
– Existing Traffic Signal
– STOP SIGN
YX(XX) – WEEKDAY AM, PM PEAK HOUR TRAFFIC VOLUMES
2011 EXISTING
PEAK HOUR TRAFFIC VOLUMES
IESI BETHLEHEM LANDFILL EXPANSION
FIGURE 2
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
2041 AVENUE C
SUITE 100
BETHLEHEM, PA 18017


N
NOT TO SCALE
SITE
SR 2014
SHIMERSVILLE RD
217(91)
107(234)
SR 2012
APPLEBUTTER RD
SR 0412
EAST 4TH ST
280(121)
217(91)
107(234)
143(311)
SR 0412
HELLERTOWN RD
107(234)
357(779)
SILVEX RD
280(121)
652(272)
143(311)
214(467)
KICHLINE RD
217(91)
SR 0412
MAIN ST
435(182)
LEGEND:
- Existing Traffic Signal
XX(XX) - WEEKDAY AM, PM PEAK HOUR TRAFFIC VOLUMES
PEAK HOUR SITE GENERATED
TRAFFIC VOLUMES
MAJESTIC BETHLEHEM CENTER
FULL BUILD-OUT
FIGURE 3
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
2041 AVENUE C
SUITE 100
BETHLEHEM, PA 18017
MMTN110

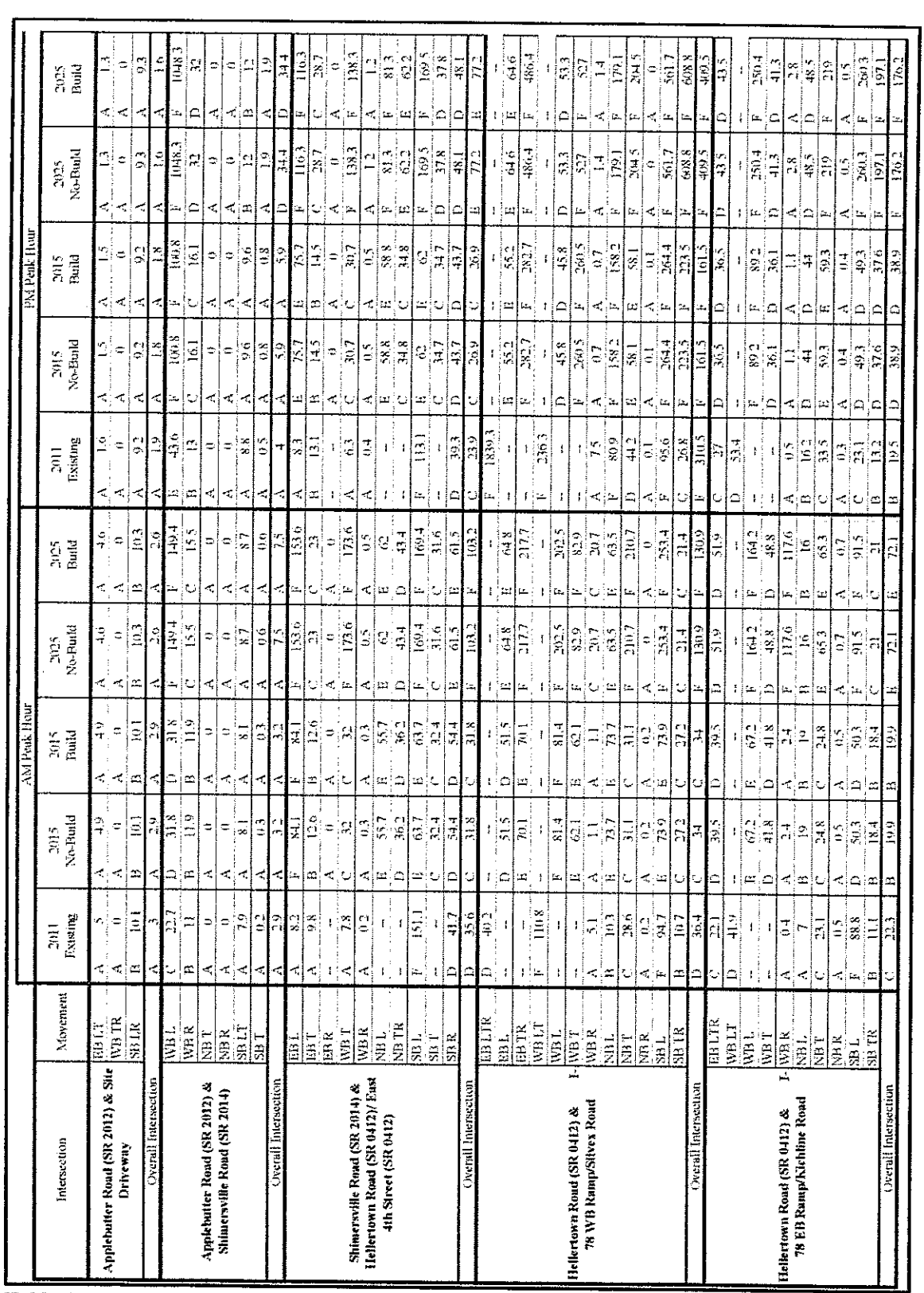

N
NOT TO SCALE
SITE
SR 2014
SHIMERSVILLE RD
SR 2012
APPLEBUTTER RD
SR 0412
EAST 4TH ST
SR 0412
HELLERTOWN RD
SILVEX RD
KICHLINE RD
SR 0412
MAIN ST
106(81)
63(132)
76(51)
49(78)
11(34)
41(82)
684(1033)
111(31)
20(44)
19(17)
28(31)
40(85)
848(637)
381(1617)
212(1022)
854(315)
153(859)
136(436)
225(1161)
1132(440)
399(225)
LEGEND:
– Existing Traffic Signal
XX(XX) – WEEKDAY AM, PM PEAK HOUR TRAFFIC VOLUMES
PEAK HOUR SITE GENERATED
TRAFFIC VOLUMES
LVIP FULL BUILD–OUT
FIGURE 4
Pennoni
PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS
2041 AVENUE C
SUITE 100
BETHLEHEM, PA 18017
MMTNT101



Levels of Service and Queue Analysis for Study Intersections

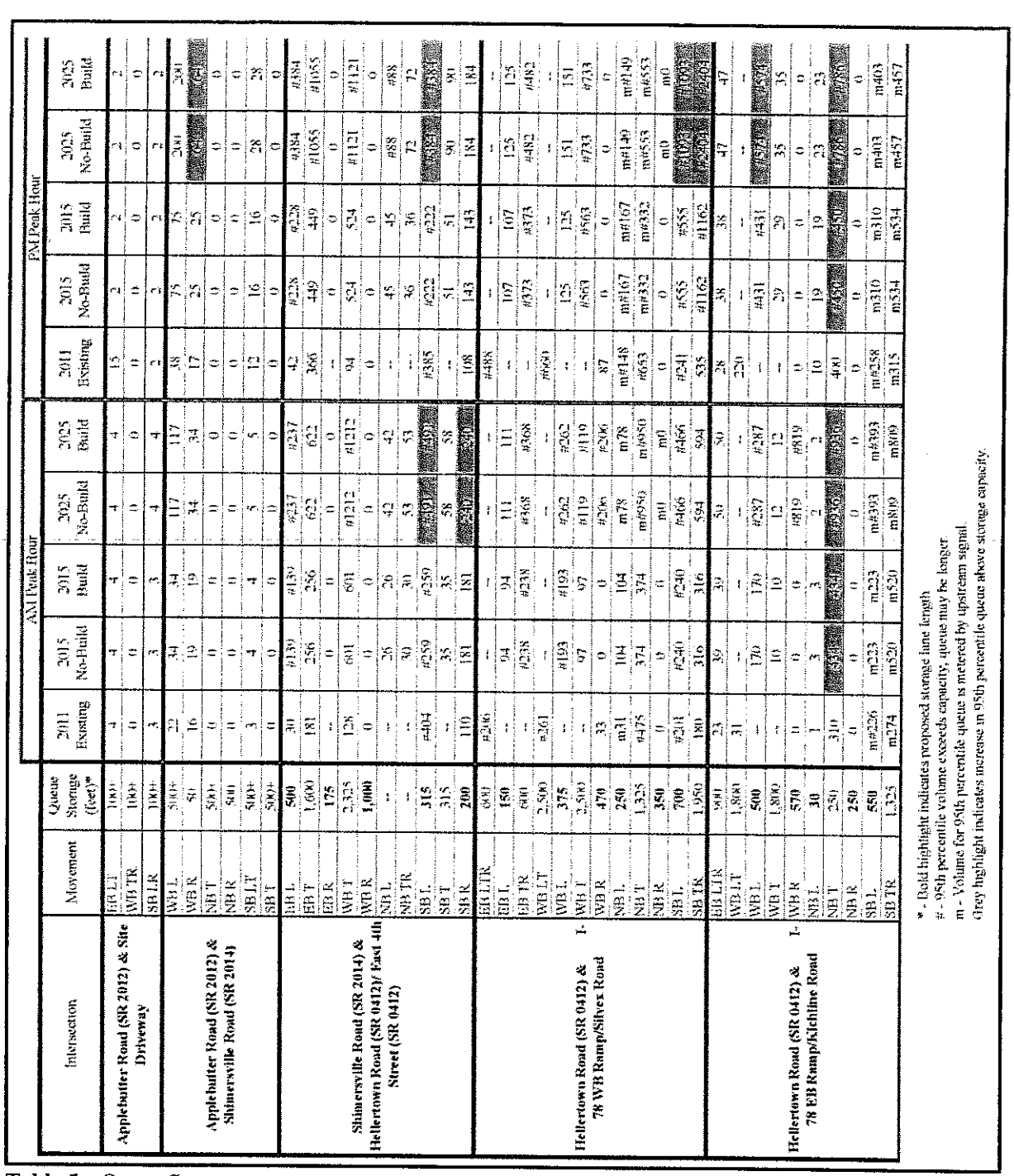
The results of the Synchro 8 capacity analyses provide Level of Service (LOS) and average seconds of vehicle delay experienced by motorists for each intersection and critical lane group. **Table 4** summarizes the existing, no-build, and build LOS for each study intersection for the 2015 opening year and 2025 design year. The build scenario for the IESI Bethlehem Landfill Southeast Realignment will yield identical results as the no-build scenario since peak hour trips are not being increased.

Queues were analyzed using the 95th percentile queue values provided by the Synchro 8 software. **Table 5** summarizes the existing and proposed auxiliary lane storage lengths and the 95th percentile queue lengths for the auxiliary lanes and through movements at all study intersections.



Intersection	Movement	AM Peak Hour								PM Peak Hour							
		2011 Existing		2015 No-Build		2015 Build		2025 No-Build	2025 Build	2011 Existing		2015 No-Build		2015 Build		2025 No-Build	2025 Build
Applebutter Road (SR 2012) & Site Driveway	EB LT	A	5	A	4.9	A	4.9	A 4.6	A 4.6	A	1.6	A	1.5	A	1.5	A 1.3	A 1.3
	WB TR	A	0	A	0	A	0	A 0	A 0	A	0	A	0	A	0	A 0	A 0
	SB LR	B	10.1	B	10.1	B	10.1	B 10.3	B 10.3	A	9.2	A	9.2	A	9.2	A 9.3	A 9.3
Overall Intersection		A	3	A	2.9	A	2.9	A 2.6	A 2.6	A	1.9	A	1.8	A	1.8	A 1.6	A 1.6
Applebutter Road (SR 2012) & Shimersville Road (SR 2014)	WB L	C	22.7	D	31.8	D	31.8	F 149.4	F 149.4	E	43.6	F	106.8	F	106.8	F 104.3	F 104.3
	WB R	B	11	B	11.9	B	11.9	C 15.5	C 15.5	B	13	C	16.1	C	16.1	D 32	D 32
	NB T	A	0	A	0	A	0	A 0	A 0	A	0	A	0	A	0	A 0	A 0
	NB R	A	0	A	0	A	0	A 0	A 0	A	0	A	0	A	0	A 0	A 0
	SB LT	A	7.9	A	8.1	A	8.1	A 8.7	A 8.7	A	8.8	A	9.6	A	9.6	B 12	B 12
	SB T	A	0.2	A	0.3	A	0.3	A 0.6	A 0.6	A	0.5	A	0.8	A	0.8	A 1.9	A 1.9
Overall Intersection		A	2.9	A	3.2	A	3.2	A 7.5	A 7.5	A	4	A	5.9	A	5.9	D 34.4	D 34.4
Shimersville Road (SR 2014) & Hellertown Road (SR 0412)/ East 4th Street (SR 0412)	EB L	A	8.2	F	84.1	F	84.1	F 153.6	F 153.6	A	8.3	E	75.7	E	75.7	F 116.3	F 116.3
	EB T	A	9.8	B	12.6	B	12.6	C 23	C 23	B	13.1	B	14.5	B	14.5	C 28.7	C 28.7
	EB R	--	--	A	0	A	0	A 0	A 0	--	--	A	0	A	0	A 0	A 0
	WB T	A	7.8	C	32	C	32	F 173.6	F 173.6	A	6.3	C	30.7	C	30.7	F 138.3	F 138.3
	WB R	A	0.2	A	0.3	A	0.3	A 0.5	A 0.5	A	0.4	A	0.5	A	0.5	A 1.2	A 1.2
	NB L	--	--	E	55.7	E	55.7	E 62	E 62	--	--	E	58.8	E	58.8	F 81.3	F 81.3
	NB TR	--	--	D	36.2	D	36.2	D 43.4	D 43.4	--	--	C	34.8	C	34.8	E 62.2	E 62.2
	SB L	F	151.1	E	63.7	E	63.7	F 169.4	F 169.4	F	113.1	E	62	E	62	F 169.5	F 169.5
	SB T	--	--	C	32.4	C	32.4	C 31.6	C 31.6	--	--	C	34.7	C	34.7	D 37.8	D 37.8
	SB R	D	41.7	D	54.4	D	54.4	E 61.5	E 61.5	D	39.3	D	43.7	D	43.7	D 48.1	D 48.1
Overall Intersection		D	35.6	C	31.8	C	31.8	F 103.2	F 103.2	C	23.9	C	26.9	C	26.9	E 77.2	E 77.2
Hellertown Road (SR 0412) & 78 WB Ramp/Silvex Road	EB LTR	D	40.2	--	--	--	--	-- --	-- --	F	1839.3	--	--	--	--	-- --	-- --
	EB L	--	--	D	51.5	D	51.5	E 64.8	E 64.8	--	--	B	55.2	E	55.2	E 64.6	E 64.6
	EB TR	--	--	E	70.1	E	70.1	F 217.7	F 217.7	--	--	F	282.7	F	282.7	F 486.4	F 486.4
	WB LT	F	110.8	--	--	--	--	-- --	-- --	F	236.3	--	--	--	--	-- --	-- --
	WB L	--	--	F	81.4	F	81.4	F 202.5	F 202.5	--	--	D	45.8	D	45.8	D 53.3	D 53.3
	WB T	--	--	E	62.1	B	62.1	F 82.9	F 82.9	--	--	F	260.5	F	260.5	F 327	F 327
	WB R	A	5.1	A	1.1	A	1.1	C 20.7	C 20.7	A	7.5	A	0.7	A	0.7	A 1.4	A 1.4
	NB L	B	10.3	E	73.7	E	73.7	E 63.5	E 63.5	F	80.9	F	158.2	F	158.2	F 179.1	F 179.1
	NB T	C	28.6	C	31.1	C	31.1	F 210.7	F 210.7	D	44.2	E	58.1	E	58.1	F 264.5	F 264.5
	NB R	A	0.2	A	0.2	A	0.2	A 0	A 0	A	0.1	A	0.1	A	0.1	A 0	A 0
	SB L	F	94.7	E	73.9	E	73.9	F 253.4	F 253.4	F	95.6	F	264.4	F	264.4	F 361.7	F 361.7
	SB TR	B	10.7	C	27.2	C	27.2	C 21.4	C 21.4	C	26.8	F	223.5	F	223.5	F 608.8	F 608.8
Overall Intersection		D	36.4	C	34	C	34	F 130.9	F 130.9	F	310.5	F	161.5	F	161.5	F 409.5	F 409.5
Hellertown Road (SR 0412) & 78 EB Ramp/Kichline Road	EB LTR	C	22.1	D	39.5	D	39.5	D 51.9	D 51.9	C	27	D	36.5	D	36.5	D 43.5	D 43.5
	WB LT	D	41.9	--	--	--	--	-- --	-- --	D	53.4	--	--	--	--	-- --	-- --
	WB L	--	--	E	67.2	E	67.2	F 164.2	F 164.2	--	--	F	89.2	F	89.2	F 250.4	F 250.4
	WB T	--	--	D	41.8	D	41.8	D 48.8	D 48.8	--	--	D	36.1	D	36.1	D 41.3	D 41.3
	WB R	A	0.4	A	2.4	A	2.4	F 117.6	F 117.6	A	0.5	A	1.1	A	1.1	A 2.8	A 2.8
	NB L	A	7	B	19	B	19	B 16	B 16	B	10.2	B	44	D	44	D 48.5	D 48.5
	NB T	C	23.1	C	24.8	C	24.8	E 65.3	E 65.3	C	33.5	E	59.3	E	59.3	F 219	F 219
	NB R	A	0.5	A	0.5	A	0.5	A 0.7	A 0.7	A	0.3	A	0.4	A	0.4	A 0.5	A 0.5
	SB L	F	88.8	D	50.3	D	50.3	F 91.5	F 91.5	C	23.1	D	49.3	D	49.3	F 260.3	F 260.3
	SB TR	B	11.1	B	18.4	B	18.4	C 21	C 21	B	13.2	D	37.6	D	37.6	F 197.1	F 197.1
Overall Intersection		C	22.3	B	19.9	B	19.9	E 72.1	E 72.1	B	19.5	D	38.9	D	38.9	F 176.2	F 176.2

Table 4 – LOS Summary



Intersection	Movement	Queue Storage (feet)*	AM Peak Hour				PM Peak Hour			
			2011 Existing	2015 No-Build	2015 Build	2025 No-Build	2025 Build	2011 Existing	2015 No-Build	2015 Build	2025 No-Build	2025 Build
Applebutter Road (SR 2012) & Site Driveway	EB LT	1000+	4	4	4	4	4	15	2	2	2	2
	WB TR	1000+	0	0	0	0	0	0	0	0	0	0
	SB LR	1000+	3	3	3	4	4	2	2	2	2	2
Applebutter Road (SR 2012) & Shimersville Road (SR 2014)	WB L	500+	22	34	34	117	117	58	75	75	204	204
	WB R	50	16	19	19	34	34	17	25	25	68	68
	NB T	500+	0	0	0	0	0	0	0	0	0	0
	NB R	500	0	0	0	0	0	0	0	0	0	0
	SB L,T	500+	3	4	4	5	5	12	16	16	28	28
	SB T	500+	0	0	0	0	0	0	0	0	0	0
Shimersville Road (SR 2014) & Hellertown Road (SR 0412)/ East 4th Street (SR 0412)	LB L	500	30	#139	#139	#237	#237	42	#228	#228	#384	#384
	EB T	1,600	181	256	256	622	622	366	449	449	#1055	#1055
	EB R	175	--	0	0	0	0	--	0	0	0	0
	WB T	2,325	128	601	601	#1212	#1212	94	524	524	#1121	#1121
	WB R	1,000	0	0	0	0	0	0	0	0	0	0
	NB L	--	--	26	26	42	42	--	45	45	#88	#88
	NB TR	--	--	30	30	53	53	--	36	36	72	72
	SB L	315	#404	#259	#259	#391	#391	#385	#222	#222	#383	#383
	SB T	315	--	35	35	58	58	--	51	51	90	90
	SB R	200	110	181	181	#240	#240	108	143	143	184	184
Hellertown Road (SR 0412) & 78 WB Ramp/Silvex Road	EB LTR	600	#246	--	--	--	--	#488	--	--	--	--
	EB L	150	--	94	94	111	111	--	107	107	125	125
	EB TR	600	--	#238	#238	#368	#368	--	#373	#373	#482	#482
	WB LT	2,500	#261	--	--	--	--	#660	--	--	--	--
	WB L	375	--	#193	#193	#262	#262	--	125	125	151	151
	WB T	2,500	--	97	97	#119	#119	--	#563	#563	#733	#733
	WB R	470	33	0	0	#206	#206	87	0	0	0	0
	NB L	250	m31	104	104	m78	m78	m#148	m#167	m#167	m#149	m#149
	NB T	1,325	#475	374	374	m#958	m#958	#653	m#332	m#332	m#553	m#553
	NB R	350	0	0	0	m0	m0	0	0	0	m0	m0
	SB L	700	#241	#240	#240	#466	#466	#241	#555	#555	#1093	#1093
	SB TR	1,950	180	316	316	594	594	535	#1162	#1162	#2401	#2401
Hellertown Road (SR 0412) & 78 EB Ramp/Kichline Road	EB LTR	900	23	39	39	50	50	28	38	38	47	47
	WB LT	1,800	31	--	--	--	--	220	--	--	--	--
	WB L	500	--	170	170	#287	#287	--	#431	#431	#574	#574
	WB T	1,800	--	10	10	12	12	--	29	29	35	35
	WB R	570	0	0	0	#819	#819	0	0	0	0	0
	NB L	30	1	3	3	2	2	10	19	19	23	23
	NB T	250	310	#331	#331	#393	#393	400	#459	#459	#786	#786
	NB R	250	0	0	0	0	0	0	0	0	0	0
	SB L	650	m#226	m223	m223	m#393	m#393	m#258	m310	m310	m403	m403
	SB TR	1,325	m274	m320	m320	m809	m809	m315	m534	m534	m457	m457

* - Bold highlight indicates proposed storage lane length
# - 95th percentile volume exceeds capacity, queue may be longer
m - Volume for 95th percentile queue is metered by upstream signal.
Grey highlight indicates increase in 95th percentile queue above storage capacity.

Table 5 – Queue Summary

Conclusion

The results of the build conditions are exactly the same as the no-build conditions in both the 2015 opening year and 2025 design year since the daily tonnage of the landfill is not proposed to increase. As such, there are no level of service drops and no increases in queue lengths associated with the landfill traffic. In accordance with current PennDOT policies and procedures for transportation impact studies, no mitigation would be required since the existing landfill traffic volumes would be maintained. However, the capacity analyses show that once the SR 412 widening project is completed the anticipated increase in traffic resulting from the proposed Majestic and LVIP developments results in deficient levels of service and vehicular queue lengths beyond capacity for several movements at several intersections during the AM and PM peak hours design year 2025.

The volume of traffic generated by the Bethlehem landfill is negligible to the roadway system with an average of less than 1 trip a minute during the AM peak hour and less than 1 trip every 2 minutes during the PM peak hour. This minor volume of traffic could be experienced on a specific day as a result of fluctuation in one of the many warehouses proposed with the nearby developments with or without the landfill.

In summary, as shown in the analyses, the surrounding roadway network is expected to operate at the same level of service with the proposed landfill extension since the average and maximum daily tonnages permitted today are proposed to be maintained in the future.

Sincerely,

PENNONI ASSOCIATES INC.

Earl W. Armitage III

Earl Armitage III, P.E.
Senior Traffic Engineer