

TRAFFIC IMPACT AND ACCESS STUDY

**TUSCAN VILLAGE (PHASE II)
SALEM, NEW HAMPSHIRE**



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PREPARED FOR:

**Joseph Faro
67 MAIN STREET
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JUNE 2016



***Traffic Impact and Access Study
Tuscan Village (Phase II)
Salem, New Hampshire
June 2016***

TECHNICAL MEMORANDUM

REF: MAX-2014119.04

DATE: June 17, 2016

TO: Mr. Joseph Faro
67 Main Street
Salem, New Hampshire 03079

FROM: Ms. Heather L. Monticup, P.E. Project Manager
Ms. Susannah E. Theriault, E.I.T. Engineer

RE: Traffic Impact and Access Study
Tuscan Village (Phase II)
79 Rockingham Park Boulevard/11 Central Street – Salem, New Hampshire

INTRODUCTION

Greenman-Pedersen, Inc. (GPI) has prepared this *Traffic Impact and Access Study* (TIAS) for the proposed Tuscan Village development located at 79 Rockingham Park Boulevard/11 Central Street in Salem, New Hampshire. The project consists of the redevelopment of an approximate 50-acre parcel currently occupied by barns associated with the Rockingham Park Racetrack located directly south of the Project site. The redevelopment of this parcel involves the construction of a variety of residential and retail uses, along with the previously approved auto dealership. Phase I of the Project consisted of the auto dealership, and Phase II consists of the remaining Tuscan Village mixed-use development.

Access is currently proposed to be provided via five driveways, including one signalized driveway on NH Route 28 (South Broadway) opposite the US Post Office/Citizens Bank/Rite Aid Pharmacy driveway that is currently signalized and one driveway on NH Route 28 opposite the Coca-Cola redevelopment (23 South Broadway) at the northern driveway. There are two access roads proposed which will provide access to the existing signalized intersection on Rockingham Park Boulevard and provide access to the unsignalized intersection on Mall Road (NH Route 38) opposite the Mall driveway (near Sears Auto Center). The remaining driveway will be unsignalized, located on Pleasant Street. The site location in relation to the surrounding roadways is shown on the map on Figure 1.

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Figure 1
Site Location Map

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Tuscan Village (Phase II) – Salem, New Hampshire

This TIAS evaluates the traffic impacts and access/egress requirements for the proposed development. A traffic scoping meeting was held with the Town of Salem and their traffic peer review consultant, Steven G. Pernaw & Company, Inc. (SGP), on September 9, 2015. This study has been prepared in conformance with the scope established by the Town. The Salem Scoping Meeting Form is provided in the Appendix.

EXISTING CONDITIONS

Study Area

Evaluation of the traffic impacts associated with the proposed project requires an evaluation of existing and projected traffic volumes on the adjacent streets, the volume of traffic expected to be generated by the project, and the impact that this traffic will have on the adjacent streets and nearby intersections. In preparing this study for the proposed site development, the following locations have been analyzed:

1. Pelham Road (NH Route 97) at Interstate-93 (I-93) Southbound On/Off-Ramps (Exit 2)
2. Pelham Road (NH Route 97) at Interstate-93 (I-93) Northbound On/Off-Ramps (Exit 2)
3. Main Street/Pelham Road (NH Route 97) at North Policy Street and South Policy Street
4. Main Street (NH Route 97) at Pleasant Street and Tuscan Market Driveway
5. Main Street (NH Route 97) at Central Street and Enter-Only Tuscan Kitchen Driveway
6. Main Street (NH Route 97) at North Broadway/South Broadway (NH Route 28) – The Depot
7. Main Street (NH Route 97) at Geremonty Drive
8. South Broadway (NH Route 28) at Coca-Cola Plant Driveway and **Proposed Site Driveway**
9. South Broadway (NH Route 28) at Post Office Driveway and **Proposed Site Driveway**
10. South Broadway (NH Route 28) at Rockingham Park Boulevard and Veterans Memorial Pkwy
11. South Broadway (NH Route 28) at Kelly Road and Shared Retail Driveway
12. Rockingham Park Boulevard at Racetrack Driveway/**Proposed Site Driveway**
13. Rockingham Park Boulevard at Mall Road (NH Route 38)
14. Mall Road (NH Route 38) at Mall Driveway and Rockingham Park Boulevard Flyover
15. Mall Road (NH Route 38) at Mall Driveway and **Proposed Site Driveway**
16. Mall Road (NH Route 38) at Pleasant Street
17. Pleasant Street/Lowell Road (NH Route 38) at South Policy Street
18. Pleasant Street at **Proposed Site Driveway**

Pelham Road (NH Route 97) at Interstate-93 (I-93) Southbound On/Off-Ramps

The I-93 southbound off-ramp and on-ramp intersect Pelham Road from the north and south, respectively, to form a four way signalized intersection with three approaches from; west, north, and east. The Pelham Road eastbound approach consists of a 12-foot wide channelized right-turn lane under YIELD-sign control and two 12-foot wide through lanes. The westbound approach consists of two 12-foot wide exclusive left-turn lanes and two 12-foot wide through lanes. Directional flow on Pelham Road is separated by a raised grass median to the west and a raised concrete median to the east of the intersection. The I-93 off-ramp southbound approach consists of two 12-foot wide channelized right-turn lanes and two 12-foot wide exclusive left-turn lanes. The channelized right-turn lanes are separated from the left-turn lanes by a raised concrete median. Sidewalks and wheelchair ramps are provided along the southern side of Pelham Road along with crosswalks across the I-93 on-ramp. Land use in the vicinity of this intersection consists of commercial uses.

Pelham Road (NH Route 97) at Interstate-93 (I-93) Northbound On/Off-Ramps

The I-93 northbound off-ramp and on-ramp intersect Pelham Road from the south and north, respectively, to form a four way signalized intersection with three approaches from; east, south, and west. The Pelham Road westbound approach consists of a 12-foot wide channelized right-turn lane under YIELD-sign control and two 12-foot wide through lanes. The eastbound approach consists of two 12-foot wide exclusive left-turn lanes and two 12-foot wide through lanes. Directional flow on Pelham Road is separated by a raised grass median to the east and a raised concrete median to the west of the intersection. The I-93 off-ramp northbound approach consist of two 12-foot wide exclusive left turn lanes and two 12-foot wide channelized right turn lanes under right-turn signal control. The channelized right turn lanes are separated from the left-turn lanes by a raised concrete median. Sidewalks and wheelchair ramps are provided along the southern side of Pelham Road along with crosswalks across the I-93 off-ramp. Land use in the vicinity of this intersection consists of a park-and-ride and commercial uses.

Main Street/Pelham Road (NH Route 97) at North Policy Street and South Policy Street

North Policy Street and South Policy Street intersect Pelham Road/Main Street from the north and south, respectively, to form a standard four-way signalized intersection. The Pelham Road eastbound approach consists of a 12-foot wide exclusive left-turn lane, two 12-foot wide through lanes, and a 12-foot wide right-turn lane. Directional flow on Pelham Road is separated by a double-yellow center line. The Main Street westbound approach consists of a 12-foot wide exclusive left-turn lane, two 12-foot wide through lanes, and a 12-foot wide channelized right-turn lane. Directional flow on Main Street is separated by double-yellow center line. The North Policy Street southbound approach consists of two 12-foot wide exclusive right-turn lanes, a 12-foot wide through lane, and a 12-foot wide exclusive left-turn lane. The South Policy Street northbound approach consists of a 12-foot wide exclusive left-turn lane, a 12-foot wide through

lane, and a 12-foot wide exclusive right-turn lane. North Policy Street and South Policy Street directional flow is separated by double-yellow center line. Sidewalks and wheelchair ramps are provided along the southern side of Pelham Road/Main Street, and along the eastern and western sides of South Policy Street with a crosswalk across South Policy Street. Land use in the vicinity consists of commercial and residential uses.

Main Street (NH Route 97) at Pleasant Street and Tuscan Market Driveway

The Tuscan Market driveway and Pleasant Street intersect Main Street from the north and south, respectively, to form a standard four-way signalized intersection. The Main Street eastbound approach consists of an 11-foot wide exclusive left-turn lane and an 11-foot wide shared through/right-turn lane. The westbound approach consists of an 11-foot wide exclusive left-turn lane and an 11-foot wide shared through/right-turn lane. Directional flow on Main Street is separated by a double-yellow center line. The Tuscan Market driveway southbound approach consists of an 11-foot wide exclusive left-turn lane and an 11-foot wide shared through/right-turn lane. Directional flow on Tuscan Market driveway is separated by a raised green median. The Pleasant Street northbound approach consists of a 10-foot exclusive left-turn lane and a 10-foot shared through/right-turn lane. Directional flow on Pleasant Street is separated by a double-yellow center line. Sidewalks and wheelchair ramps are provided along the southern and northern sides of Main Street, and along the western and eastern side of Pleasant Street with a crosswalk across the Tuscan Market driveway to the north of the intersection and across the Main Street to the west of the intersection. Land use in the vicinity consists of residential and commercial uses

Main Street (NH Route 97) at Central Street and Enter-Only Tuscan Kitchen Driveway

The Tuscan Kitchen driveway and Central Street intersect Main Street from the north and south, respectively, to form a four-way unsignalized intersection. The Main Street eastbound approach consists of a 9-foot wide exclusive left-turn lane and a 12-foot wide shared through/right-turn lane. The westbound approach consists of an 11-foot wide exclusive left-turn lane and a 12-foot wide shared through/right-turn lane. Directional flow on Main Street is separated by double-yellow center line. The Central Street northbound approach consists of a 12-foot wide general purpose lane under STOP-sign control. No pavement markings are provided on Central Street. Sidewalks and wheelchair ramps are provided along the southern and northern sides of Main Street, and along western and eastern sides of Central Street and the eastern side of the Tuscan Kitchen driveway with crosswalks across Main Street to the east of intersection and across the Central Street to the south of the intersection. Land use in the vicinity consists of residential and commercial uses.

Main Street (NH Route 97) at N. Broadway/S. Broadway (NH Route 28) – The Depot

North Broadway and South Broadway intersect Main Street from the north and south, respectively, to form a skewed four-way signalized intersection. The Main Street eastbound approach consists of a 12-foot wide exclusive left-turn lane, a 12-foot wide through lane, and a 12-foot wide exclusive right-turn lane. The westbound approach consists of a 12-foot wide exclusive left-turn lane and a 12-foot wide shared through/right-turn lane. Directional flow on Main Street is separated by double-yellow center lines. The North Broadway southbound approach consists of a 12-foot wide shared through/right-turn lane and a 12-foot wide shared left-turn/through lane. The South Broadway northbound approach consists of a 12-foot wide shared left-turn/through lane, a 12-foot wide through lane, and a 12-foot wide exclusive right-turn lane. Directional flow on North Broadway and South Broadway is separated by double-yellow center line. Sidewalks and wheelchair ramps are provided along all four roadways with crosswalks across all approaches of the intersection. Land use in the vicinity consists of commercial uses.

Main Street (NH Route 97) at Geremonty Drive

Geremonty Drive intersects Main Street from the north and south to form a standard four-way signalized intersection. The Main Street eastbound approach consists of a 10-foot wide exclusive left-turn lane and a 10-foot wide shared through/right-turn lane. The westbound approach consists of an 11-foot wide exclusive left-turn lane and an 11-foot wide shared through/right-turn lane. Directional flow on Main Street is separated by double-yellow center lines. The Geremonty Drive northbound approach consists of an 11-foot wide exclusive left-turn lane and a 12-foot wide shared through/right-turn lane. The Geremonty Drive southbound approach consists of a 12-foot wide general purpose lane. Directional flow on Geremonty Drive is separated by double-yellow center lines. Sidewalks and wheelchair ramps are provided along all four roads with crosswalk across all approaches of the intersection. Land use in the vicinity consists of institutional and residential uses.

South Broadway (NH Route 28) at Coca-Cola Plant Driveway

The northern Coca-Cola Plant driveway intersects South Broadway from the east to form a standard T-type unsignalized intersection. The South Broadway northbound approach consists of a 12-foot wide shared through/right-turn lane and a 12-foot wide through lane while the southbound approach consists of a 12-foot wide shared left-turn/through lane and a 12-foot wide through lane. Directional flow on South Broadway is separated by double-yellow center line and both approaches are free-flow. The Coca-Cola Plant northern driveway westbound approach consists of a 12-foot wide left-turn lane and a 12-foot wide right-turn lane. The westbound approach is operated under STOP sign control. Land use in the vicinity of the intersection consists of commercial uses.

South Broadway (NH Route 28) at Post Office Driveway

The Post Office driveway intersects South Broadway from the east to form a standard T-type signalized intersection. The South Broadway southbound approach consists of a 12-foot wide shared left-turn/through lane and a 12-foot wide through lane. The northbound approach consists of two 12-foot wide through lanes and a 12-foot wide right-turn lane. Directional flow on South Broadway is separated by double-yellow center line. The Post Office driveway westbound approach consists of a 12-foot wide left-turn lane and a 12-foot wide right-turn lane. Directional flow on the driveway is separated by a raised concrete median. Sidewalks and wheelchair ramps are provided along the eastern side of South Broadway and the northern side of Post Office driveway with a crosswalk across the driveway to the east of the intersection. Currently no pedestrian signal equipment exists at the intersection. Land use in the vicinity consists of the vacant Racetrack and commercial uses.

South Broadway (NH Route 28) at Rockingham Park Boulevard and Veterans Memorial Pkwy

Veterans Memorial Parkway and Rockingham Parkway Boulevard intersect South Broadway from the east and west, respectively, to form a standard four-way signalized intersection. The South Broadway northbound approach consists of two 12-foot wide exclusive left-turn lanes, three 12-foot wide through lanes, and one 12-foot wide exclusive right-turn lane. The southbound approach consists of two 12-foot wide left-turn lanes, three 12-foot wide through lanes, and a 12-foot wide channelized right-turn lane. South Broadway directional flow is separated by a raised concrete median. The Rockingham Park Boulevard eastbound approach consists of two 12-foot wide exclusive left-turn lanes, two 12-foot wide through lanes, and two 12-foot wide channelized right-turn lanes under signal control. The Veterans Memorial Parkway westbound approach consists of two 12-foot wide exclusive left-turn lanes, two 12-foot wide through lanes, and a 12-foot wide channelized right-turn lane under a signal control. Directional flow on Rockingham Park Boulevard and Veterans Memorial Parkway is separated by a raised concrete median. Land use in the vicinity consists of commercial uses.

South Broadway (NH Route 28) at Kelly Road and Shared Retail Driveway

Kelly Road and the shared retail driveway intersect South Broadway from the west and east, respectively, to form a skewed four-way signalized intersection. The Kelly Road eastbound approach consists of two 12-foot wide exclusive left-turn lanes and a 12-foot wide channelized right-turn lane under a YIELD-sign control. The middle lane, which is designated as an exclusive left-turn lane, operates as a shared left-turn/through lane in order to enter the shared retail driveway. The retail driveway westbound approach consists of a 12-foot wide general purpose lane. Directional flow on Kelly Road is separated by a raised concrete median, while directional flow on the retail driveway is separated by double-yellow center line. The South Broadway northbound and southbound approaches each consist of a 12-foot wide exclusive left-

turn lane, a 12-foot wide through lane, and a 12-foot wide shared through/right-turn lane. Directional flow on South Broadway is separated by double-yellow center lines. Sidewalks and wheelchair ramps are provided along the northern and southern sides of Kelly Road, and along the western and eastern sides of South Broadway with crosswalks across the western leg and southern leg of the intersection. Land use in the vicinity consists of commercial uses. It was noted in the field that the crosswalk across South Broadway does not include a pedestrian push button with signalized accommodations in order to cross safely.

Rockingham Park Boulevard at Racetrack Driveway

The Rockingham Park Racetrack driveway intersects Rockingham Park Boulevard from the north to form a T-type signalized intersection. The Racetrack driveway southbound approach consists of two 12-foot wide exclusive left-turn lanes and two 12-foot channelized right-turn lanes under signal control. The Rockingham Park Boulevard eastbound approach consists of a 12-foot wide exclusive left-turn lane and three 12-foot wide through lanes. The westbound approach consists of three 12-foot wide through lanes and a 12-foot wide channelized right-turn lane under a YIELD-sign control. Directional flow on Rockingham Park Boulevard is separated by a raised concrete median. Land use in the vicinity of this intersection consists of the vacant Racetrack and commercial uses.

Rockingham Park Boulevard at Mall Road (NH Route 38)

Mall Road intersects Rockingham Park Boulevard from the north to form a T-type signalized intersection. The Mall Road southbound approach consists of two 12-foot wide exclusive left-turn lanes and two 12-foot wide channelized right-turn lanes under signal control. Directional flow on Mall Road is separated by a raised concrete median. The Rockingham Park Boulevard westbound approach consists of two 12-foot wide through lanes and a 12-foot wide channelized right-turn lane. The eastbound approach consists of a 12-foot wide exclusive left-turn lane and three 12-foot wide through lanes. The left-turn and the inner through lanes are separated from the two outer through lanes by a raised median. Directional flow on the Rockingham Park Boulevard is separated by a raised concrete median with a guardrail. Land use in the vicinity of the intersection consists of commercial uses.

Mall Road (NH Route 38) at Mall Driveway and Rockingham Park Boulevard Flyover

The Mall at Rockingham Park driveway and the Rockingham Park Boulevard Flyover intersect Mall Road from the west and east, respectively, to form a skewed four-way signalized intersection. Mall Road northbound approach consists of a 12-foot wide exclusive left-turn lane and two 12-foot wide through lanes. The southbound approach consists of a 12-foot wide through lane and a 12-foot wide shared through/right-turn lane. Directional flow on Mall Road is separated by a raised concrete median. The Mall driveway eastbound approach consists of a 12-foot wide exclusive left-turn lane and two 12-foot wide right-turn lanes. Directional flow on the

Mall driveway is separated by a grass median. The Rockingham Park Boulevard flyover westbound approach consists of a 12-foot wide left-turn/through lane, a 12-foot wide through lane, and a 26-foot wide channelized right-turn lane. Land use in the vicinity of the intersection consists of commercial uses.

Mall Road (NH Route 38) at Mall Driveway

The Mall at Rockingham Park driveway (near Sear's Auto Center) intersects with Mall Road from the west to form a T-type unsignalized intersection. The Mall Road northbound approach consists of a 12-foot wide left-turn lane and a 12-foot wide through lane. The southbound approach consists of a 12-foot wide general purpose lane. Both approaches on Mall Road are free-flow and the directional flow is separated by double-yellow center line. The Mall driveway eastbound approach consists of a 12-foot wide left-turn lane and 12-foot wide right-turn lane under STOP-sign control. Directional flow on the Mall driveway is separated by a raised concrete median. Land use in the vicinity consists of commercial uses.

Mall Road (NH Route 38) at Pleasant Street

Mall Road intersects Pleasant Street from the east to form a T-type signalized intersection. The Pleasant Street northbound approach consists of a 12-foot wide shared through/right-turn lane and the southbound approach consists of a 12-foot wide shared left-turn/through lane. Directional flow on Pleasant Street is separated by a double-yellow center line. The Mall Road westbound approach consists of a 12-foot wide general purpose lane with directional flow separated by a double-yellow center line. Land use in the vicinity of the intersection consists of residential and commercial uses.

Pleasant Street/Lowell Road (NH Route 38) at South Policy Street

Pleasant Street and Lowell Road intersect South Policy Street from the east and west, respectively, to form a four-way signalized intersection. The Pleasant Street westbound approach consists of a 12-foot wide exclusive left-turn lane, two 12-foot wide through lanes, and a 12-foot wide channelized right-turn lane under a YIELD-sign control. The Lowell Road eastbound approach consists of a 12-foot wide exclusive left-turn lane, a 12-foot wide through lane, and a 12-foot wide shared through/right-turn lane. The South Policy northbound and southbound approaches each consist of a 12-foot exclusive left-turn lane, a 12-foot wide through lane, and a 12-foot wide right-turn lane. Directional flow on all four approaches is separated by double-yellow center line. Sidewalks and wheelchair ramps are provided along the eastern side of South Policy Street, and along the northern and southern sides of Pleasant Street with a crosswalk across Pleasant Street. Land use in the vicinity of the intersection consists of residential and commercial uses.

Traffic Volumes

Base traffic conditions within the study area were developed by conducting manual-turning movement counts (TMCs), vehicle classification counts, and automatic traffic recorder (ATR) counts in January, February, March, and April 2016 and utilizing TMC and ATR counts conducted in September and October 2015 as part of the traffic study for Phase I (auto dealership) of the Tuscan Village project.

The TMCs and vehicle classification counts were performed during the weekday AM peak period (7:00 to 9:00 AM), weekday PM peak period (3:00 to 6:00 PM), and the Saturday midday peak period (11:00 AM to 2:00 PM). These peak periods were chosen based on the hours of operation of the proposed uses and to be consistent with New Hampshire Department of Transportation (NHDOT) traffic study guidelines as well as the traffic scoping meeting with the Town.

ATR counts were collected along Main Street (west of Pleasant Street), along Pleasant Street (adjacent to the site), and along South Broadway (between the Post Office driveway and Rockingham Park Boulevard/Veterans Memorial Parkway) to obtain daily weekday and Saturday traffic volumes and vehicular speed data. All traffic-volume data are provided in the Appendix.

Seasonal Adjustments

Traffic on a given roadway typically fluctuates throughout the year depending on the area and the type of roadway. Based on NHDOT guidelines for the preparation of a traffic study, existing traffic volumes must represent the peak of the monthly average peak-hour conditions. To determine if the data needed to be adjusted to account for this fluctuation, seasonal adjustment and historical count data provided by NHDOT were reviewed.¹

Based on these historical data, the January daily traffic volumes are 23.4 percent and 33.8 percent lower than peak-month conditions, respectively, during a typical weekday and Saturday. The March daily traffic volumes are 11.4 percent and 20.8 percent lower than peak-month conditions, respectively, during a typical weekday and Saturday. The April daily traffic volumes are 7.1 percent and 8.7 percent lower than peak-month conditions, respectively, during a typical weekday and Saturday. The October daily traffic volumes are 3.8 percent and 7.2 percent lower than peak-month conditions, respectively, during a typical weekday and Saturday.

Additionally, this information indicated that the January traffic volumes are 18.1 percent, 18.0 percent, and 25.5 percent lower than the peak-month volumes, respectively, during the weekday AM, weekday PM, and Saturday midday peak periods. The February traffic volumes are 17.4 percent, 17.4 percent, and 11.7 percent lower than the peak-month volumes,

¹*New Hampshire Department of Transportation Traffic Volume Report; 2015, Group 4 averages.*

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respectively, during the weekday AM, weekday PM, and Saturday midday peak periods. The September traffic volumes are 3.0 percent lower than the peak-month traffic volumes during the weekday PM peak periods. The October traffic volumes are 1.3 percent and 2.8 percent lower than the peak-month volumes, respectively, during the weekday PM and Saturday midday peak periods. Therefore, the January, February, September and October traffic counts were upwardly adjusted to reflect peak-month conditions. The NHDOT seasonal adjustment factors are provided in the Appendix.

Table 1 summarizes the existing traffic volumes along Main Street, Pleasant Street, and South Broadway, adjacent to the site. The 2016 Existing weekday AM, weekday PM, and Saturday midday peak-hour traffic-volume networks are shown on Figures 2, 3, and 4, respectively.

Table 1
EXISTING TRAFFIC-VOLUME SUMMARY

Location/Time Period	Daily Volume (vpd) ^a	Peak Hour Volume (vph) ^b	K Factor (%) ^c	Directional Distribution ^d
Main Street				
adjacent to site:				
<i>Weekday Daily</i>	11,900			
<i>Weekday AM Peak Hour</i>		888	7.5	56% WB
<i>Weekday PM Peak Hour</i>		1,047	8.8	60% EB
<i>Saturday Daily</i>	9,680			
<i>Saturday Midday Peak Hour</i>		918	9.5	52% EB
Pleasant Street				
adjacent to site:				
<i>Weekday Daily</i>	6,240			
<i>Weekday AM Peak Hour</i>		336	5.4	55% NB
<i>Weekday PM Peak Hour</i>		494	7.9	54% NB
<i>Saturday Daily</i>	6,320			
<i>Saturday Midday Peak Hour</i>		564	8.9	55% SB
South Broadway (NH Route 28)				
adjacent to site:				
<i>Weekday Daily</i>	23,080			
<i>Weekday AM Peak Hour</i>		1,244	5.4	63% SB
<i>Weekday PM Peak Hour</i>		1,497	6.5	58% NB
<i>Saturday Daily</i>	22,030			
<i>Saturday Midday Peak Hour</i>		2,126	9.7	51% NB

^a In vehicles per day. Traffic counts upwardly adjusted to reflect 2016 peak-month traffic-volumes.

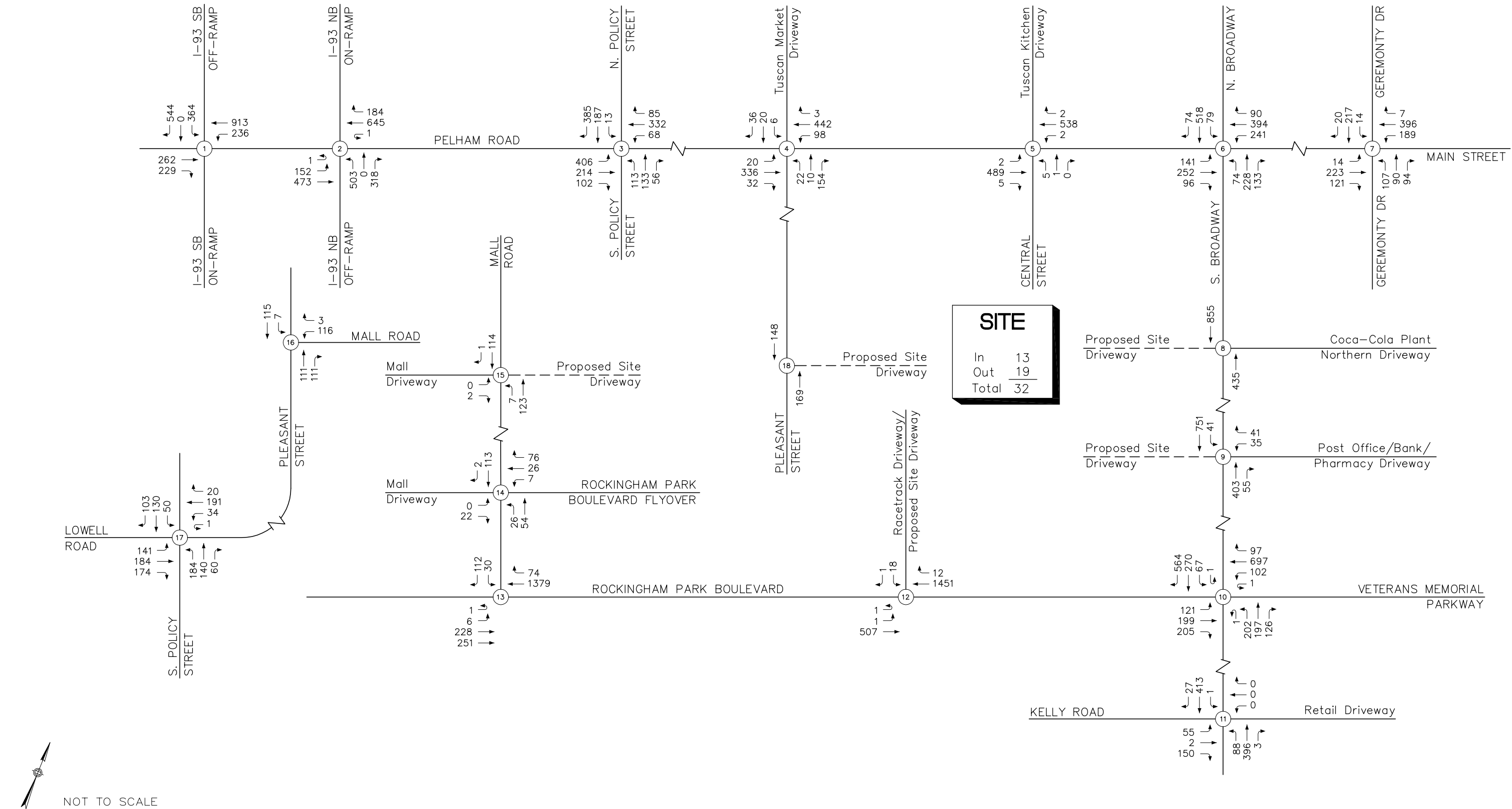
^b In vehicles per hour. Traffic counts upwardly adjusted to reflect 2016 peak-month traffic-volumes.

^c Percentage of daily traffic occurring during the peak hour.

^d NB = northbound; SB = southbound.

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NOT TO SCALE

Figure 2
2016 Existing
Weekday AM
Peak Hour Traffic Volumes

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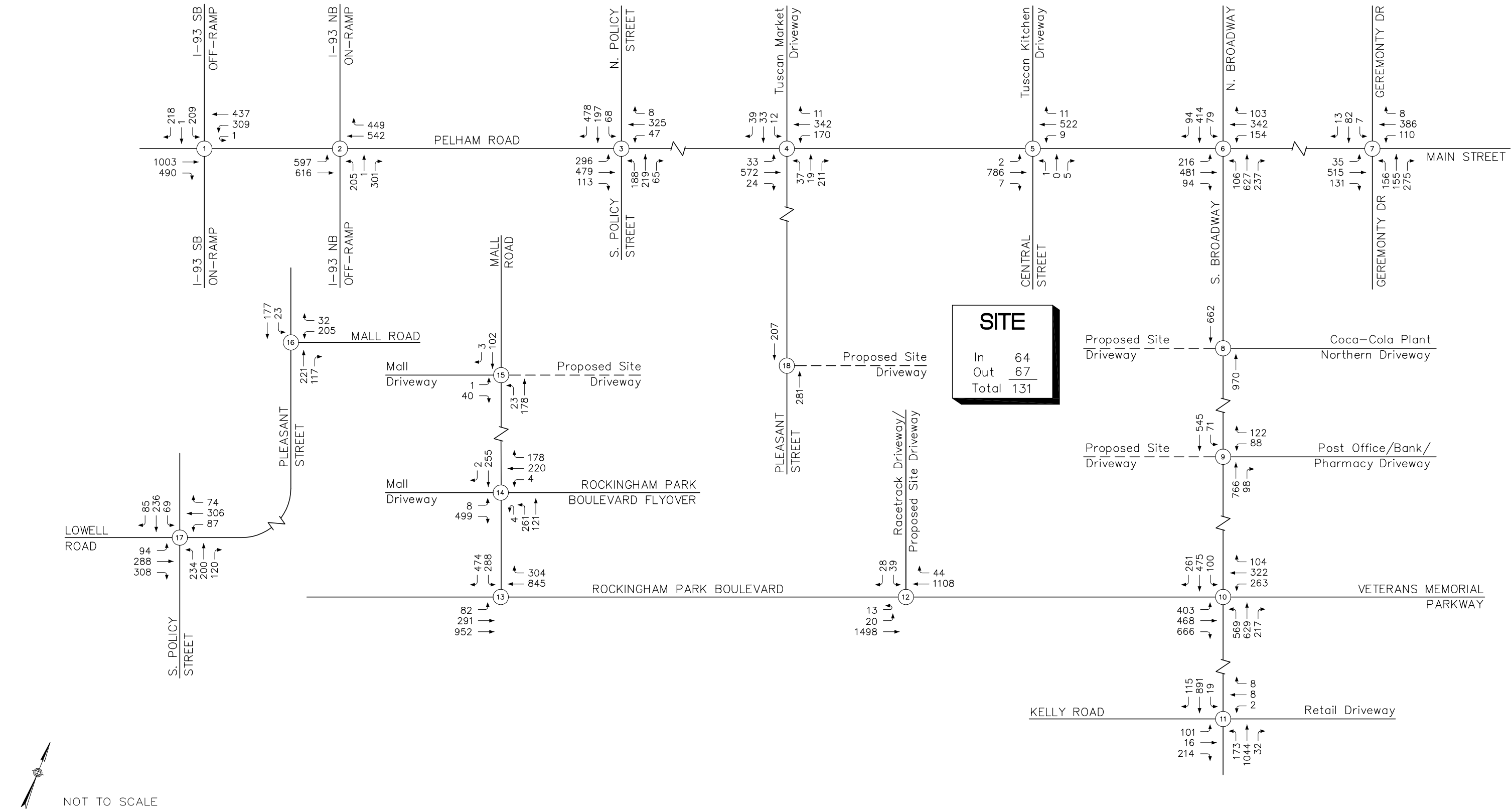


Figure 3
2016 Existing
Weekday PM
Peak Hour Traffic Volumes

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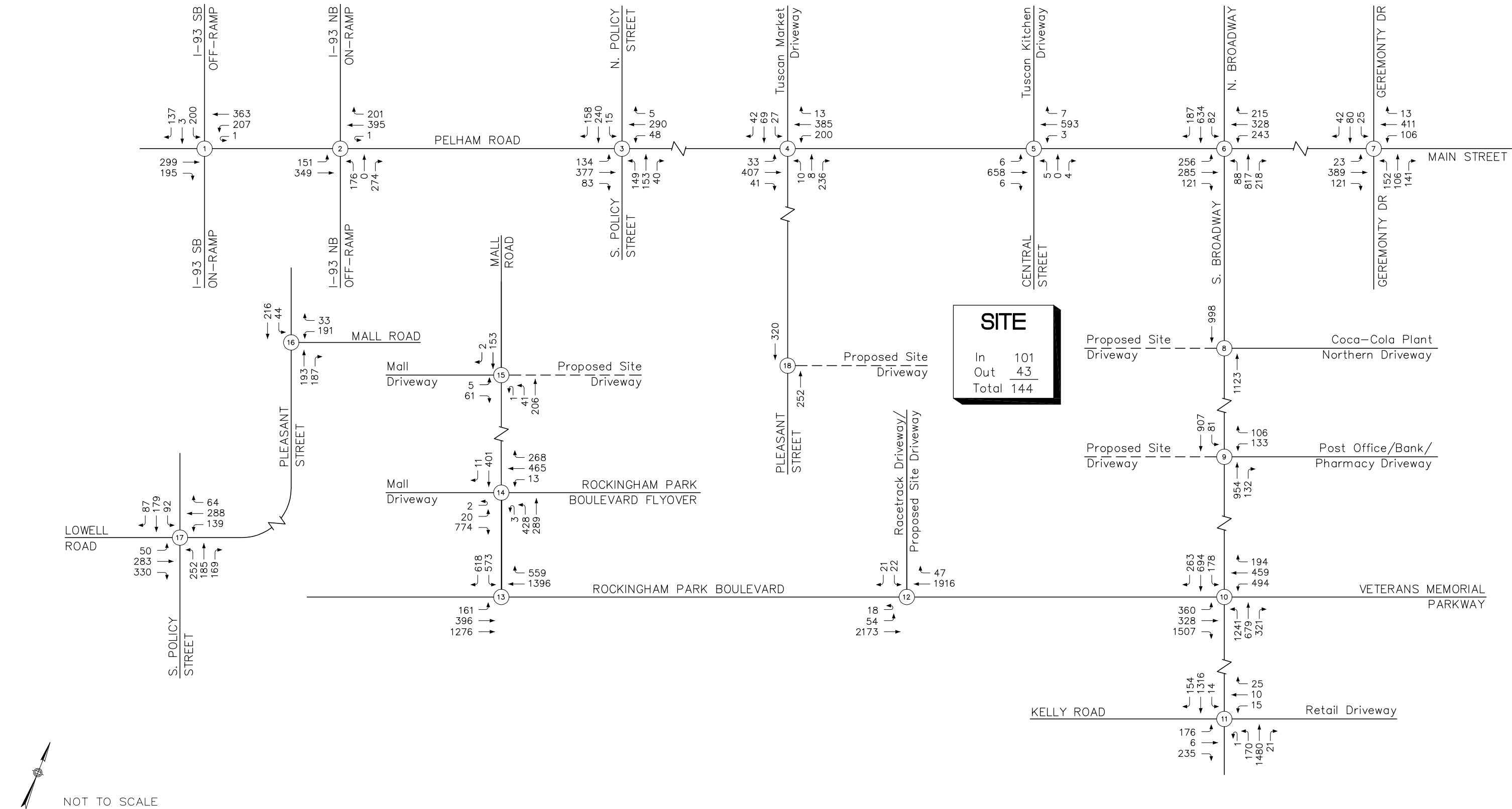


Figure 4
2016 Existing
Saturday Midday
Peak Hour Traffic Volumes

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Collision History

Collision data for the study area intersections were obtained from the NHDOT for the most recent three-year period available. A summary of the collision data at the study area intersections is provided in Table 2.

Table 2
COLLISION HISTORY SUMMARY

Location	Number of Collisions		Severity ^a			Percent During ^b	
	Total	Average per Year	PD	PI	U	Wet/Icy Conditions	Commuter Peak
Main Street at I-93 Southbound On/Off-Ramps	9	3.00	8	1	--	33%	22%
Main Street at I-93 Northbound On/Off-Ramps	4	1.33	4	--	--	50%	50%
Main Street at N. Policy Street and S. Policy Street	5	1.67	3	2	--	20%	20%
Main Street at Pleasant Street and Tuscan Market Driveway	4	1.33	3	--	1	50%	0%
Main Street at Central Street and Tuscan Market Driveway	3	1.00	3	--	--	33%	0%
Main Street at N. Broadway/S. Broadway	23	7.67	19	4	--	39%	35%
Main Street at Geremonty Drive	10	3.33	7	2	1	10%	30%
S. Broadway at Northern Coca-Cola Plant Driveway	4	1.33	1	2	1	0%	25%
S. Broadway at Post Office Driveway	3	1.00	2	1	--	0%	0%
S. Broadway at Rockingham Park Boulevard/ Veterans Memorial Parkway	29	9.67	21	6	2	14%	21%
S. Broadway at Kelly Road and Retail Driveway	9	3.00	8	1	--	33%	11%
Rockingham Park Boulevard at Racetrack Driveway	3	1.00	1	2	--	0%	0%
Rockingham Park Boulevard at Mall Road	15	5.00	11	4	--	20%	20%
Mall Road at Mall Driveway/ Rockingham Park Boulevard Flyover	6	2.00	5	1	--	67%	33%
Mall Road at Mall Driveway	1	0.33	1	--	--	0%	0%
Pleasant Street at Mall Road	4	1.33	3	1	--	25%	25%
Pleasant Street and Lowell Road at S. Policy Street	4	1.33	3	1	--	25%	0%

Source: NHDOT (2011-2013).

^a PD = property damage only; PI = personal injury; U = unknown.

^b Percent of vehicle incidents that occurred during the weekday AM and weekday PM commuter peak periods.

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Based on the most recent three-year data from NHDOT, the intersection of Main Street at I-93 southbound on/off-ramps experienced 3.00 collisions per year, on average. Of the 9 crashes, 8 resulted in property damage only and 1 resulted in a possible injury. Thirty-three percent of the collisions occurred during wet/icy conditions, and 22 percent occurred during the commuter peak periods. Based on the NHDOT data, 3 collisions were rear-end crashes, 1 was related to passing, and 5 were unknown.

The intersection of Main Street at I-93 northbound on/off-ramps experienced 1.33 collisions per year, on average. Of the 4 crashes, all resulted in property damage with no personal injuries. Fifty percent of the collisions occurred during wet/icy conditions, and 50 percent occurred during the commuter peak periods. Based on the NHDOT data, 1 collision was a rear-end crash, and the other 3 were unknown.

The intersection of Main Street at North Policy Street and South Policy Street experienced 1.67 collisions per year, on average. Of the 5 crashes, 3 resulted in property damage only and 2 resulted in personal injury. Twenty percent of the collisions occurred during wet/icy conditions, and 20 percent occurred during the commuter peak periods. Based on the NHDOT data, 1 collision was a rear-end crash, 2 were related to turning vehicles, and 2 were unknown.

The intersection of Main Street at Pleasant Street and Tuscan Market driveway experienced 1.33 collisions per year, on average. Of the 4 crashes, 3 resulted in property damage only and 1 is unknown as to whether or not there was an injury. Fifty percent of the collisions occurred during wet/icy conditions, and none occurred during the commuter peak periods. Based on the NHDOT data, 1 collision was a single-vehicle head-on crash with a fixed object and 3 were unknown.

The intersection of Main Street at Central Street and Tuscan Market driveway experienced 1.00 collision per year, on average. Of the 3 crashes, all resulted in property damage with no personal injuries. Thirty-three percent of the collisions occurred during wet/icy conditions, and none occurred during the commuter peak periods. Based on the NHDOT data, 1 collision was a rear-end crash, 1 collision involved a left-turning vehicle, and 1 was unknown.

The intersection of Main Street at South Broadway and North Broadway experienced 7.67 collisions per year, on average. Of the 23 crashes, 19 resulted in property damage only and 4 resulted in personal injury. Thirty-nine percent of the collisions occurred during wet/icy conditions, and 35 percent occurred during the commuter peak periods. Based on the NHDOT data, 9 collisions were rear-end crashes, 3 were related to turning vehicles, 2 were a sideswipe movement, and 9 were unknown. The Town of Salem is proposing improvements at this location which will not only provide turn lanes on Broadway, but also provide a protected-only phase for those left-turn movements. This is expected to reduce angle/sideswipe collisions at this location.

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The intersection of Main Street at Geremonty Drive experienced 3.33 collisions per year, on average. Of the 10 crashes, 7 resulted in property damage only, 2 resulted in personal injury, and 1 was reported unknown. Ten percent of the collisions occurred during wet/icy conditions and 30 percent occurred during the commuter peak periods. Based on the NHDOT data, 2 collisions were rear-end crashes, 2 involved left-turning vehicles, 1 was an angle collision, and 5 were unknown.

The intersection of South Broadway at the northern Coca-Cola Plant Driveway experienced 1.33 collisions per year, on average. Of the 4 crashes, 1 resulted in property damage only, 2 resulted in personal injury, and 1 was reported unknown. None of the collisions occurred during wet/icy conditions and 25 percent occurred during commuter peak periods. Based on the NHDOT data, 2 collisions involved turning vehicles, 1 was a sideswipe movement, and 1 was unknown.

The intersection of South Broadway at the Post Office/Bank/Pharmacy driveway experienced 1.00 collision per year. Of the 3 crashes, 2 resulted in property damage only and 1 resulted in personal injury. None of the collisions occurred during wet/icy conditions or during the commuter peak periods. Based on the NHDOT data, 1 collision involved a left-turning vehicle and the other 2 crashes were unknown. Improvements are proposed at this location as part of Phase I (auto dealership) of the Tuscan Village development. This includes left-turn lanes on South Broadway as well as protective phasing for the left-turn movements.

The intersection of South Broadway at Rockingham Park Boulevard and Veterans Memorial Parkway experienced 9.67 collisions per year, on average. Of the 29 crashes, 21 resulted in property damage only, 6 resulted in personal injury and 2 were unknown. Fourteen percent of the collisions occurred during wet/icy conditions, and 21 percent occurred during the commuter peak periods. Based on the NHDOT data, 9 collisions were rear-end crashes, 2 were related to turning vehicles, 3 were related to passing vehicles, and 15 were unknown.

The intersection of South Broadway at Kelly Road and the retail driveway experienced 3.00 collisions per year, on average. Of the 9 crashes, 8 resulted in property damage only and 1 resulted in personal injury. Thirty-three percent of the collisions occurred during wet/icy conditions and 11 percent occurred during commuter peak periods. Based on the NHDOT data, 3 collisions were rear-end crashes, 3 involved turning vehicles, 2 were right-angle collisions, and 1 was unknown.

The intersection of Rockingham Park Boulevard at the Racetrack driveway experienced 1.00 collision per year, on average. Of the 3 crashes, 1 resulted in property damage only, and 2 resulted in personal injury. None of the collisions occurred during wet/icy conditions or during the commuter peak periods. Based on the NHDOT data, 2 collisions were rear-end crashes, and 1 was unknown.

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The intersection of Rockingham Park Boulevard at Mall Road experienced 5.00 collisions per year, on average. Of the 15 crashes, 11 resulted in property damage only and 4 resulted in personal injury. Twenty percent of the collisions occurred during wet/icy conditions, and 20 percent occurred during the commuter peak periods. Based on the NHDOT data, 5 collisions were rear-end crashes, 2 were related to left-turning vehicles, 1 was related to passing, 1 was a head-on collision, and 6 were unknown.

The intersection of Mall Road at the Mall driveway and Rockingham Park Boulevard flyover experienced 2.00 collisions per year, on average. Of the 6 crashes, 5 resulted in property damage only and 1 resulted in personal injury. Sixty-seven percent of the collisions occurred during wet/icy conditions, and 33 percent occurred during the commuter peak periods. Based on the NHDOT data, 1 was a right angle collision, 1 was related to passing, and 4 were unknown.

The intersection of Mall Road at the Mall driveway experienced 0.33 collisions per year, on average. The crash resulted in property damage only. The collision did not occur during wet/icy conditions, or during the commuter peak periods. Based on the NHDOT data, the collision type is unknown.

The intersection of Pleasant Street at Mall Road experienced 1.33 collisions per year, on average. Of the 4 crashes, 3 resulted in property damage only and 1 resulted in personal injury. Twenty-five percent of the collisions occurred during wet/icy conditions, and 25 percent occurred during the commuter peak periods. Based on the NHDOT data, the collision type is unknown for all 4 crashes.

The intersection of Pleasant Street and Lowell Road at South Policy Street experienced 1.33 collisions per year, on average. Of the 4 crashes, 3 resulted in property damage only, and 1 resulted in personal injury. Twenty-five percent of the collisions occurred during wet/icy conditions and none occurred during commuter peak hours. Based on the NHDOT data, 1 collision was a rear-end crash, 1 was a sideswipe movement, and 2 were unknown.

Vehicle Speeds

Vehicle speed measurements were conducted along Main Street (west of Pleasant Street), along Pleasant Street (adjacent to the site), and along South Broadway (between the Post Office driveway and Rockingham Park Boulevard/Veterans Memorial Parkway) by measuring the elapsed time for vehicles traveling a short, pre-measured distance between two checkpoints. The travel times were recorded using ATRs and the speeds were derived by dividing the elapsed time into the measured distance between checkpoints. The primary use of this information is explained in the *Sight Distance* section where the speeds are correlated to sight distance measurements taken at the location of the site driveways to assure that adequate sight distances

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exist at the driveways to provide safe operation. The results of the speed measurements are summarized in Table 3.

Table 3
OBSERVED TRAVEL SPEEDS^a

Location/Direction	Posted Speed Limit	Average Speed ^b	85 th Percentile Speed ^c
Main Street adjacent to site			
<i>Eastbound</i>	30	28	34
<i>Westbound</i>	30	32	36
Pleasant Street adjacent to site			
<i>Northbound</i>	30	34	38
<i>Southbound</i>	30	36	40
South Broadway (NH Route 28) adjacent to site:			
<i>Northbound</i>	30	25	36
<i>Southbound</i>	30	30	41

^a In miles per hour (mph).

^b Average speed of all observed vehicles.

^c Speed at, or below which 85 percent of all observed vehicles travel.

As shown in Table 3, the average speeds along Main Street were found to be between 28 and 32 mph with the 85th percentile speeds between 34 and 36 mph. The average speeds were found to be right in line with the posted speed limit of 30 mph. The 85th percentile speeds were slightly higher than the posted speed limit. The average speeds along Pleasant Street were found to be between 34 and 36 mph with the 85th percentile speeds between 38 and 40 mph. The speeds were considerably higher than the posted speed limit. The average speeds along South Broadway were found to be between 25 and 30 mph with the 85th percentile speeds between 36 and 41 mph. The average speeds were found to be slightly lower or right in line with the posted speed limit of 30 mph. The 85th percentile speeds were considerably higher than the posted speed limit.

FUTURE CONDITIONS

To estimate the impact of site-generated traffic within the study area, existing traffic volumes were projected to the expected opening year of the development (2019) and to the expected opening year plus ten years (2029). These design horizons were chosen to be consistent with

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NHDOT guidelines for the preparation of a traffic study as well as the traffic scoping meeting with the Town. Traffic volumes on the roadway network at these times will include existing traffic, new traffic due to normal traffic growth, and traffic related to any significant developments by others expected to be completed within the area by the 2019 and 2029 design years. Consideration of these factors resulted in the development of 2019 No-Build and 2029 No-Build traffic volumes, which assume that the proposed development is not built. The incremental impacts of the proposed project may then be determined by adding site-generated traffic volumes (Build conditions) and making comparisons to the No-Build conditions.

Traffic Growth

To develop the 2019 and 2029 No-Build forecast traffic volumes, two components of traffic growth were considered. First, an annual growth percentage was determined based on the historical traffic-count data obtained from NHDOT². The historical traffic-count data indicate that traffic volumes in the area have been decreasing at a rate of 1.1 percent since 2006. In order to provide a conservative (worse-case) analysis scenario, a compounded annual traffic growth rate of 1.0 percent per year was assumed to account for general population growth and the traffic generated by smaller area developments. The NHDOT historical traffic-volume data are provided in the Appendix.

Second, any traffic that may be generated by planned developments that could add a substantial volume of traffic through the study area during the design horizons was considered. Based on discussions with the Town of Salem Planner, the following developments were identified:

- Coca-Cola Plant – 23 South Broadway – Renovation of existing 66,400 square-foot Coca-Cola bottling and distribution facility that is currently vacant into approximately 18,792 square feet of retail space, 18,000 square feet of office, 18,330 square feet of general light industrial uses, and an 11,208 square foot health/fitness club. Traffic volumes and methodology associated with the redevelopment were obtained from the TIAS³ prepared for the project and distributed along the adjacent roadway system.
- Nissan Dealership – 96 South Broadway – Construction of a 22,200 square foot automobile dealership and associated parking field. Traffic volumes and methodology associated with the development were obtained from the letter⁴ prepared in response to the comments raised in the November 3, 2014 memorandum prepared by SGP concerning their review of the October 6, 2014 *Transportation Impact Assessment*.

² NHDOT *Traffic Volume Report*; 2013.

³ Greenman-Pedersen, Inc., *Traffic Impact and Access Study, Coca-Cola Plant Redevelopment, Salem, New Hampshire*. January 26, 2015 and Greenman-Pedersen, Inc.; *Trip Generation Comparison for Proposed Health/Fitness Club; Coca-Cola Plan Redevelopment – 23 South Broadway (NH Route 28), Salem, New Hampshire*. June 5, 2015.

⁴ Vanasse & Associates, Inc., *Proposed Automobile Dealership, Salem, New Hampshire*. November 6, 2014.

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- Auto Dealership (Phase I) – Construction of a 38,500 square foot automobile dealership. Traffic volumes and methodology associated with the development were obtained from the TIAS⁵ prepared for the project and distributed along the roadway system.
- Assisted Living Facility (LCB) – Sally Sweets Way – Construction of a 90-bed assisted living facility. Traffic volumes and methodology associated with the development were obtained from the Traffic Assessment⁶ prepared for the project and distributed along the adjacent roadway system.
- Senior Housing Development (DHB Homes) – 80 Lawrence Road – Construction of 60 units of senior detached housing. Traffic volumes and methodology associated with the development were obtained from the TIAS⁷ prepared for the project and distributed along the adjacent roadway system.
- Braemoor Woods Residential Development – Construction of 11 residential duplex units (22 non-age-restricted residential units) at the end of Braemoor Woods Road. Based on a site visit on February 26, 2016, it appeared that eight of the 11 duplexes were built and occupied, two were built but not yet occupied, and one was still in construction. To provide a conservative analysis, it was assumed that 50% of the units were occupied at the time of the traffic counts.
- Braemoor Commons – Construction of 88 garden-style condominium units. Based on discussions with the sales office, of the 88 total units, approximately 50% of the units were occupied at the time that most of the traffic counts were performed (January 2016).

Planned Roadway Improvements

The Town of Salem Engineer was contacted to determine if any roadway improvements are planned within the study area. Improvements by the Town of Salem are proposed at the intersection of Main Street at South Broadway and North Broadway (The Depot). Construction of these improvements are expected to begin in 2019. Accordingly, the improvements have been applied to only the 2029 future analysis conditions. The improvements are based on coordination with the traffic consultant for the project (Vanasse Hangen Brustlin, Inc. [VHB]), the Town of Salem, and NHDOT. The schematic plan and expected signal timings are provided in the Appendix.

⁵ Greenman-Pedersen, Inc., *Traffic Impact and Access Study, Auto Dealership, Salem, New Hampshire*. November 19, 2015.

⁶ Transportation Engineering, Planning and Policy (TEPP LLC), *Traffic Assessment, Proposed Assisted-Living Facility, Salem, New Hampshire*. November 12, 2013 and TEPP, LLC; *Traffic Assessment – Supplement 2, Proposed Assisted-Living Facility, Salem, New Hampshire*. June 25, 2014.

⁷ TEPP, LLC, *Traffic Impact and Access Study, Proposed Senior Housing Development, Salem, New Hampshire*. January 11, 2016.

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In addition, based on discussions with the Town of Salem, a ring road is proposed to be constructed to the east of the Depot intersection as early as 2018. The ring road will connect Church Avenue to the northern Coca-Cola Plant driveway. Since there are currently no engineered plans in place for this improvement, no traffic was shifted in the analysis to reflect this ring road. It is expected, however, that a portion of the westbound left-turning traffic at the Depot intersection will instead turn left down Church Street in order to bypass the intersection of Main Street at North Broadway and South Broadway.

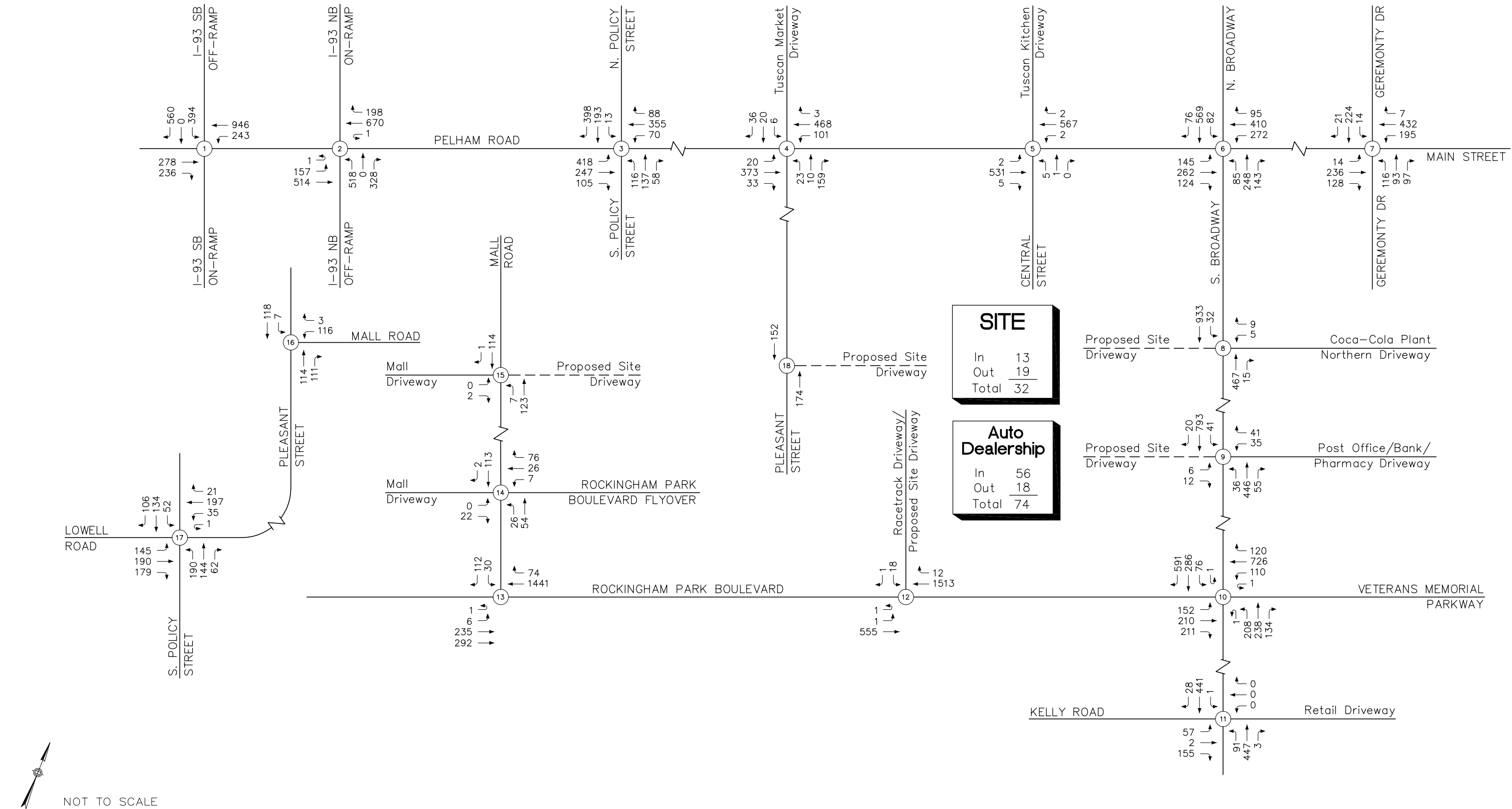
No-Build Conditions

The 2019 No-Build peak-hour traffic volumes were accordingly developed by applying a total growth of 3.0 percent (3.0 percent compounded over three years) to the 2016 Existing traffic volumes and adding the traffic to be generated by the background development projects. The 2029 No-Build peak-hour traffic volumes were developed by applying a total growth of 13.8 percent (1.0 percent compounded over thirteen years) to the 2016 Existing traffic volumes and adding the traffic to be generated by the background development projects. The 2019 and 2029 No-Build weekday AM, weekday PM, and Saturday midday peak-hour traffic-volume networks are shown graphically on Figures 5 through 10.

It is expected that the future traffic-volume conditions analyzed within this TIAS are conservative (worse-case) as the historical traffic growth has been increased by 1 percent per year over thirteen years while the actual historical growth has shown a decrease over the last 10 years. In addition, on top of the historical growth, seven background developments were also included in the future traffic volumes. As an example, along Rockingham Park Boulevard, traffic volumes are being increased by 671 vehicle trips on a Saturday midday peak hour due to historical growth and background developments over thirteen years. The traffic volumes were developed in this manner to be consistent with the Scoping Meeting held for the project.

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NOT TO SCALE

Figure 5
2019 No-Build
Weekday AM
Peak Hour Traffic Volumes

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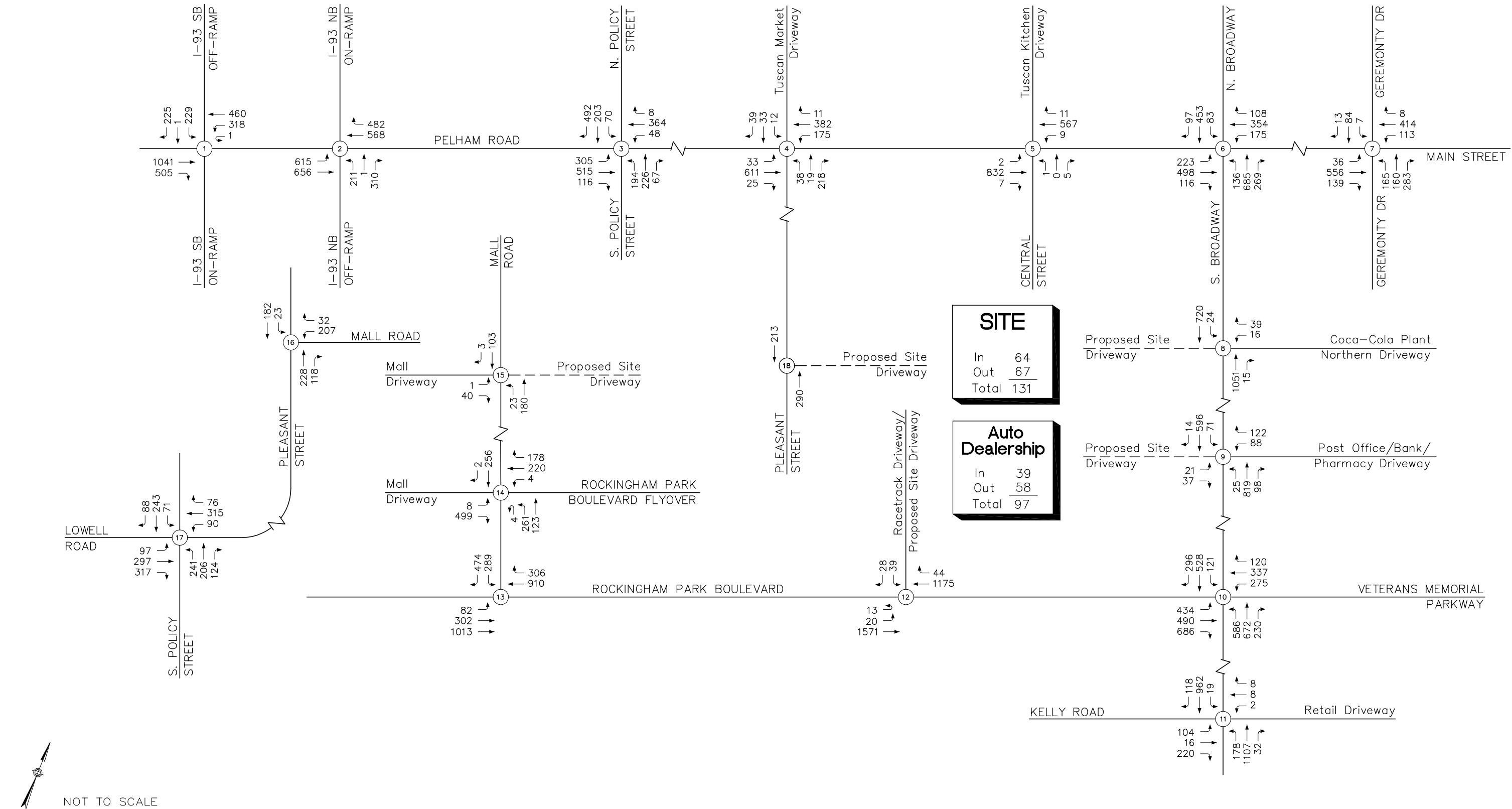


Figure 6
2019 No-Build
Weekday PM
Peak Hour Traffic Volumes

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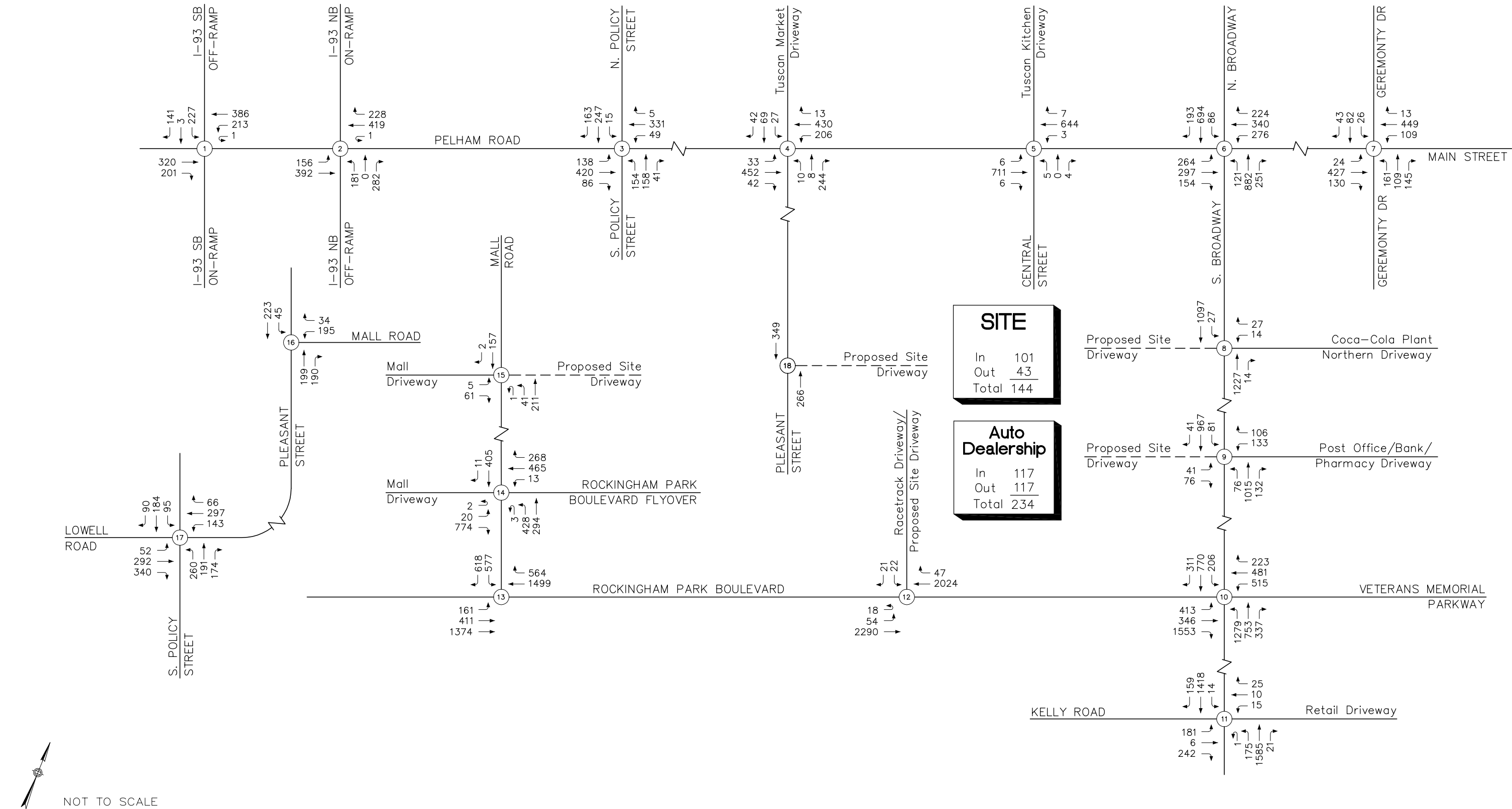


Figure 7
2019 No-Build
Saturday Midday
Peak Hour Traffic Volumes

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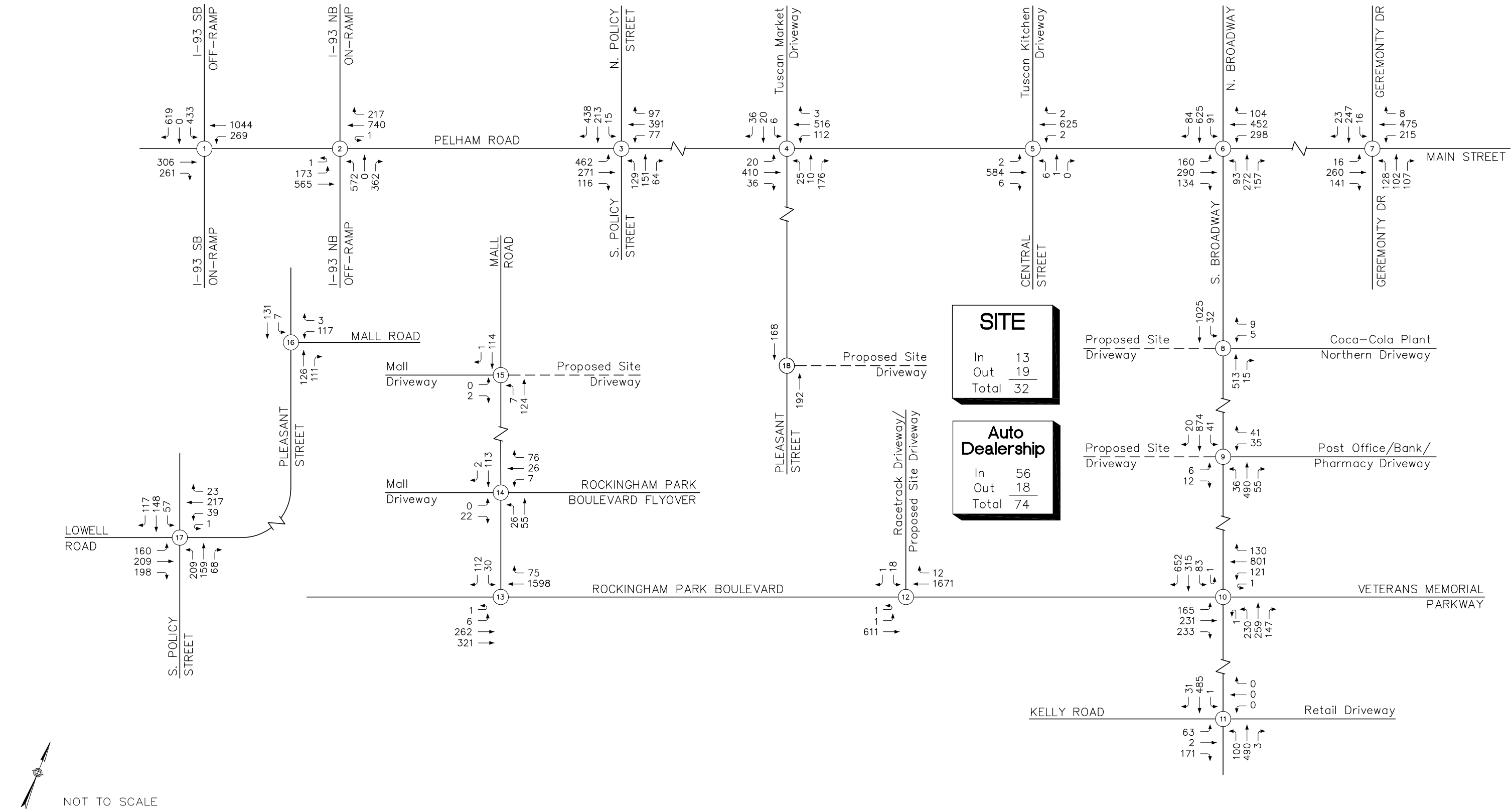


Figure 8
2029 No-Build
Weekday AM
Peak Hour Traffic Volumes

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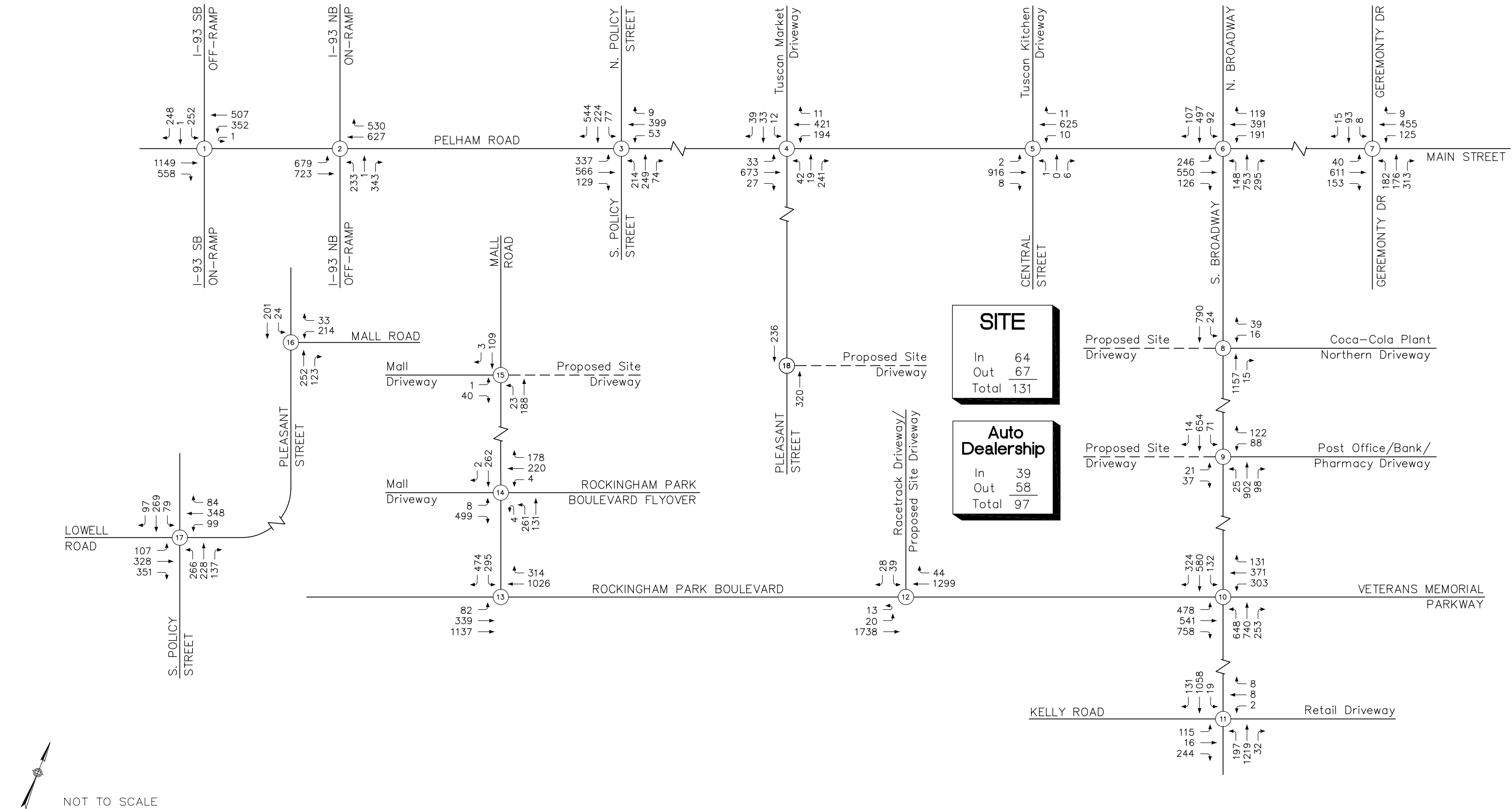


Figure 9
2029 No-Build
Weekday PM
Peak Hour Traffic Volumes

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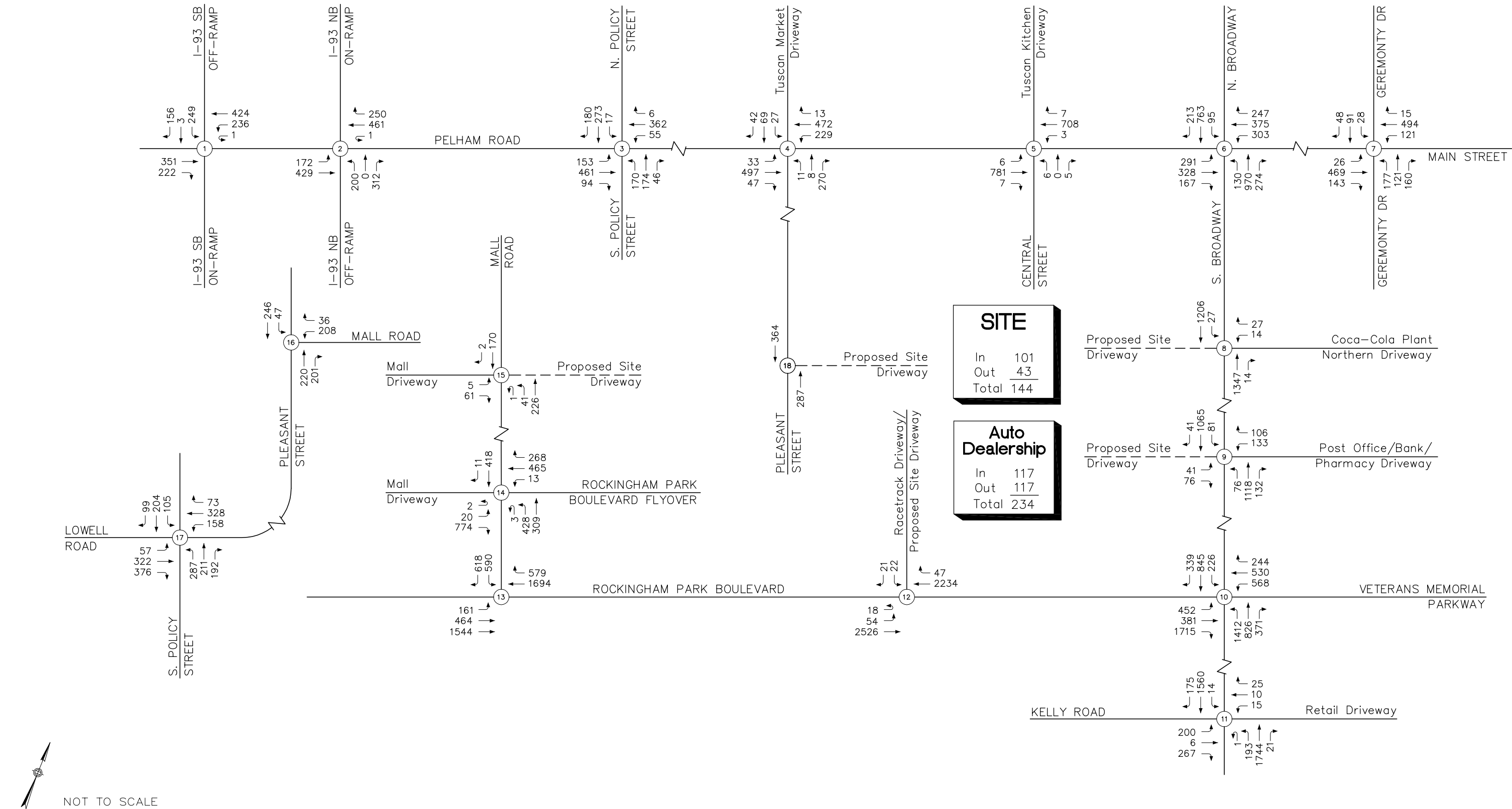


Figure 10
2029 No-Build
Saturday Midday
Peak Hour Traffic Volumes

Trip Generation

As proposed, the redevelopment of this parcel involves the construction of a variety of residential and retail uses, along with the previously approved auto dealership. Specifically, the residential portion consists of 250 apartments and 100 townhouses. The retail portion consists of an 80,000 square foot supermarket, 120,000 square feet of retail space, and the previously approved 38,500 square foot auto dealership. Traffic to be generated by the proposed development project was forecast using the trip-generation information provided in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*⁸ for the most applicable Land Use Codes (LUCs); LUC 841 (Automobile Sales), LUC 820 (Shopping Center), LUC 850 (Supermarket), LUC 220 (Apartment), and LUC 230 (Residential Condominium/Townhouse). All trip-generation data are provided in the Appendix.

Studies have shown that for developments of mixed-use or multi-use sites, it is realistic to assume that there will be some multi-use trips within the site itself. As this proposed project has various types of uses, it is likely that trips will be shared between the residential and retail uses. Accordingly, a multi-use rate was used to calculate the external trips generated by the site based on data published in the ITE *Trip Generation Handbook*.⁹ These data revealed a 10 percent internal capture rate for the weekday daily, a 1 percent internal capture rate during the weekday AM peak hour, a 12 percent internal capture rate during the weekday PM peak hour, a 0 percent internal capture rate for the Saturday daily, and a 0 percent internal capture rate during the Saturday midday peak hour. The Multi-Use Development Trip Generation and Internal Capture Worksheets are provided in the Appendix.

Not all of the vehicle trips expected to be generated by the proposed development represent *new* trips on the study area roadway system. Studies have shown that for developments such as the one proposed, a substantial portion of the site-generated vehicle trips are already present in the adjacent passing stream of traffic or are diverted from another route to the proposed site. To be consistent with similar projects researched, and agreed upon with the Town of Salem Peer Review Consultant, only 25 percent of the site-generated traffic (for all uses with a *pass-by* rate in the ITE Trip-Generation Handbook) was considered *pass-by* traffic. The lower percentage of *pass-by* trips result in more new trips to the study area than expected. Therefore, the proposed project is anticipated to have less impact on the adjacent roadways system beyond the site driveways due to the higher than expected new trips. Table 4 summarizes the results of the trip-generation estimates. The *pass-by* data are provided in the Appendix.

⁸*Trip Generation Manual*, 9th Edition; Institute of Transportation Engineers; Washington, DC; 2012.

⁹ *Trip Generation Handbook*; 3rd Edition; Institute of Transportation Engineers; Washington, DC; August 2014.

Table 4
TRIP-GENERATION SUMMARY

Time Period/Direction	Total External Trips ^a	Pass-By Trips ^b	New Trips ^c
Weekday Daily	17,350	3,370	13,980
Weekday AM Peak Hour:			
<i>Enter</i>	365	54	311
<i>Exit</i>	<u>329</u>	<u>54</u>	<u>275</u>
<i>Total</i>	694	108	586
Weekday PM Peak Hour:			
<i>Enter</i>	746	140	606
<i>Exit</i>	<u>711</u>	<u>140</u>	<u>571</u>
<i>Total</i>	1,457	280	1,177
Saturday Daily	27,820	5,380	22,440
Saturday Midday Peak Hour:			
<i>Enter</i>	1,094	202	892
<i>Exit</i>	<u>1,034</u>	<u>202</u>	<u>832</u>
<i>Total</i>	2,128	404	1,724

^a Based on multiple ITE Land Use Codes utilizing the internal trip capture estimation for mixed-use developments provided in the ITE Trip-Generation Handbook.

^b 25 percent of Total External Trips for all uses with a *pass-by* rate in the ITE Trip-Generation Handbook

^c Total External Trips minus Pass-by Trips.

As shown in Table 4, the proposed Tuscan Village development is expected to generate 586 *new* vehicle trips (311 entering and 275 exiting) during the weekday AM peak hour, 1,177 *new* vehicle trips (606 entering and 571 exiting) during the weekday PM peak hour, and 1,724 *new* vehicle trips (892 entering and 832 exiting) during the Saturday midday peak hour utilizing the lower pass-by rates.

Trip Distribution

Having estimated project-generated vehicle trips, the next step is to determine the distribution of project traffic and assign these trips to the local roadway network. The directional distribution patterns for the *new* retail and entertainment trips are based on the “gravity model” and the *new*

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residential trips are based on “journey-to-work” data from the United States Census 2000 data.¹⁰ The trip distribution for the expected additional new site traffic is shown in Table 5. The distribution of *pass-by* traffic will follow the directional distribution of adjacent street traffic during the various peak hours observed. All trip-distribution data are provided in the Appendix.

Table 5
TRIP-DISTRIBUTION SUMMARY

Roadway	Direction To/From	Retail & Entertainment	Residential
Pelham Road (Route 97)	West	2%	5%
Interstate 93	North	15%	10%
South Broadway (Route 28)	North	10%	10%
Main Street (Route 97)	East	5%	5%
Veterans Memorial Parkway	East	3%	5%
South Broadway (Route 28)	South	5%	10%
Interstate 93	South	55%	50%
Lowell Road (Route 38)	West	5%	5%
TOTAL		100%	100%

Site Access

Access is currently proposed to be provided via five driveways, including one signalized driveway on NH Route 28 (South Broadway) opposite the US Post Office/Citizens Bank/Rite Aid Pharmacy driveway that is currently signalized and one driveway on NH Route 28 opposite the Coca-Cola redevelopment (23 South Broadway) at the northern driveway. There are two access roads proposed which will provide access to the existing signalized intersection on Rockingham Park Boulevard and provide access to the unsignalized intersection on Mall Road (NH Route 38) opposite the Mall driveway (near Sears Auto Center). The remaining driveway will be unsignalized, located on Pleasant Street.

¹⁰ U.S. Census Bureau, Population Division, Census 2000 Data, 2000 MCD/County-To-MCD/County Worker Flow Files.

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As part of Phase I (auto dealership) of the Tuscan Village development, improvements are proposed at the signalized intersection of South Broadway (NH Route 28) at the Post Office driveway and the proposed site driveway. As part of those improvements, a roadway (the site driveway) will be constructed to form the fourth leg of the signalized intersection. The new roadway (eastbound approach) will provide an exclusive left-turn lane, a shared through/right-turn lane, and an exclusive right-turn lane. The current phasing of the intersection allows the South Broadway northbound and southbound approaches to run permissively; followed by the Post Office driveway westbound approach; ending with the South Broadway southbound approach, allowing the southbound left turns to run protected simultaneously with a westbound right-turn overlap. Current pedestrian accommodations include a faded crosswalk to cross the Post Office driveway, with no pedestrian push button. Sidewalks are provided along the east side of South Broadway and the north side of the Post Office driveway and the Salem Rail Trail runs along the west side of South Broadway (NH Route 28) adjacent to the site. As part of the auto dealership project and construction of the new site roadway, the following improvements will be implemented by 2017 in order to provide access and egress to the site:

- Four new mast arm assemblies for the northbound, southbound, westbound, and eastbound approaches;
- New traffic signal controller and cabinet;
- Installation of a fiber optic line from this location to The Depot intersection for better connection to the Town's ATMS.now/ITS system;
- Video detection on all approaches;
- Updated signal phasing, timing, and offsets to incorporate the eastbound approach which conforms to National Electrical Manufacturers Association (NEMA) phasing;
- Modifying the Post Office driveway (westbound) approach lane uses to a shared left-turn/through lane and exclusive right-turn lane which will continue to allow the westbound right-turn overlap;
- Pedestrian signal heads and push buttons to run during an exclusive pedestrian phase;
- Pedestrian crosswalks across South Broadway (NH Route 28) and the Post Office driveway;
- Accommodate the users of the Salem Rail Trail with a signalized crossing across the site roadway; and
- Construct a sidewalk along the site roadway.

The latest Conceptual Improvement Plan of the proposed improvements at this location (Node 9) is provided in the Appendix.

Sight Distance

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed site driveway locations to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO)¹¹. AASHTO is the national standard by which vehicle sight distance is calculated, measured, and reported. In addition, the available sight distances were compared with the NHDOT's requirement of 400 feet of All-Season Safe Sight Distance.

Sight distance is the length of roadway ahead that is visible to the driver. The Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. SSD is measured from an eye height of 3.5 feet to an object height of 2 feet above street level, equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

Intersection Sight Distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. The ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes ISDs reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied. The ISD design values for right turns from a minor street are less than the design values for left turns because, in making right turns, drivers generally accept gaps that are slightly shorter than those accepted in making left turns.

The SSD is generally more important as it represents the minimum distance required for safe stopping while the ISD is based only upon acceptable speed reductions to the approaching traffic stream. The ISD, however, must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to*

¹¹ *A Policy on Geometric Design of Highways and Streets: 2004*. Fifth ed. Washington, DC: American Association of State Highway and Transportation Officials, 2004.

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anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.” Accordingly, the ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available SSD and ISD at the site driveway locations were measured in the field and compared to minimum requirements as established by AASHTO. Since the distance required to stop a vehicle is dependent on the speed of that vehicle, speed studies were conducted as presented in the *Existing Conditions: Vehicle Speeds* section. Based on both the posted speed limits and the observed speeds, the SSD and ISD requirements at the proposed driveways were calculated. The required minimum sight distances for each direction are compared to the available distances, as shown in Table 6.

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**Table 6
SIGHT DISTANCE SUMMARY**

Location/Direction	Stopping Sight Distance (feet)		Intersection Sight Distance (feet)		
	Measured	Minimum Required ^a	Measured	Minimum Required ^b	Desirable ^c
South Broadway at Proposed Northern Driveway:					
<i>North of intersection (southbound)</i>	500+	316	500+	316	335
<i>South of intersection (northbound)</i>	500+	261	500+	261	335
South Broadway at Proposed Southern Driveway:					
<i>North of intersection (southbound)</i>	500+	316	500+	316	335
<i>South of intersection (northbound)</i>	500+	261	500+	261	335
Rockingham Park Boulevard at Proposed Driveway:					
<i>East of intersection (westbound)</i>	500+	316	500+	316	335
<i>West of intersection (eastbound)</i>	500+	261	500+	261	335
Mall Road at Proposed Driveway:					
<i>North of intersection (southbound)</i>	400+	155	400+	155	280
<i>South of intersection (northbound)</i>	400+	155	400+	155	280
Pleasant St at Proposed Driveway:					
<i>North of intersection (southbound)</i>	500+	305	500+	305	335
<i>South of intersection (northbound)</i>	400+	283	400+	283	335

^a Values based on AASHTO requirements for 85th percentile speeds of 41 mph (SB) and 36 mph (NB) on South Broadway, 40 mph (SB) and 38 mph (NB) on Pleasant Street, and posted speed limits along Rockingham Park Boulevard (30 mph) and Mall Road (25 mph).

^b Values based on AASHTO requirements for SSD.

^c Values based on AASHTO requirements for posted speed limit of 30 mph on South Broadway, Rockingham Park Boulevard, and Pleasant Street.

As indicated in Table 6, available sight distances at the proposed driveways exceed both the minimum and desirable SSD and ISD requirements for safe operation. In addition to meeting AASHTO requirements, these available sight distances meet the NHDOT requirement of 400 feet of All-Season Safe Sight Distance.

Some of the driveways are currently signalized or are proposed to be signalized. In accordance with AASHTO, “At signalized intersections, the first vehicle stopped on one approach should be visible to the driver of the first vehicle stopped on each of the other approaches.” Therefore, the

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minimum required sight lines, which are met, would be necessary only when the traffic signal is not working, such as during power outages or when the signal is on flashing operation.

To ensure the safe and efficient flow of traffic to and from the site, any proposed plantings, vegetation, landscaping, and signing along South Broadway, Rockingham Park Boulevard, Mall Road, and Pleasant Street should be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from the edge of the Site driveways and adjacent roadways so as not to inhibit the available sight lines.

Build Traffic Volumes

Based on the traffic-generation and distribution estimates for this project, the traffic volumes associated with the proposed development project were assigned to the roadway network. The site-generated traffic-volumes for the proposed Tuscan Village development include the traffic associated with the auto dealership (Phase I) in order to provide the appropriate mixed-use methodology and to account for the added access points. Since the auto dealership was also accounted for in the No-Build condition (as it will be open prior to 2019) with access and egress only initially provided at the NH Route 28 intersection with the Post Office driveway and the site driveway, the previously approved trips associated with the auto dealership were removed from the site-generated network. The site-generated traffic networks are shown on Figures 11, 12, and 13 for the weekday AM, weekday PM, and Saturday midday peak hours, respectively. The site-generated traffic volumes were then added to the No-Build traffic volumes to develop the Build peak-hour traffic-volume networks. The 2019 and 2029 Build peak-hour flow networks are graphically depicted on Figures 14 through 19.

Traffic Increases

The proposed project will result in increases in traffic on the roadways leading beyond the study area. As shown on Figures 11, 12, and 13, traffic-volume increases beyond the study area during the peak hours are projected to be 10 percent or less over 2019 opening year traffic-volumes. It should be noted that these traffic-volume increases could be less than as evaluated due to the lower percentage of *pass-by* trips used.

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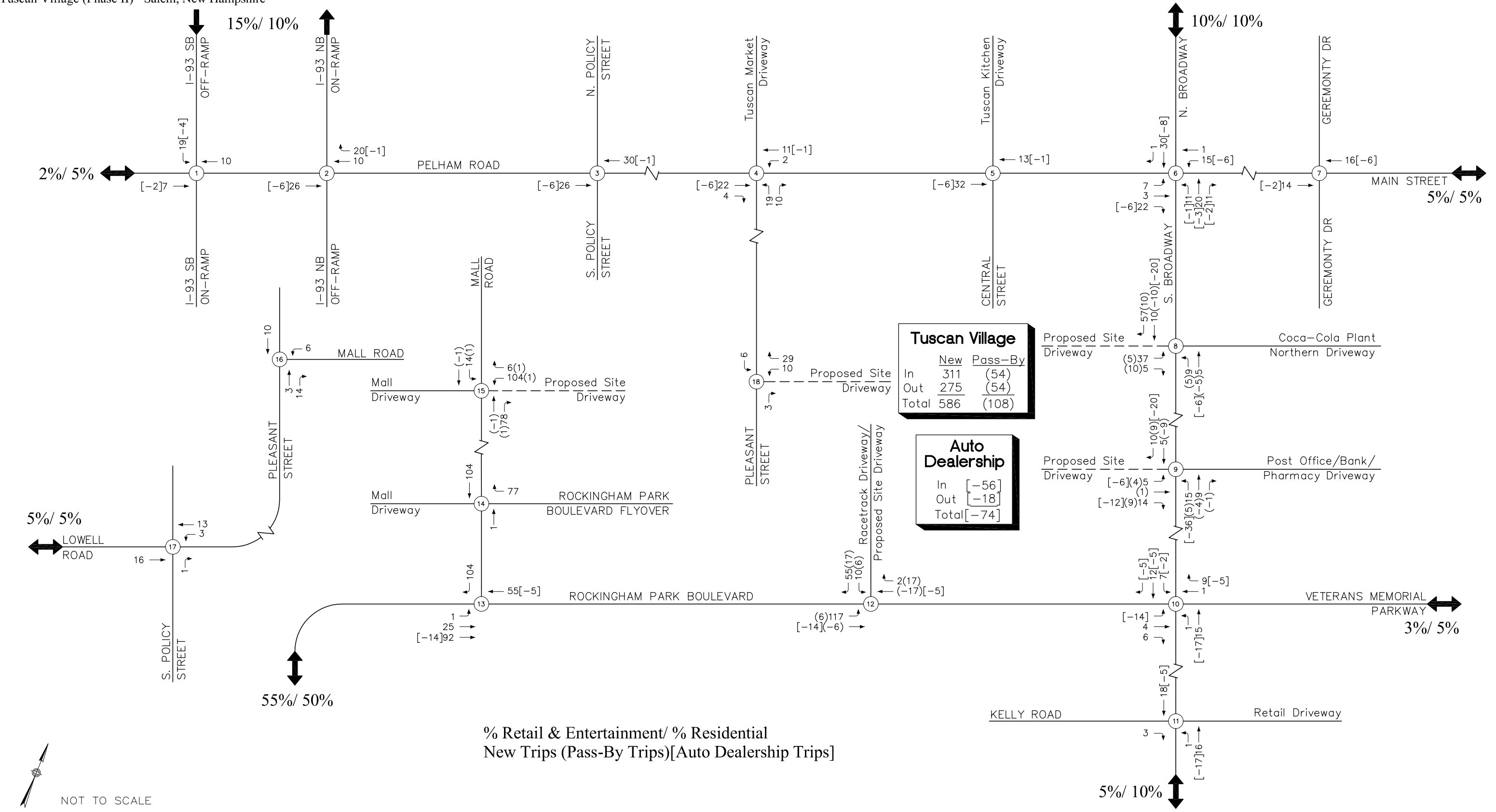


Figure 11
Site-Generated
Weekday AM
Peak Hour Traffic Volumes

Tuscan Village (Phase II) - Salem, New Hampshire



Tuscan Village (Phase II) - Salem, New Hampshire



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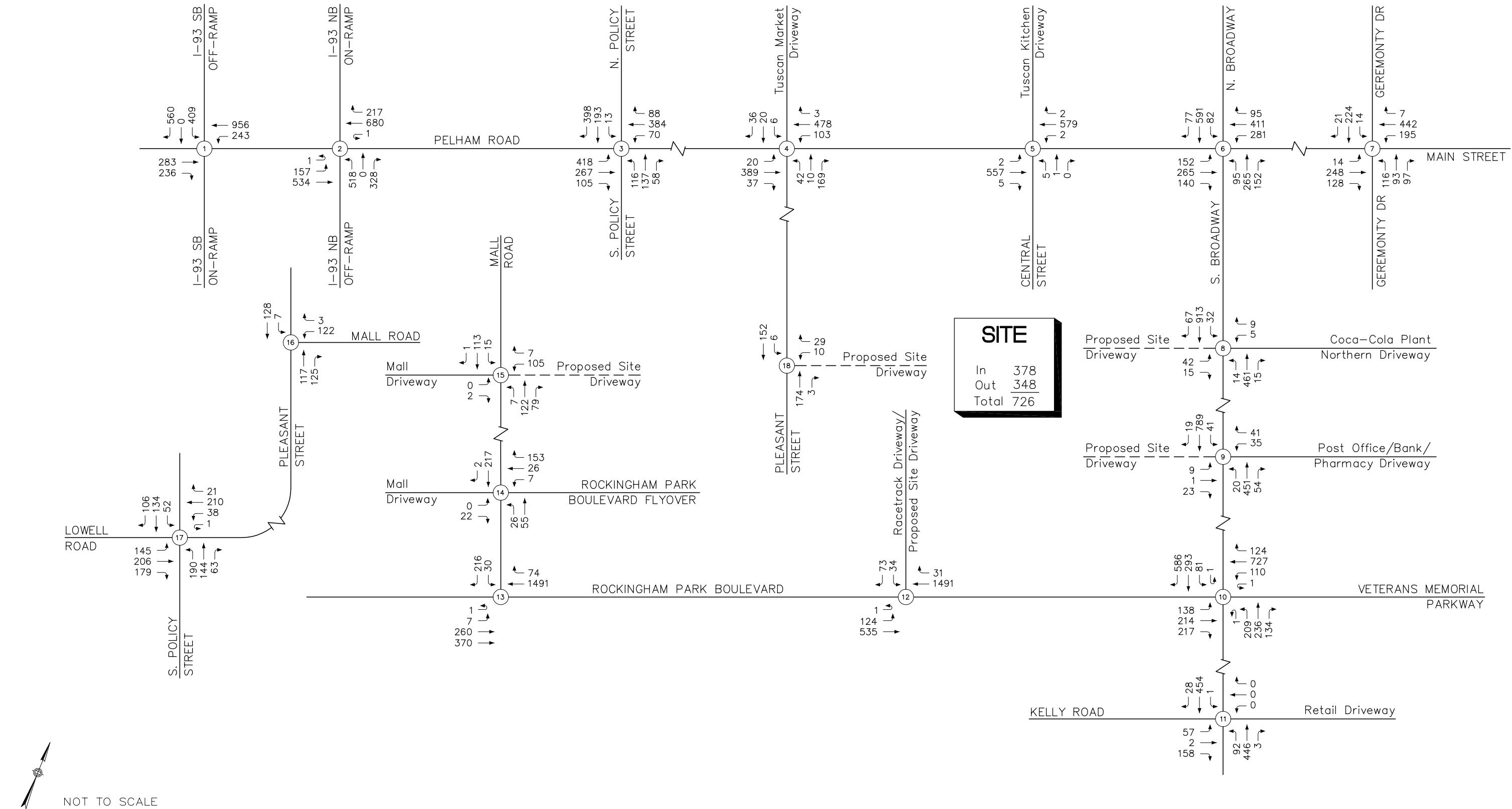


Figure 14
2019 Build
Weekday AM
Peak Hour Traffic Volumes

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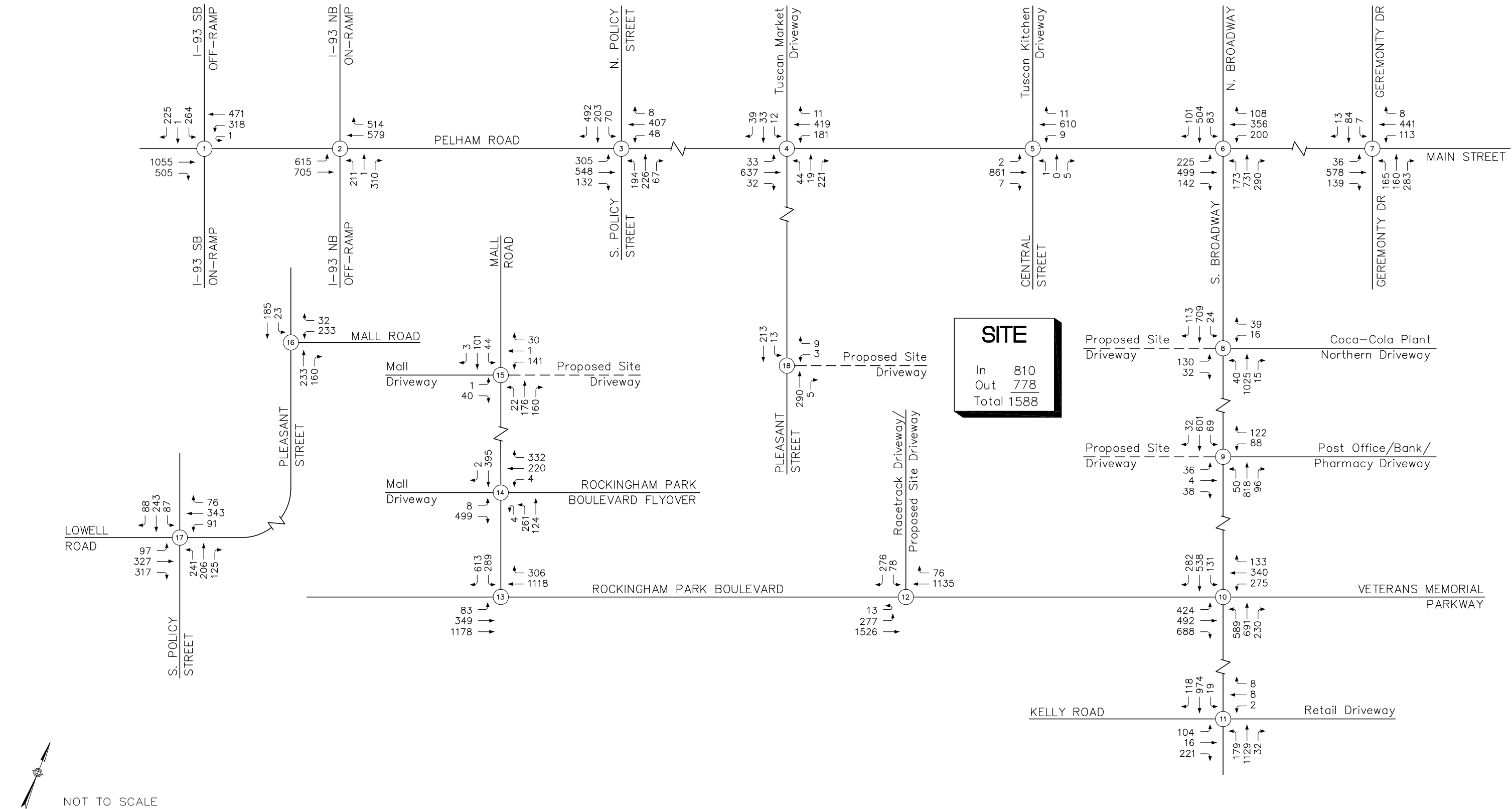


Figure 15
2019 Build
Weekday PM
Peak Hour Traffic Volumes

Tuscan Village (Phase II) - Salem, New Hampshire



GPI Greenman-Pedersen, Inc.
Engineering and Construction Services

2019 Build
Saturday Midday
Peak Hour Traffic Volumes

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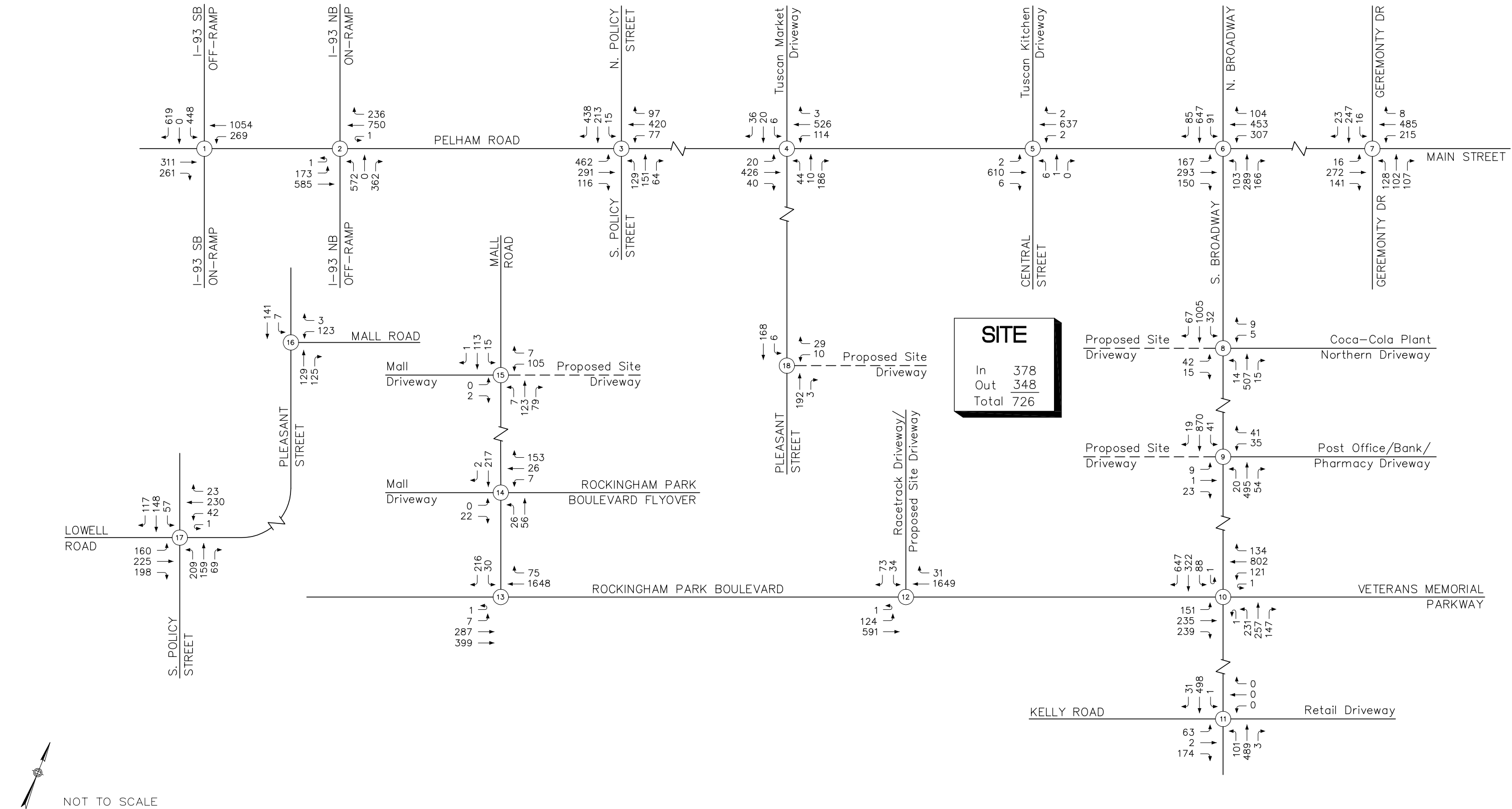


Figure 17
2029 Build
Weekday AM
Peak Hour Traffic Volumes

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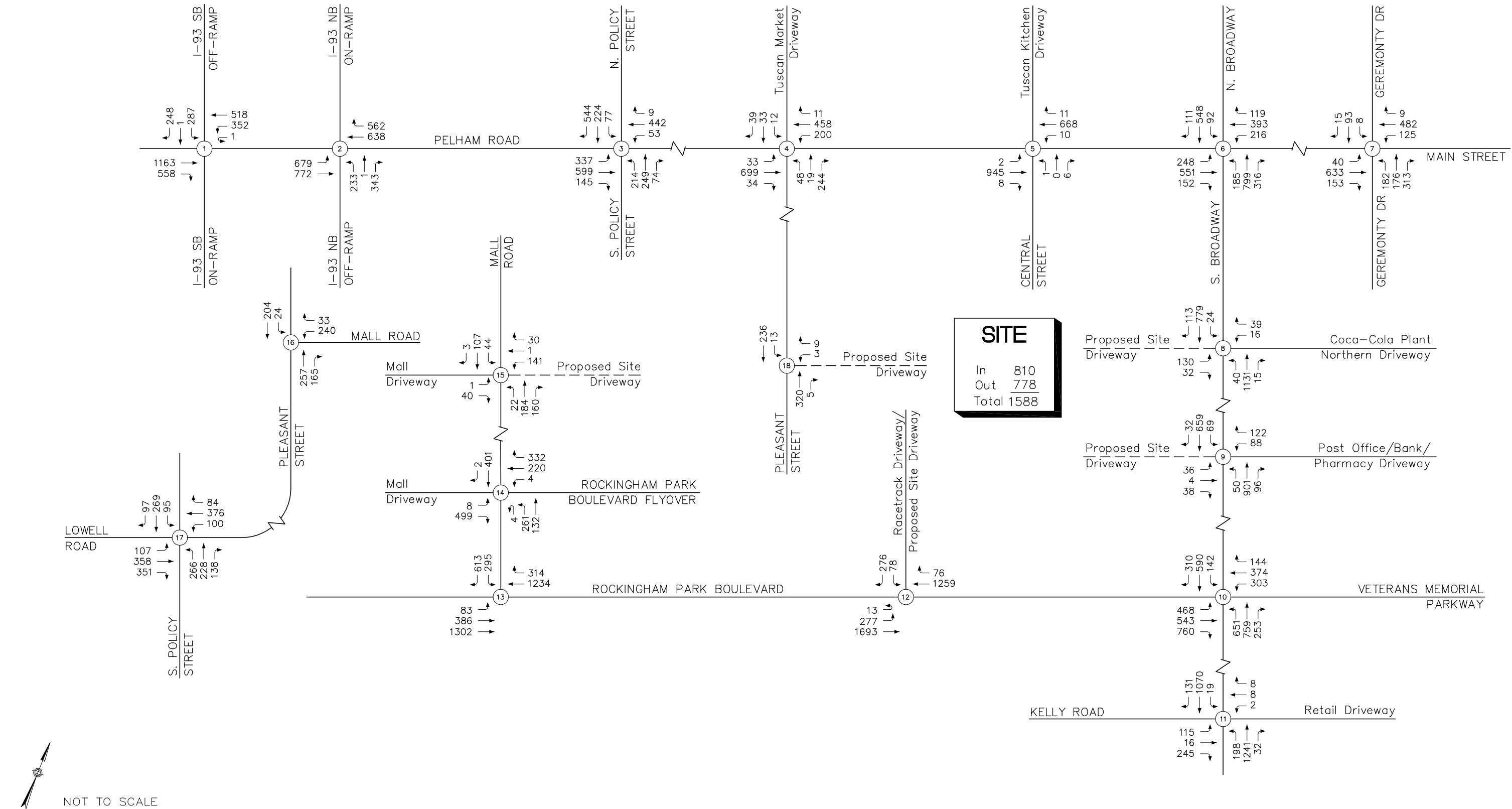


Figure 18
2029 Build
Weekday PM
Peak Hour Traffic Volumes

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) - Salem, New Hampshire

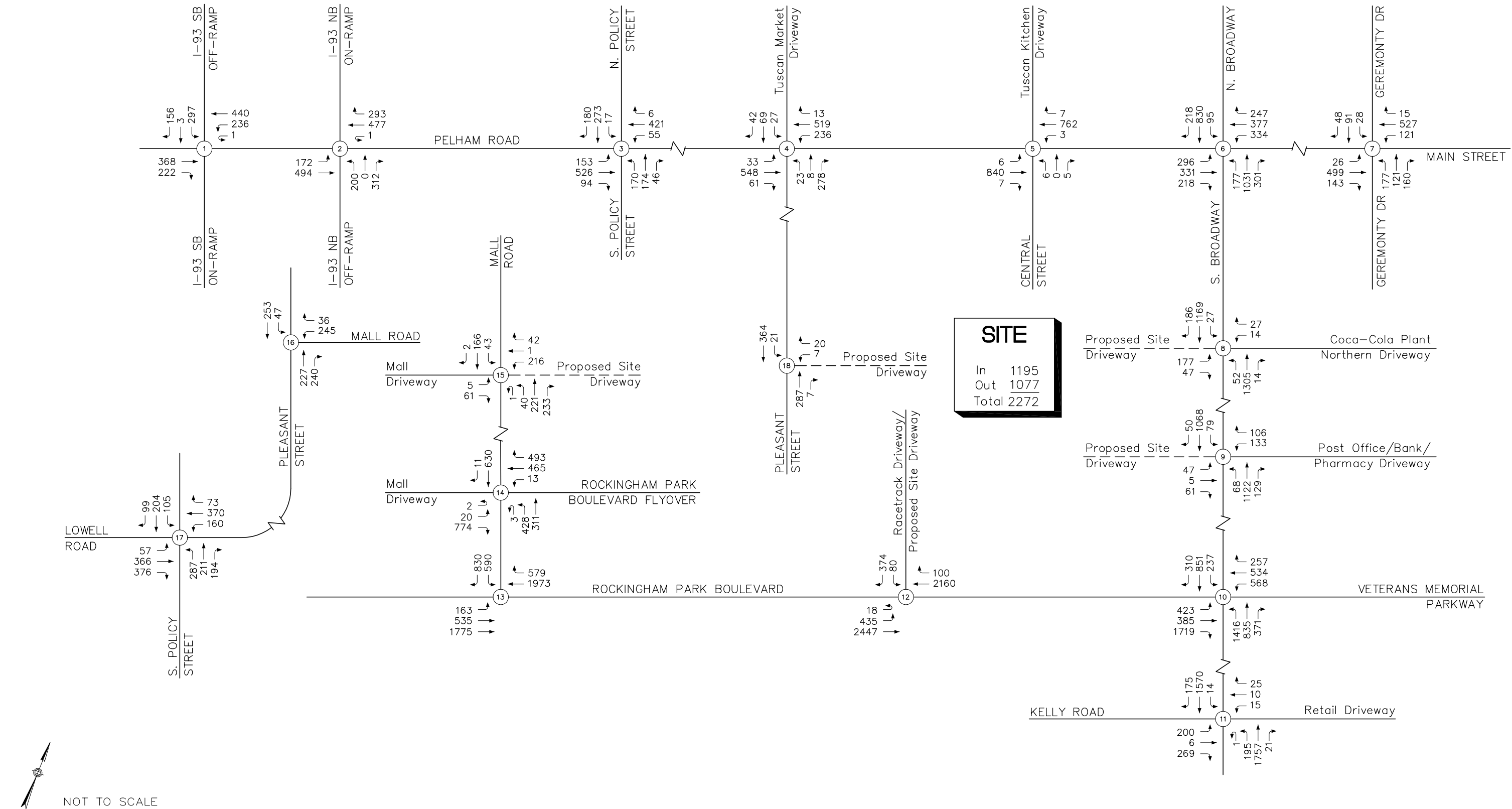


Figure 19
2029 Build
Saturday Midday
Peak Hour Traffic Volumes

CAPACITY AND QUEUE ANALYSIS

Capacity and queuing analyses were conducted at the study-area locations under 2016 Existing, 2019 No-Build, 2019 Build, 2029 No-Build, and 2029 Build conditions during the weekday AM, weekday PM, and Saturday midday peak hours. The impact of site-generated traffic can be measured by comparing No-Build conditions to Build conditions.

Methodology

The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual* (HCM) and is described in the Appendix of this report.¹²

The TIAS utilizes the HCM 2000 methodology due to the fact that all of the study area intersections do not follow the standard NEMA phasing. HCM 2010 does not provide results at a location where NEMA is not followed. The Town of Salem utilizes an ATMS.now/ITS system for the coordinated systems through the Town. The phasing and signal timings have been input based on information provided by the Town's traffic consultant for the ATMS.now/ITS system (VHB), as well as field observations. Accordingly, in order to provide consistent, comparable results, the HCM 2000 results are presented in the TIAS.

The queue analysis methodology for signalized and unsignalized intersections is based on the concepts and procedures described in the HCM. The maximum back of queue (measured in feet) during a 95th percentile signal cycle was calculated for each critical lane group during the peak periods studied. The back of queue is the length of a backup of vehicles from the stop line of a signalized intersection to the last vehicle in the queue that is required to stop, regardless of the signal indication. The length of this queue depends on a number of factors including signal timing, vehicle arrival patterns, and the saturation flow rate.

Analysis Results

The study area intersections have been analyzed through application of the procedures previously described. The level-of-service (LOS) and queue analysis results are presented in Tables 7 and 8 and are discussed below. All analysis worksheets are provided in the Appendix.

¹² Highway Capacity Manual 2000; Transportation Research Board; Washington, D.C.; 2000.

Pelham Road (NH Route 97) at Interstate-93 (I-93) Southbound On/Off-Ramps

Under existing and future conditions, the intersection of Pelham Road at the I-93 southbound on/off-ramps is expected to operate at an overall LOS D or better during the weekday AM, weekday PM, and Saturday midday peak hours with or without the development in place. Increases in delay as a result of the project are anticipated to be 8 seconds or less on any movement with no drops in LOS. The proposed project is expected to add 1 vehicle or less to the queue length on any approach.

Pelham Road (NH Route 97) at Interstate-93 (I-93) Northbound On/Off-Ramps

Under existing and future conditions, the intersection of Pelham Road at the I-93 northbound on/off-ramps is expected to operate at an overall LOS C or better during the weekday AM, weekday PM, and Saturday midday peak hours with or without the development in place. Increases in delay as a result of the project are anticipated to be 5 seconds or less on any movement with no drops in LOS. The proposed project is expected to add 1 vehicle or less to the queue length on any approach.

Main Street/Pelham Road (NH Route 97) at North Policy Street and South Policy Street

Under existing and future conditions, the intersection of Main Street/Pelham Road at North Policy Street and South Policy Street is expected to operate at an overall LOS E or better during the weekday AM, weekday PM, and Saturday midday peak hours with or without the development in place. During the weekday AM peak hour, the overall LOS is anticipated to drop from LOS D to LOS E under 2029 Build conditions as a result of the project. Accordingly, improvement measures are recommended at this location during the weekday AM peak and are described in the *Recommended Improvements* section of this study. During the weekday PM and Saturday midday peak hours, increases in overall delay as a result of the project are anticipated to be approximately 10 seconds or less.

Main Street (NH Route 97) at Pleasant Street and Tuscan Market Driveway

Under existing and future conditions, the intersection of Main Street at Pleasant Street and the Tuscan Market driveway is expected to operate at an overall LOS C during the weekday AM peak hour, LOS E or better during the weekday PM peak hour, and LOS D or better during the Saturday midday peak hour. Increases in overall delay as a result of the project are anticipated to be less than 14 seconds with no drops in overall LOS.

Main Street (NH Route 97) at Central Street and Enter-Only Tuscan Kitchen Driveway

Under existing and future conditions, the intersection of Main Street at Central Street and the enter-only Tuscan Kitchen driveway is expected to operate at LOS B or better on Main Street and

LOS D or better on Central Street, with exception to the 2029 Build condition during the Saturday midday peak hour which is expected to operate at LOS E. Improvement measures are recommended at this location and are described in the *Recommended Improvements* section of this study.

Main Street (NH Route 97) at North Broadway/South Broadway (NH Route 28) – The Depot

Under 2019 and 2029 future conditions, with or without the proposed project in place, the intersection of South Broadway at Main Street and North Broadway is anticipated to operate with long delays (LOS E/F). Improvements are proposed at the intersection of Main Street at Central Street and the enter-only Tuscan Kitchen driveway which are expected to reduce the number of Main Street eastbound right-turn movements at The Depot intersection. In addition, the owner of the Tuscan Village project has donated funds in order to construct a sidewalk along the west side of South Broadway (NH Route 28) as part the Town's improvements at this location.

Main Street (NH Route 97) at Geremonty Drive

Under 2019 and 2029 future conditions, with or without the proposed project in place, the intersection of Main Street at Geremonty Drive is anticipated to operate with long delays (LOS E/F). During the weekday AM peak hour, the Main Street eastbound through/right-turn movement is anticipated to drop from LOS E to LOS F under 2029 Build conditions as a result of the project. Accordingly, improvement measures are recommended at this location during the weekday AM peak and are described in the *Recommended Improvements* section of this study. During the weekday PM and Saturday midday peak hours, the only drop in LOS is on the Main Street westbound through/right-turn movement during the Saturday midday, which is anticipated to drop from LOS B to LOS C due to an increase in delay of 0.8 seconds. Increases in overall delay as a result of the project are expected to be less than 10 seconds.

South Broadway (NH Route 28) at Coca-Cola Plant Driveway and Proposed Site Driveway

The intersection of South Broadway at the Coca-Cola Plant driveway is currently unsignalized. Without a traffic signal at this location, the Coca-Cola Plant driveway is expected to operate with long delays (LOS F) with or without the project in place during the weekday PM and Saturday midday peak hours. As a result of the project, delays are expected to increase on the Coca-Cola driveway and delays on the site driveway are also anticipated to be long (LOS F). Due to the capacity constraints that will be realized at this location as a result of the project, improvements are proposed at this location as described in the *Recommended Improvements* section of this study.

South Broadway (NH Route 28) at Post Office Driveway and Proposed Site Driveway

As described in the *Site Access* section of the study, traffic signal phasing and timing modifications will need to be made to the traffic signal in order to accommodate the new site roadway (eastbound approach) as part of Phase I (auto dealership). As Phase I is expected to open before 2019, the 2019 No-Build and 2029 No-Build conditions include these modifications.

Under existing and future conditions, the intersection of South Broadway at the Post Office driveway and the site driveway is expected to operate at an overall LOS B or better during the weekday AM and weekday PM peak hours, and an overall LOS C or better during the Saturday midday peak hour. Increases in delay on South Broadway and the Post Office driveway as a result of the project (Phase II) are anticipated to be less than 10 seconds with no drops in LOS. The proposed project is expected to add 1 vehicle or less to the queue length on any approach. Accordingly, no additional improvements are recommended as a result of Phase II.

South Broadway (NH Route 28) at Rockingham Park Boulevard and Veterans Memorial Pkwy

Under existing and future traffic-volume conditions, the overall intersection of South Broadway at Rockingham Park Boulevard and Veterans Memorial Parkway is anticipated to operate at LOS D or better during the weekday AM and weekday PM peak hours, and LOS E/F during the Saturday midday peak hour. As a result of the proposed development, increases in delay on any movement are expected to be approximately 7 seconds or less. Increases in queue lengths on any movement are expected to be 2 vehicles or less. The only drop in LOS as a result of the project is on the Rockingham Park Boulevard eastbound through movement during the Saturday midday due to an increase in delay of 7 seconds.

South Broadway (NH Route 28) at Kelly Road and Shared Retail Driveway

Under existing and future conditions, the intersection of South Broadway at Kelly Road and the shared retail driveway is expected to operate at an overall LOS B during the weekday AM peak hour and LOS C during the weekday PM peak hour. As a result of the project, increases in delay on any movement are expected to be negligible (< 1 second) with increases in queue lengths of 1 vehicle or less during the weekday AM and weekday PM peak hours. During the Saturday midday peak hour, the South Broadway southbound through/right-turn movement is anticipated to drop from LOS E to LOS F under 2029 Build conditions as a result of the project. Accordingly, improvement measures are recommended at this location during the Saturday midday peak and are described in the *Recommended Improvements* section of this study.

Rockingham Park Boulevard at Racetrack Driveway/Proposed Site Driveway

Under existing and future conditions, the intersection of Rockingham Park Boulevard at the existing Racetrack driveway/proposed Site driveway is expected to operate at an overall LOS B or better during the weekday AM and weekday PM peak hours. During the Saturday midday peak hour, the intersection is expected to drop from and overall LOS A/B to LOS D as a result of the project. Accordingly, improvement measures are recommended at this location during the Saturday midday peak and are described in the *Recommended Improvements* section of this study.

Rockingham Park Boulevard at Mall Road (NH Route 38)

Under existing and future conditions, the intersection of Rockingham Park Boulevard at Mall Road is expected to operate at an overall LOS B or better during the weekday AM and weekday PM peak hours. During the Saturday midday peak hour, the intersection is expected to drop from and overall LOS C to LOS E as a result of the project. Accordingly, improvement measures are recommended at this location during the Saturday midday peak and are described in the *Recommended Improvements* section of this study.

Mall Road (NH Route 38) at Mall Driveway and Rockingham Park Boulevard Flyover

Under existing and future conditions, the intersection of Mall Road at the Mall driveway and Rockingham Park Boulevard Flyover is expected to operate at an overall LOS B during the weekday AM peak hour. As a result of the project, increases in delay on any movement are expected to be less than 3 seconds with increases in queue lengths of 1 vehicles or less during the weekday AM. During the weekday PM peak hour, the overall LOS is anticipated to drop from LOS B to LOS C as a result of the project. During the Saturday midday peak hour, the Rockingham Park Boulevard flyover westbound left-turn/through movement is expected to drop from LOS C to LOS D. Accordingly, improvement measures are recommended at this location during the weekday PM and Saturday midday peak hours and are described in the *Recommended Improvements* section of this study.

Mall Road (NH Route 38) at Mall Driveway and Proposed Site Driveway

The intersection of Mall Road at the Mall driveway and proposed site driveway is unsignalized. Without improvements at this location, the intersection is expected to operate at LOS C or better on Mall Road and the Mall driveway, with the site driveway operating at LOS B, LOS C, and LOS F during the weekday AM, weekday PM, and Saturday midday, respectively. Accordingly, improvements are proposed at this location as described in the *Recommended Improvements* section of this study.

Mall Road (NH Route 38) at Pleasant Street

Under existing and future traffic-volume conditions, all movements at the intersection of Mall Road at Pleasant Street are anticipated to operate at LOS B or better during all peak hours. As a result of the proposed development, increases in delay are expected to be less than 2 seconds on any movement. Increases in queue lengths on any movement are expected to be 2 vehicles or less. Any drop in LOS on any movement as a result of the project is due to an increase in delay of less than 2 seconds.

Pleasant Street/Lowell Road (NH Route 38) at South Policy Street

Under existing and future traffic-volume conditions, the overall intersection of Pleasant Street/Lowell Road at South Policy Street is anticipated to operate at LOS D or better during all peak hours. As a result of the proposed development, increases in overall intersection delay are expected to be negligible with increases on any movement to be less than 5 seconds. Increases in queue lengths on any movement are expected to be 2 vehicles or less. Any drop in LOS on any movement as a result of the project is due to an increase in delay of less than 5 seconds.

Pleasant Street at Proposed Site Driveway

The intersection of Pleasant Street at the proposed site driveway is unsignalized. With the proposed project in place, the intersection will operate with all movements at LOS B or better. Delays on Pleasant Street are expected to be negligible (< 1 second) and delays on the site driveway are expected to be less than 12 seconds with queue lengths of 1 vehicle or less. All v/c ratios are anticipated to be well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

Turn lane and traffic signal warrant analyses were conducted at this location to determine if turn lanes or a traffic signal were warranted. These analyses revealed that no turn-lanes are warranted along Pleasant Street, the site driveway can be constructed with a one-lane approach, and a traffic signal is not warranted. Pedestrian accommodations include a sidewalk provided along the west side of Pleasant Street. The warrant analysis worksheets are provided in the Appendix.

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Table 7
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
1. Pelham Road at I-93 SB On/Off-Ramps												
<i>Weekday AM:</i>												
Pelham Road EB through	0.19	16.2	B	57/95	0.20	17.1	B	64/101	0.21	17.2	B	65/103
Pelham Road EB right-turn	0.18	0.3	A	0/0	0.18	0.3	A	0/0	0.18	0.3	A	0/0
Pelham Road WB left-turn	0.59	40.7	D	65/98	0.60	40.9	D	69/96	0.60	40.7	D	69/94
Pelham Road WB through	0.43	7.5	A	76/214	0.46	8.1	A	141/221	0.46	8.1	A	145/223
I-93 South SB Off-Ramp left-turn/through	0.54	35.5	D	117/157	0.56	35.0	D	124/170	0.58	35.4	D	129/176
I-93 South SB Off-Ramp right-turn	0.72	40.4	D	131/191	0.73	40.2	D	140/207	0.74	40.5	D	142/210
Overall Intersection	0.55	22.0	C	--/--	0.57	22.3	C	--/--	0.58	22.4	C	--/--
<i>Weekday PM:</i>												
Pelham Road EB through	0.98	39.2	D	277/300	1.03	51.0	D	297/318	1.05	58.4	E	305/324
Pelham Road EB right-turn	0.40	0.8	A	0/0	0.42	0.8	A	0/0	0.42	0.8	A	0/0
Pelham Road WB left-turn	0.61	24.8	C	40/55	0.62	25.1	C	43/54	0.62	24.7	C	43/53
Pelham Road WB through	0.21	0.2	A	0/0	0.22	0.2	A	0/0	0.23	0.2	A	0/0
I-93 South SB Off-Ramp left-turn/through	0.47	25.1	C	41/84	0.52	25.6	C	46/91	0.57	27.1	C	53/104
I-93 South SB Off-Ramp right-turn	0.09	21.9	C	0/26	0.09	21.9	C	0/26	0.09	21.7	C	0/26
Overall Intersection	0.84	22.1	C	--/--	0.88	6.9	C	--/--	0.89	29.9	C	--/--
<i>Saturday Midday:</i>												
Pelham Road EB through	0.43	17.3	B	47/86	0.45	17.6	B	53/94	0.47	18.7	B	60/105
Pelham Road EB right-turn	0.15	0.2	A	0/0	0.15	0.2	A	0/0	0.15	0.2	A	0/0
Pelham Road WB left-turn	0.36	18.7	B	29/65	0.37	19.4	B	31/71	0.38	20.7	C	34/76
Pelham Road WB through	0.20	6.3	A	27/56	0.22	6.5	A	31/62	0.23	7.2	A	36/72
I-93 South SB Off-Ramp left-turn/through	0.30	17.7	B	28/73	0.33	18.3	B	33/85	0.37	18.6	B	43/103
I-93 South SB Off-Ramp right-turn	0.05	16.2	B	0/20	0.05	16.6	B	0/21	0.05	16.5	B	0/21
Overall Intersection	0.37	12.2	B	--/--	0.39	12.6	B	--/--	0.41	13.4	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
2. Pelham Road at I-93 NB On/Off-Ramps												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.37	29.6	C	37/54	0.37	29.0	C	38/56	0.37	28.9	C	39/56
Pelham Road EB through	0.30	3.5	A	16/35	0.33	4.1	A	18/46	0.34	4.3	A	19/51
Pelham Road WB through	0.76	22.2	C	107/198	0.79	23.5	C	113/208	0.80	24.1	C	116/213
Pelham Road WB right-turn	0.14	0.2	A	0/0	0.15	0.2	A	0/0	0.16	0.2	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.78	24.9	C	77/141	0.80	26.2	C	79/147	0.80	26.2	C	79/147
I-93 North NB Off-Ramp right-turn	0.12	16.5	B	0/28	0.13	16.6	B	0/28	0.13	16.6	B	0/28
Overall Intersection	0.69	16.7	B	--/--	0.72	17.2	B	--/--	0.73	17.2	B	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.79	24.4	C	91/95	0.80	24.4	C	94/95	0.80	24.6	C	96/96
Pelham Road EB through	0.35	2.3	A	16/22	0.38	2.4	A	20/24	0.41	2.8	A	25/28
Pelham Road WB through	0.81	29.8	C	126/186	0.86	33.2	C	134/199	0.87	34.6	C	139/205
Pelham Road WB right-turn	0.35	0.6	A	0/0	0.38	0.7	A	0/0	0.40	0.8	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.36	22.7	C	35/74	0.37	22.8	C	36/76	0.37	22.8	C	36/76
I-93 North NB Off-Ramp right-turn	0.11	20.8	C	0/30	0.17	21.1	C	5/36	0.24	21.5	C	12/43
Overall Intersection	0.74	15.8	B	--/--	0.77	16.4	B	--/--	0.79	16.6	B	--/--
<i>Saturday Midday:</i>												
Pelham Road EB left-turn	0.28	19.7	B	25/52	0.29	20.2	C	27/55	0.29	20.3	C	27/55
Pelham Road EB through	0.20	5.8	A	28/50	0.22	5.9	A	33/56	0.26	6.1	A	40/66
Pelham Road WB through	0.47	16.9	B	64/107	0.49	17.2	B	70/115	0.50	17.2	B	73/120
Pelham Road WB right-turn	0.15	0.2	A	0/0	0.17	0.2	A	0/0	0.20	0.3	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.30	19.2	B	28/58	0.31	19.7	B	30/61	0.31	19.9	B	30/62
I-93 North NB Off-Ramp right-turn	0.11	18.3	B	0/28	0.11	18.8	B	0/29	0.11	18.9	B	0/30
Overall Intersection	0.37	13.0	B	--/--	0.38	13.0	B	--/--	0.41	12.5	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.64	30.9	C	302/452	0.66	31.7	C	307/501	0.66	31.7	C	307/501
Pelham Road EB through	0.17	23.2	C	64/104	0.20	24.1	C	75/120	0.22	24.3	C	82/129
Pelham Road EB right-turn	0.08	14.2	B	0/15	0.08	14.5	B	0/16	0.08	14.5	B	0/16
Main Street WB left-turn	0.42	52.8	D	52/100	0.43	52.9	D	54/103	0.43	52.9	D	54/103
Main Street WB through	0.99	100.0	F	139/211	1.12	140.9	F	153/234	1.21	174.5	F	167/263
Main Street WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
South Policy Street NB left-turn	0.68	59.7	E	103/154	0.68	59.4	E	105/157	0.68	59.4	E	105/157
South Policy Street NB through	0.32	35.7	D	92/145	0.32	35.1	D	94/149	0.32	35.1	D	94/149
South Policy Street NB right-turn	0.04	32.9	C	0/0	0.04	32.3	C	0/0	0.04	32.3	C	0/0
North Policy Street SB left-turn	0.39	61.9	E	11/33	0.39	61.9	E	11/33	0.39	61.9	E	11/33
North Policy Street SB through	0.62	49.2	D	151/224	0.62	48.9	D	155/229	0.62	48.9	D	155/229
North Policy Street SB right-turn	0.13	11.3	B	0/23	0.14	11.2	B	0/23	0.14	11.2	B	0/23
Overall Intersection	0.70	39.4	D	--/--	0.73	45.9	D	--/--	0.74	52.3	D	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.77	58.7	E	278/526	0.75	56.3	E	284/545	0.75	56.3	E	284/545
Pelham Road EB through	0.41	35.3	D	186/336	0.45	37.2	D	206/380	0.48	37.8	D	222/419
Pelham Road EB right-turn	0.08	17.3	B	0/27	0.08	17.9	B	0/27	0.09	18.0	B	0/29
Main Street WB left-turn	0.35	61.0	E	51/84	0.36	61.1	E	53/87	0.36	61.1	E	53/87
Main Street WB through	0.53	52.4	D	173/248	0.67	58.9	E	203/296	0.75	62.1	E	231/348
Main Street WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	0.01	0.0	A	0/0
South Policy Street NB left-turn	0.82	74.4	E	204/261	0.82	74.9	E	210/269	0.82	74.9	E	210/269
South Policy Street NB through	0.56	47.7	D	210/285	0.55	46.6	D	215/293	0.55	46.6	D	215/293
South Policy Street NB right-turn	0.05	40.9	D	0/0	0.05	39.8	D	0/0	0.05	39.8	D	0/0
North Policy Street SB left-turn	0.62	71.5	E	71/123	0.63	71.5	E	73/128	0.63	71.5	E	73/128
North Policy Street SB through	0.75	66.5	E	198/377	0.74	64.5	E	204/391	0.74	64.5	E	204/391
North Policy Street SB right-turn	0.21	28.2	C	18/63	0.22	26.6	C	22/71	0.22	26.6	C	22/71
Overall Intersection	0.68	46.4	D	--/--	0.71	47.0	D	--/--	0.73	47.6	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Saturday Midday:</i>												
Pelham Road EB left-turn	0.62	49.3	D	104/170	0.63	51.7	D	112/183	0.64	54.0	D	117/190
Pelham Road EB through	0.59	40.5	D	152/205	0.62	41.8	D	176/236	0.66	42.4	D	211/274
Pelham Road EB right-turn	0.07	21.7	C	2/16	0.08	21.3	C	4/19	0.09	20.8	C	7/22
Main Street WB left-turn	0.33	47.8	D	35/77	0.34	49.7	D	39/80	0.35	51.8	D	40/85
Main Street WB through	0.58	44.4	D	115/168	0.62	46.0	D	137/195	0.66	46.8	D	167/232
Main Street WB right-turn	0.00	0.0	A	0/0	0.00	0.0	A	0/0	0.00	0.0	A	0/0
South Policy Street NB left-turn	0.62	46.2	D	115/185	0.62	47.0	D	124/198	0.62	49.0	D	129/205
South Policy Street NB through	0.22	18.8	B	66/141	0.23	19.9	B	72/153	0.23	21.3	C	77/161
South Policy Street NB right-turn	0.03	17.1	B	0/0	0.03	18.1	B	0/0	0.03	19.4	B	0/0
North Policy Street SB left-turn	0.42	56.7	E	11/38	0.45	59.3	E	12/39	0.46	61.7	E	12/40
North Policy Street SB through	0.47	31.9	C	154/279	0.50	34.4	C	168/303	0.52	36.6	D	177/318
North Policy Street SB right-turn	0.09	17.6	B	14/39	0.09	19.1	B	16/43	0.09	20.5	C	17/46
Overall Intersection	0.59	35.9	D	--/--	0.62	37.6	D	--/--	0.64	39.3	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
4. Main St at Pleasant St/Tuscan Market Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.40	71.7	E	21/54	0.40	71.8	E	21/54	0.40	72.4	E	21/54
Main Street EB through/right-turn	0.40	15.4	B	184/325	0.44	16.3	B	212/372	0.47	17.4	B	239/400
Main Street WB left-turn	0.64	70.0	E	95/166	0.65	70.3	E	99/173	0.66	70.8	E	102/175
Main Street WB through/right-turn	0.39	11.1	B	187/328	0.42	11.4	B	203/355	0.43	12.0	B	220/368
Pleasant Street NB left-turn	0.25	64.5	E	25/52	0.26	64.6	E	25/54	0.43	66.1	E	48/86
Pleasant Street NB through/right-turn	0.26	64.9	E	11/63	0.27	64.9	E	11/63	0.26	64.3	E	11/63
Tuscan Market Driveway SB left-turn	0.08	64.1	E	6/23	0.08	64.2	E	6/23	0.08	64.8	E	6/23
Tuscan Market Driveway SB through/right-turn	0.38	67.5	E	29/74	0.38	67.6	E	29/74	0.38	68.1	E	30/75
Overall Intersection	0.43	30.6	C	--/--	0.46	30.5	C	--/--	0.49	31.6	C	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.32	55.2	E	27/61	0.32	55.2	E	27/61	0.32	55.2	E	27/61
Main Street EB through/right-turn	0.87	45.8	D	408/939	0.95	57.4	E	459/1015	1.03	78.2	E	511/1077
Main Street WB left-turn	0.72	37.7	D	111/163	0.71	37.5	D	118/150	0.70	38.5	D	127/145
Main Street WB through/right-turn	0.46	14.0	B	211/318	0.51	13.2	B	219/326	0.56	13.0	B	232/346
Pleasant Street NB left-turn	0.33	54.6	D	30/66	0.34	54.5	D	31/68	0.39	55.0	D	36/76
Pleasant Street NB through/right-turn	0.35	55.0	D	16/124	0.35	54.9	D	16/128	0.35	54.6	D	16/128
Tuscan Market Driveway SB left-turn	0.11	52.1	D	11/28	0.11	52.1	D	11/28	0.11	52.1	D	11/28
Tuscan Market Driveway SB through/right-turn	0.46	55.8	E	40/76	0.46	55.8	E	40/76	0.46	55.8	E	40/76
Overall Intersection	0.70	39.2	D	--/--	0.73	42.9	D	--/--	0.77	50.4	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
4. Main St at Pleasant St/Tuscan Market Driveway												
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.43	50.9	D	20/62	0.45	54.2	D	21/65	0.36	53.7	D	23/70
Main Street EB through/right-turn	0.77	36.0	D	263/440	0.81	37.9	D	306/502	0.85	40.9	D	372/593
Main Street WB left-turn	0.54	35.6	D	112/245	0.56	38.1	D	123/271	0.61	42.4	D	141/329
Main Street WB through/right-turn	0.45	15.0	B	164/302	0.48	14.9	B	190/349	0.53	16.2	B	225/397
Pleasant Street NB left-turn	0.08	43.4	D	6/26	0.08	46.2	D	7/28	0.18	49.2	D	16/50
Pleasant Street NB through/right-turn	0.25	44.9	D	5/92	0.26	47.7	D	6/96	0.26	50.1	D	6/101
Tuscan Market Driveway SB left-turn	0.18	42.6	D	18/54	0.19	45.6	D	19/57	0.20	48.6	D	20/60
Tuscan Market Driveway SB through/right-turn	0.68	55.0	D	69/194	0.72	62.2	E	73/211	0.76	70.2	E	80/232
Overall Intersection	0.66	33.1	C	--/--	0.69	35.5	D	--/--	0.73	38.0	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
5. Main St at Central St/Tuscan Kitchen Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.00	8.9	A	--/0	0.00	9.0	A	--/0	0.00	9.1	A	--/0
Main Street EB through/right-turn	0.35	0.0	A	--/0	0.38	0.0	A	--/0	0.40	0.0	A	--/0
Main Street WB left-turn	0.00	8.9	A	--/0	0.00	9.1	A	--/0	0.00	9.2	A	--/0
Main Street WB through/right-turn	0.36	0.0	A	--/0	0.38	0.0	A	--/0	0.38	0.0	A	--/0
Central Street NB approach	0.09	22.7	C	--/7	0.09	24.3	C	--/8	0.10	25.0	D	--/8
<i>Weekday PM:</i>												
Main Street EB left-turn	0.00	8.8	A	--/0	0.00	9.0	A	--/0	0.00	9.2	A	--/0
Main Street EB through/right-turn	0.51	0.0	A	--/0	0.54	0.0	A	--/0	0.55	0.0	A	--/0
Main Street WB left-turn	0.02	10.5	B	--/1	0.02	11.0	B	--/1	0.02	11.3	B	--/1
Main Street WB through/right-turn	0.35	0.0	A	--/0	0.38	0.0	A	--/0	0.41	0.0	A	--/0
Central Street NB approach	0.08	17.8	C	--/6	0.09	19.6	C	--/7	0.10	21.2	C	--/8
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.01	9.0	A	--/1	0.01	9.2	A	--/1	0.01	9.5	A	--/1
Main Street EB through/right-turn	0.40	0.0	A	--/0	0.43	0.0	A	--/0	0.47	0.0	A	--/0
Main Street WB left-turn	0.00	9.3	A	--/0	0.00	9.6	A	--/0	0.00	9.9	A	--/0
Main Street WB through/right-turn	0.38	0.0	A	--/0	0.41	0.0	A	--/0	0.44	0.0	A	--/0
Central Street NB approach	0.05	17.4	A	--/4	0.06	20.0	C	--/5	0.08	24.1	C	--/6

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
6. South Broadway at Main St. and N. Broadway												
<i>Weekday AM:</i>												
South Broadway NB left-turn/through	0.68	39.3	D	72/120	0.75	47.9	D	81/177	0.81	50.7	D	92/188
South Broadway NB right-turn	0.09	60.0	E	0/6	0.09	98.5	F	0/68	0.10	93.2	F	0/110
North Broadway SB approach	1.03	81.7	F	238/370	1.12	111.8	F	295/416	1.16	126.7	F	312/434
Main Street EB left-turn	0.58	28.9	C	87/130	0.58	28.4	C	87/132	0.57	27.9	C	92/137
Main Street EB through	0.55	29.6	C	169/226	0.55	28.8	C	172/233	0.56	28.7	C	174/234
Main Street EB right-turn	0.08	24.1	C	0/0	0.10	23.6	C	0/0	0.11	23.5	C	0/0
Main Street WB left-turn	0.57	30.5	C	131/215	0.67	33.3	C	152/245	0.71	36.0	D	160/261
Main Street WB through/right-turn	0.88	45.4	D	317/539	0.93	53.1	D	337/577	0.96	62.2	E	342/585
Overall Intersection	0.92	49.8	D	--/--	0.98	63.0	E	--/--	1.00	68.8	E	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn/through	1.34	204.4	F	447/525	1.49	274.8	F	537/591	1.64	339.6	F	618/673
South Broadway NB right-turn	0.15	32.9	C	25/27	0.19	58.9	E	24/110	0.23	45.1	D	24/113
North Broadway SB approach	1.08	109.1	F	245/393	1.21	158.2	F	311/450	1.32	203.1	F	377/505
Main Street EB left-turn	0.68	23.3	C	126/303	0.67	21.7	C	122/292	0.67	20.2	C	112/270
Main Street EB through	0.90	39.0	D	368/815	0.93	40.7	D	386/788	0.93	37.7	D	388/740
Main Street EB right-turn	0.06	30.8	C	0/24	0.07	30.9	C	4/34	0.09	130.1	F	10/48
Main Street WB left-turn	0.51	42.2	D	100/219	0.60	45.4	D	116/263	0.69	49.1	D	135/315
Main Street WB through/right-turn	1.00	86.3	F	354/765	1.08	109.9	F	377/797	1.10	116.7	F	381/800
Overall Intersection	1.07	102.4	F	--/--	1.17	138.4	F	--/--	1.23	170.9	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
6. South Broadway at Main St. and N. Broadway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn/through	1.55	289.0	F	560/692	1.71	367.0	F	651/767	1.89	446.4	F	753/870
South Broadway NB right-turn	0.15	8.9	A	3/22	0.19	41.0	D	8/139	0.24	34.1	C	14/144
North Broadway SB approach	1.88	451.7	F	655/709	2.05	524.2	F	731/780	2.21	596.3	F	807/852
Main Street EB left-turn	0.62	41.1	D	192/463	0.62	40.5	D	194/484	0.63	40.4	D	198/495
Main Street EB through	0.65	43.0	D	216/515	0.66	42.3	D	221/540	0.66	42.0	D	223/544
Main Street EB right-turn	0.08	33.9	C	0/0	0.11	33.3	C	0/30	0.16	33.6	C	6/85
Main Street WB left-turn	0.78	57.5	E	186/383	0.94	82.3	F	219/454	1.06	116.2	F	251/514
Main Street WB through/right-turn	1.80	419.6	F	632/962	1.92	475.2	F	677/1001	1.97	497.9	F	689/1004
Overall Intersection	1.40	274.4	F	--/--	1.49	323.6	F	--/--	1.57	366.9	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
7. Main Street Geremonty Drive												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.07	25.1	C	7/27	0.08	25.7	C	8/27	0.08	25.9	C	8/27
Main Street EB through/right-turn	0.84	45.5	D	237/430	0.89	52.6	D	267/475	0.92	58.2	E	285/499
Main Street WB left-turn	0.66	22.5	C	71/153	0.69	24.4	C	74/158	0.70	25.6	C	74/159
Main Street WB through/right-turn	0.54	19.2	B	180/346	0.58	19.9	B	203/386	0.59	20.1	C	210/398
Geremonty Drive NB left-turn	0.72	40.7	D	79/126	0.77	46.2	D	90/135	0.78	46.7	D	91/135
Geremonty Drive NB through/right-turn	0.54	33.1	C	127/179	0.57	34.6	C	138/186	0.57	34.9	C	140/186
Geremonty Drive SB approach	1.52	300.3	F	333/452	1.62	344.8	F	361/470	1.62	384.0	F	366/470
Overall Intersection	0.87	82.8	F	--/--	0.91	92.5	F	--/--	0.93	93.9	F	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.11	21.6	C	15/51	0.12	22.1	C	15/52	0.12	22.2	C	15/53
Main Street EB through/right-turn	1.11	103.5	F	467/969	1.21	141.7	F	536/1066	1.25	157.2	F	568/1109
Main Street WB left-turn	0.55	23.1	C	34/98	0.56	23.9	C	35/101	0.56	23.9	C	35/101
Main Street WB through/right-turn	0.46	16.7	B	145/323	0.49	17.6	B	160/351	0.52	18.1	B	173/380
Geremonty Drive NB left-turn	0.50	27.6	C	76/180	0.52	27.7	C	81/190	0.52	27.7	C	81/190
Geremonty Drive NB through/right-turn	0.80	39.8	D	222/544	0.81	40.6	D	233/573	0.81	40.6	D	233/573
Geremonty Drive SB approach	0.45	39.7	D	67/141	0.45	39.8	D	70/144	0.45	39.8	D	70/144
Overall Intersection	0.97	54.6	D	--/--	1.03	68.8	E	--/--	1.05	74.5	E	--/--
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.09	21.1	C	11/36	0.10	21.3	C	12/37	0.11	21.4	C	12/38
Main Street EB through/right-turn	1.05	82.6	F	386/706	1.16	119.5	F	500/803	1.22	144.3	F	550/862
Main Street WB left-turn	0.55	22.3	C	33/97	0.56	23.3	C	34/101	0.56	23.3	C	34/101
Main Street WB through/right-turn	0.51	17.2	B	165/369	0.55	18.1	B	188/412	0.59	18.9	B	208/453
Geremonty Drive NB left-turn	0.53	28.6	C	70/169	0.56	29.2	C	75/178	0.56	29.2	C	75/178
Geremonty Drive NB through/right-turn	0.42	27.8	C	97/232	0.43	27.9	C	101/240	0.43	27.9	C	101/240
Geremonty Drive SB approach	0.80	57.5	E	111/216	0.84	63.5	E	116/230	0.84	63.5	E	116/230
Overall Intersection	0.85	47.2	D	--/--	0.92	61.6	E	--/--	0.96	71.2	E	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn/through	0.21	0.0	A	--/0	0.22	0.0	A	--/0	0.02	0.8	A	--/2
South Broadway NB through/right-turn	0.10	0.0	A	--/0	0.12	0.0	A	--/0	0.18	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.03	1.1	A	--/3	0.03	1.0	A	--/3
South Broadway SB through/right-turn	0.35	0.0	A	--/0	0.38	0.0	A	--/0	0.32	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	0.32	41.7	E	--/32
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.02	9.2	A	--/1
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.02	18.7	C	--/2	0.03	22.1	C	--/2
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.01	10.2	B	--/1	0.01	10.2	B	--/1
<i>Weekday PM:</i>												
South Broadway NB left-turn/through	0.45	0.0	A	--/0	0.48	0.0	A	--/0	0.05	1.3	A	--/4
South Broadway NB through/right-turn	0.22	0.0	A	--/0	0.25	0.0	A	--/0	0.37	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.05	1.7	A	--/4	0.04	1.4	A	--/3
South Broadway SB through/right-turn	0.27	0.0	A	--/0	0.29	0.0	A	--/0	0.29	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	1.79	488.5	F	--/304
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.04	9.1	A	--/3
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.18	50.3	F	--/16	0.30	89.9	F	--/27
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.10	14.4	B	--/8	0.10	14.2	B	--/8

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn/through	0.48	0.0	A	--/0	0.53	0.0	A	--/0	0.11	3.0	A	--/9
South Broadway NB through/right-turn	0.24	0.0	A	--/0	0.27	0.0	A	--/0	0.39	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.06	1.8	A	--/5	0.06	1.7	A	--/5
South Broadway SB through/right-turn	0.45	0.0	A	--/0	0.49	0.0	A	--/0	0.48	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	8.09	Err	F	Err
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.07	10.6	B	--/6
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.30	100.6	F	--/26	0.60	270.2	F	--/47
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.08	14.9	B	--/6	0.07	14.6	B	--/6

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
9. South Broadway at Post Office Driveway and Proposed Site Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.57	50.3	D	24/62	0.52	50.4	D	13/40
South Broadway NB through	0.21	11.6	B	75/106	0.24	11.7	B	83/126	0.24	11.4	B	83/126
South Broadway NB right-turn	0.04	18.0	B	0/9	0.04	7.5	A	0/3	0.04	7.5	A	0/2
South Broadway SB left-turn	--	--	--	--/--	0.47	50.8	D	28/31	0.47	50.8	D	27/30
South Broadway SB through/right-turn	0.33	4.3	A	62/87	0.40	10.0	B	83/295	0.38	9.5	A	72/290
Site Driveway EB left-turn	--	--	--	--/--	0.10	46.2	D	4/18	0.14	46.4	D	6/23
Site Driveway EB through/right-turn	--	--	--	--/--	0.11	46.3	D	4/18	0.21	46.8	D	8/28
Site Driveway EB right-turn	--	--	--	--/--	0.10	46.2	D	4/17	0.21	46.8	D	8/28
Post Office Driveway WB left-turn/through	0.43	46.2	D	29/53	0.60	54.0	D	29/54	0.60	54.0	D	29/54
Post Office Driveway WB right-turn	0.03	28.7	C	0/18	0.02	39.6	D	0/5	0.02	39.6	D	0/5
Overall Intersection	0.34	9.5	A	--/--	0.41	15.3	B	--/--	0.41	14.8	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.45	71.0	E	23/47	0.61	75.2	E	47/85
South Broadway NB through	0.37	4.4	A	42/83	0.46	8.6	A	56/331	0.46	8.5	A	56/335
South Broadway NB right-turn	0.08	2.3	A	1/5	0.07	4.8	A	0/17	0.07	4.1	A	0/15
South Broadway SB left-turn	--	--	--	--/--	0.60	62.8	E	66/73	0.59	61.8	E	64/67
South Broadway SB through/right-turn	0.34	4.6	A	61/65	0.32	10.0	A	75/280	0.34	11.1	B	82/284
Site Driveway EB left-turn	--	--	--	--/--	0.20	50.6	D	17/42	0.34	51.6	D	29/63
Site Driveway EB through/right-turn	--	--	--	--/--	0.15	50.2	D	14/40	0.17	50.3	D	17/44
Site Driveway EB right-turn	--	--	--	--/--	0.15	50.2	D	14/40	0.16	50.3	D	16/43
Post Office Driveway WB left-turn/through	0.60	56.4	E	74/126	0.67	61.0	E	73/127	0.67	61.0	E	73/127
Post Office Driveway WB right-turn	0.08	35.5	D	0/44	0.07	40.5	D	0/46	0.07	40.7	D	0/46
Overall Intersection	0.39	9.2	A	--/--	0.49	17.3	B	--/--	0.49	18.6	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
9. South Broadway at Post Office Driveway and Proposed Site Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.63	60.0	E	63/150	0.69	69.5	E	57/131
South Broadway NB through	0.49	14.7	B	247/312	0.58	18.6	B	242/486	0.58	18.5	B	243/490
South Broadway NB right-turn	0.12	10.8	B	19/50	0.09	12.6	B	1/42	0.09	12.5	B	0/40
South Broadway SB left-turn	--	--	--	--/--	0.63	63.6	E	72/72	0.62	62.6	E	70/70
South Broadway SB through/right-turn	0.54	8.0	A	120/120	0.57	15.1	B	143/339	0.56	14.3	B	148/332
Site Driveway EB left-turn	--	--	--	--/--	0.38	49.1	D	32/71	0.44	49.6	D	37/79
Site Driveway EB through/right-turn	--	--	--	--/--	0.23	47.6	D	30/68	0.19	47.4	D	26/61
Site Driveway EB right-turn	--	--	--	--/--	0.23	47.6	D	30/67	0.19	47.4	D	25/60
Post Office Driveway WB left-turn/through	0.69	58.6	E	110/171	0.80	69.9	E	109/206	0.79	69.4	E	109/205
Post Office Driveway WB right-turn	0.11	30.0	C	13/55	0.06	37.3	D	0/44	0.06	37.4	D	0/44
Overall Intersection	0.56	14.8	B	--/--	0.61	24.1	C	--/--	0.60	23.8	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
10. South Broadway at Rockingham Park Blvd and Veterans Memorial Pkwy												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.51	38.9	D	70/103	0.52	38.8	D	71/105	0.52	38.8	D	71/105
South Broadway NB through	0.16	27.6	C	39/62	0.19	27.8	C	47/73	0.19	27.9	C	47/72
South Broadway NB right-turn	0.09	51.1	D	0/51	0.10	44.1	D	0/57	0.10	44.1	D	0/58
South Broadway SB left-turn	0.31	45.4	D	23/41	0.34	53.3	D	32/54	0.36	50.3	D	27/57
South Broadway SB through/right-turn	1.03	28.1	C	91/106	1.08	39.4	D	101/189	1.07	40.5	D	105/190
Rockingham Park Blvd EB left-turn	0.43	40.2	D	41/58	0.50	40.1	D	52/75	0.47	38.4	D	35/55
Rockingham Park Blvd EB through	0.19	21.8	C	50/81	0.20	22.0	C	53/85	0.21	28.2	C	56/112
Rockingham Park Blvd EB right-turn	0.16	14.3	B	42/64	0.17	14.3	B	43/65	0.17	12.0	B	42/64
Veterans Memorial Pkwy WB left-turn	0.42	43.9	D	39/61	0.44	43.9	D	41/64	0.44	43.9	D	41/64
Veterans Memorial Pkwy WB through	0.73	32.2	C	244/298	0.78	34.6	C	262/319	0.77	33.9	C	260/316
Veterans Memorial Pkwy WB right-turn	0.16	19.4	B	42/72	0.20	20.1	C	54/88	0.20	19.8	B	55/89
Overall Intersection	0.64	30.7	C	--/--	0.69	34.6	C	--/--	0.68	34.8	C	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.58	38.6	D	162/289	0.62	40.6	D	168/298	0.62	40.5	D	169/302
South Broadway NB through	0.33	17.9	B	104/110	0.36	19.7	B	127/127	0.38	20.0	C	132/132
South Broadway NB right-turn	0.16	8.1	A	0/17	0.17	11.7	B	0/26	0.17	12.7	B	0/29
South Broadway SB left-turn	0.41	52.6	D	39/58	0.46	62.0	E	52/79	0.48	61.3	E	56/81
South Broadway SB through/right-turn	0.79	38.4	D	128/190	0.89	48.9	D	162/267	0.89	49.8	D	168/267
Rockingham Park Blvd EB left-turn	0.75	46.5	D	167/214	0.77	46.3	D	179/228	0.77	43.6	D	156/195
Rockingham Park Blvd EB through	0.77	56.7	E	207/252	0.76	56.0	E	217/261	0.77	53.7	D	211/276
Rockingham Park Blvd EB right-turn	0.44	18.3	B	171/228	0.46	18.5	B	178/235	0.46	16.1	B	181/238
Veterans Memorial Pkwy WB left-turn	0.70	56.0	E	110/156	0.72	56.8	E	115/163	0.72	56.8	E	115/163
Veterans Memorial Pkwy WB through	0.73	54.8	D	138/183	0.75	55.5	E	145/192	0.75	55.5	E	146/194
Veterans Memorial Pkwy WB right-turn	0.27	40.4	D	71/114	0.31	40.0	D	81/128	0.34	40.0	D	91/140
Overall Intersection	0.72	36.0	D	--/--	0.76	38.7	D	--/--	0.76	38.1	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
10. South Broadway at Rockingham Park Blvd and Veterans Memorial Pkwy												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	1.06	84.1	F	673/882	1.16	121.4	F	755/923	1.14	115.4	F	746/927
South Broadway NB through	0.31	22.6	C	172/193	0.37	26.1	C	202/225	0.37	25.1	C	205/221
South Broadway NB right-turn	0.21	36.9	D	53/87	0.22	41.7	D	53/93	0.22	40.0	D	57/91
South Broadway SB left-turn	0.61	64.4	E	86/124	0.64	64.6	E	100/140	0.65	64.5	E	104/145
South Broadway SB through/right-turn	1.09	116.9	F	360/457	1.24	175.9	F	450/547	1.22	164.9	F	436/533
Rockingham Park Blvd EB left-turn	0.76	53.9	D	172/218	0.79	54.2	D	197/243	0.77	49.8	D	162/211
Rockingham Park Blvd EB through	0.58	55.0	D	157/189	0.55	51.7	D	157/199	0.57	57.1	E	175/216
Rockingham Park Blvd EB right-turn	0.99	58.9	E	902/1058	1.02	67.5	E	955/1109	1.02	63.7	E	948/1111
Veterans Memorial Pkwy WB left-turn	1.07	121.6	F	279/396	1.12	137.4	F	302/419	1.12	137.4	F	302/419
Veterans Memorial Pkwy WB through	0.85	67.2	E	233/295	0.86	68.5	E	244/315	0.86	67.9	E	245/318
Veterans Memorial Pkwy WB right-turn	0.45	44.5	D	155/220	0.49	44.0	D	177/252	0.51	43.8	D	189/267
Overall Intersection	1.10	71.9	E	--/--	1.17	91.0	F	--/--	1.16	86.9	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.55	47.2	D	61/103	0.49	43.4	D	64/106	0.49	43.3	D	64/107
South Broadway NB through/right-turn	0.19	4.5	A	26/76	0.21	4.7	A	31/88	0.21	4.7	A	30/89
South Broadway SB left-turn	0.05	55.7	E	0/2	0.05	55.7	E	0/2	0.05	55.7	E	0/2
South Broadway SB through/right-turn	0.23	10.7	B	97/155	0.25	12.3	B	106/176	0.26	12.5	B	108/190
Kelly Road EB left-turn	0.28	44.3	D	24/46	0.29	44.2	D	25/48	0.29	44.2	D	25/47
Kelly Road EB left-turn/through	0.28	44.4	D	24/47	0.28	44.2	D	25/48	0.28	44.2	D	25/47
Kelly Road EB right-turn	0.13	43.1	D	0/15	0.13	43.0	D	0/19	0.13	43.0	D	0/21
Shared Retail Driveway WB approach	0.00	0.0	A	0/0	0.00	0.0	A	0/0	0.00	0.0	A	0/0
Overall Intersection	0.30	18.1	B	--/--	0.31	18.0	B	--/--	0.32	18.1	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.65	54.1	D	136/201	0.66	54.3	D	139/206	0.66	54.1	D	140/207
South Broadway NB through/right-turn	0.50	11.8	B	183/385	0.53	12.3	B	201/418	0.54	12.5	B	206/430
South Broadway SB left-turn	0.41	62.9	E	16/28	0.41	63.2	E	16/27	0.41	61.2	E	15/25
South Broadway SB through/right-turn	0.57	21.8	C	223/420	0.61	22.4	C	264/491	0.62	22.3	C	270/503
Kelly Road EB left-turn	0.44	54.3	D	50/94	0.45	54.2	D	52/96	0.45	54.2	D	52/96
Kelly Road EB left-turn/through	0.44	54.3	D	51/95	0.44	54.1	D	52/96	0.44	54.1	D	52/96
Kelly Road EB right-turn	0.15	51.4	D	0/75	0.15	51.2	D	0/76	0.15	51.2	D	0/76
Shared Retail Driveway WB approach	0.20	57.1	E	10/32	0.20	57.1	E	10/32	0.20	57.1	E	10/32
Overall Intersection	0.55	24.4	C	--/--	0.58	24.7	C	--/--	0.59	24.6	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	0.67	64.6	E	154/224	0.67	64.6	E	154/224	0.68	64.6	E	161/232
South Broadway NB through/right-turn	0.67	17.0	B	350/701	0.67	17.0	B	350/701	0.72	18.5	B	402/805
South Broadway SB left-turn	0.39	71.7	E	14/14	0.39	72.1	E	14/14	0.39	72.9	E	14/14
South Broadway SB through/right-turn	0.89	28.0	C	678/834	0.89	27.4	C	680/748	0.97	32.0	C	791/885
Kelly Road EB left-turn	0.59	64.8	E	98/151	0.59	64.8	E	98/151	0.60	64.9	E	101/154
Kelly Road EB left-turn/through	0.58	64.0	E	96/148	0.58	64.0	E	96/148	0.59	64.7	E	100/153
Kelly Road EB right-turn	0.17	57.5	E	0/66	0.17	57.5	E	0/66	0.18	57.5	E	0/68
Shared Retail Driveway WB approach	0.36	66.4	E	28/66	0.36	66.4	E	28/66	0.36	66.4	E	28/66
Overall Intersection	0.79	30.1	C	--/--	0.79	29.9	C	--/--	0.84	32.1	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
12. Rockingham Park Blvd at Racetrack Driveway												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.11	51.0	D	1/9	0.11	50.8	D	1/8	0.62	42.9	D	89/140
Rockingham Park Blvd EB through	0.14	1.2	A	0/26	0.15	1.3	A	0/28	0.16	2.3	A	26/40
Rockingham Park Blvd WB through	0.41	3.9	A	0/131	0.42	4.0	A	0/138	0.53	11.0	B	179/383
Rockingham Park Blvd WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	0.03	0.0	A	0/0
Racetrack Driveway SB left-turn	0.29	49.1	D	7/17	0.29	49.1	D	7/17	0.18	43.0	D	13/25
Racetrack Driveway SB right-turn	0.00	40.6	D	0/2	0.00	40.6	D	0/2	0.22	28.5	C	22/34
Overall Intersection	0.40	3.7	A	--/--	0.42	3.8	A	--/--	0.53	11.7	B	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.38	56.9	E	28/64	0.38	55.0	E	28/63	0.69	42.3	D	223/311
Rockingham Park Blvd EB through	0.38	1.7	A	58/74	0.40	1.7	A	63/80	0.42	3.5	A	97/131
Rockingham Park Blvd WB through	0.30	2.7	A	36/49	0.32	3.1	A	45/56	0.48	13.1	B	144/167
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.03	0.0	A	0/0	0.05	0.0	A	0/0
Racetrack Driveway SB left-turn	0.30	55.7	E	20/33	0.30	55.7	E	20/33	0.26	48.5	D	39/52
Racetrack Driveway SB right-turn	0.01	43.1	D	0/11	0.01	43.1	D	0/11	0.29	22.9	C	94/94
Overall Intersection	0.39	4.2	A	--/--	0.41	4.3	A	--/--	0.53	13.0	B	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.43	35.5	D	34/67	0.43	35.3	D	35/70	1.43	244.8	F	499/768
Rockingham Park Blvd EB through	0.57	2.3	A	82/89	0.60	2.4	A	90/98	0.67	4.1	A	125/190
Rockingham Park Blvd WB through	0.67	14.8	B	454/511	0.71	16.0	B	485/499	1.00	38.1	D	514/515
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.03	0.0	A	0/0	0.07	0.0	A	0/0
Racetrack Driveway SB left-turn	0.13	31.4	C	5/15	0.13	31.4	C	5/15	0.17	25.5	C	18/34
Racetrack Driveway SB right-turn	0.03	20.2	C	3/11	0.04	20.3	C	3/11	0.37	13.7	B	71/98
Overall Intersection	0.65	8.8	A	--/--	0.69	9.3	A	--/--	0.99	38.6	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
13. Rockingham Park Blvd at Mall Road												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.06	43.7	D	5/19	0.06	43.7	D	5/19	0.07	43.7	D	5/21
Rockingham Park Blvd EB through	0.14	2.8	A	25/37	0.16	2.8	A	27/41	0.20	4.1	A	43/64
Rockingham Park Blvd WB through	0.68	9.4	A	153/464	0.71	10.0	B	168/548	0.78	10.2	B	492/492
Rockingham Park Blvd WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
Mall Road SB left-turn	0.11	41.3	D	10/23	0.11	41.3	D	10/23	0.08	37.6	D	10/22
Mall Road SB right-turn	0.22	31.6	C	38/59	0.22	31.6	C	39/60	0.37	30.0	C	75/99
Overall Intersection	0.60	9.4	A	--/--	0.63	9.6	A	--/--	0.70	10.6	B	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.50	53.8	D	64/112	0.50	53.8	D	64/112	0.48	53.0	D	64/112
Rockingham Park Blvd EB through	0.36	8.1	A	136/190	0.39	8.4	A	150/206	0.48	11.7	B	225/261
Rockingham Park Blvd WB through	0.48	8.8	A	89/233	0.52	9.4	A	106/256	0.70	15.5	B	157/177
Rockingham Park Blvd WB right-turn	0.21	0.3	A	0/0	0.21	0.3	A	0/0	0.21	0.3	A	0/0
Mall Road SB left-turn	0.46	41.8	D	120/144	0.46	41.4	D	120/144	0.38	36.7	D	110/141
Mall Road SB right-turn	0.53	31.1	C	176/184	0.53	30.9	C	181/188	0.62	29.1	C	239/256
Overall Intersection	0.53	15.6	B	--/--	0.55	15.5	B	--/--	0.71	17.7	B	--/--
<i>Saturday Middy:</i>												
Rockingham Park Blvd EB left-turn	0.68	65.2	E	146/213	0.68	65.2	E	146/213	0.66	62.8	E	147/213
Rockingham Park Blvd EB through	0.50	12.2	B	269/344	0.54	12.7	B	298/380	0.68	19.2	B	461/513
Rockingham Park Blvd WB through	0.83	26.5	C	402/860	0.89	29.9	C	458/971	1.21	137.1	F	1071/1192
Rockingham Park Blvd WB right-turn	0.36	0.5	A	0/0	0.36	0.5	A	0/0	0.36	0.3	A	0/0
Mall Road SB left-turn	0.72	51.4	D	269/319	0.72	51.4	D	271/320	0.60	42.6	D	248/312
Mall Road SB right-turn	0.55	30.8	C	254/267	0.55	30.8	C	255/267	0.65	28.2	C	338/372
Overall Intersection	0.78	23.6	C	--/--	0.81	24.6	C	--/--	0.97	56.9	E	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.23	16.1	B	5/24	0.23	16.1	B	5/24	0.26	19.0	B	6/27
Mall Road NB through	0.24	16.0	B	5/20	0.24	16.0	B	5/20	0.27	18.9	B	6/23
Mall Road SB through/right-turn	0.32	14.4	B	12/34	0.32	14.4	B	12/34	0.40	14.6	B	24/58
Mall Driveway EB left-turn	0.00	0.0	A	0/0	0.00	0.00	A	0/0	0.00	0.0	A	0/0
Mall Driveway EB right-turn	0.01	10.1	B	0/0	0.01	10.1	B	0/0	0.01	12.7	B	0/0
Flyover WB left-turn/through	0.14	14.7	B	4/13	0.14	14.7	B	4/13	0.11	16.0	B	5/14
Flyover WB right-turn	0.08	6.5	A	0/8	0.08	6.5	A	0/8	0.15	6.0	A	0/5
Overall Intersection	0.23	12.4	B	--/--	0.23	12.4	B	--/--	0.31	12.2	B	--/--
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.69	25.9	C	98/251	0.69	25.9	C	98/251	0.73	30.8	C	113/282
Mall Road NB through	0.16	19.3	B	20/51	0.16	19.4	B	21/51	0.17	21.7	C	24/56
Mall Road SB through/right-turn	0.50	25.0	C	50/95	0.50	25.0	C	50/95	0.58	25.7	C	83/144
Mall Driveway EB left-turn	0.05	26.1	C	3/16	0.05	26.1	C	3/16	0.06	28.6	C	4/17
Mall Driveway EB right-turn	0.21	11.5	B	0/23	0.21	11.5	B	0/23	0.21	13.6	B	0/25
Flyover WB left-turn/through	0.48	25.4	C	44/87	0.48	25.4	C	44/87	0.47	27.3	C	49/93
Flyover WB right-turn	0.10	12.5	B	0/34	0.10	12.5	B	0/34	0.19	12.3	B	0/42
Overall Intersection	0.54	18.8	B	--/--	0.54	18.8	B	--/--	0.57	20.5	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	1.14	117.9	F	247/475	1.14	118.0	F	247/475	1.22	153.0	F	277/475
Mall Road NB through	0.38	25.3	C	62/111	0.39	25.3	C	64/113	0.42	28.0	C	70/113
Mall Road SB through/right-turn	0.63	29.5	C	96/148	0.64	29.6	C	97/150	0.79	34.0	C	159/248
Mall Driveway EB left-turn	0.14	31.4	C	10/33	0.14	31.5	C	10/33	0.14	33.6	C	11/33
Mall Driveway EB right-turn	0.29	15.9	B	0/38	0.29	15.9	B	0/38	0.31	18.2	B	6/45
Flyover WB left-turn/through	0.76	33.5	C	117/207	0.76	33.6	C	117/207	0.78	36.9	D	128/207
Flyover WB right-turn	0.16	12.1	B	0/38	0.16	12.1	B	0/38	0.36	12.9	B	29/94
Overall Intersection	0.80	37.9	D	--/--	0.80	37.9	D	--/--	0.87	42.5	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.01	7.8	A	--/1	0.00	7.8	A	0/1	0.01	7.8	A	--/1
Mall Road NB through/right-turn	0.09	0.0	A	--/0	0.01	0.0	A	0/0	0.15	0.0	A	--/0
Mall Road SB approach	0.08	0.0	A	--/0	0.01	0.0	A	0/0	0.01	1.0	A	--/1
Mall Driveway EB left-turn/through	0.00	0.0	A	--/0	0.09	0.0	A	0/0	0.00	0.0	A	--/0
Mall Driveway EB right-turn	0.01	10.1	A	--/0	0.08	10.1	B	0/0	0.01	10.1	B	--/0
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.21	12.8	B	--/20
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.02	7.5	A	--/1	0.02	7.5	A	--/1	0.02	7.5	A	--/1
Mall Road NB through/right-turn	0.11	0.0	A	--/0	0.11	0.0	A	--/0	0.21	0.0	A	--/0
Mall Road SB approach	0.07	0.0	A	--/0	0.07	0.0	A	--/0	0.04	2.7	A	--/3
Mall Driveway EB left-turn/through	0.00	10.7	B	--/0	0.00	10.7	B	--/0	0.00	12.1	B	--/0
Mall Driveway EB right-turn	0.06	9.1	A	--/5	0.06	9.1	A	--/5	0.06	9.1	A	--/5
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.42	18.7	C	--/52
<i>Saturday Midday:</i>												
Mall Road NB left-turn	0.04	7.6	A	--/3	0.04	7.6	A	--/3	0.04	7.6	A	--/3
Mall Road NB through/right-turn	0.16	0.0	A	--/0	0.17	0.0	A	--/0	0.35	0.0	A	--/0
Mall Road SB approach	0.10	0.0	A	--/0	0.10	0.0	A	--/0	0.05	2.3	A	--/4
Mall Driveway EB left-turn/through	0.01	12.7	B	--/1	0.01	12.8	B	--/1	0.02	15.7	C	--/1
Mall Driveway EB right-turn	0.08	9.5	A	--/7	0.08	9.5	A	--/7	0.08	9.5	A	--/7
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	1.10	125.5	F	--/302

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
16. Mall Road at Pleasant Street												
<i>Weekday AM:</i>												
Pleasant Street NB approach	0.28	6.4	A	17/51	0.28	6.4	A	17/53	0.30	6.6	A	19/57
Pleasant Street SB approach	0.18	6.0	A	15/43	0.18	6.0	A	16/44	0.20	6.1	A	17/48
Mall Road WB approach	0.47	13.2	B	19/47	0.47	13.3	B	19/47	0.49	13.3	B	20/51
Overall Intersection	0.34	8.2	A	--/--	0.34	8.2	A	--/--	0.36	8.3	A	--/--
<i>Weekday PM:</i>												
Pleasant Street NB approach	0.47	9.0	A	42/119	0.48	9.1	A	45/124	0.54	10.1	B	54/149
Pleasant Street SB approach	0.34	8.3	A	30/80	0.35	8.3	A	31/82	0.36	8.7	A	34/88
Mall Road WB approach	0.50	12.6	B	35/107	0.51	12.7	B	37/109	0.55	13.3	B	47/129
Overall Intersection	0.48	9.9	A	--/--	0.49	9.9	A	--/--	0.54	10.7	B	--/--
<i>Saturday Middy:</i>												
Pleasant Street NB approach	0.48	8.8	A	41/120	0.49	9.0	A	44/127	0.56	10.3	B	53/154
Pleasant Street SB approach	0.44	8.6	A	41/102	0.46	8.8	A	43/107	0.48	9.5	A	48/118
Mall Road WB approach	0.49	13.0	B	35/102	0.49	13.0	B	37/107	0.54	13.4	B	48/130
Overall Intersection	0.48	9.8	A	--/--	0.49	9.9	A	--/--	0.55	10.9	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
17. Pleasant Street/Lowell Road at South Policy St												
<i>Weekday AM:</i>												
Lowell Road EB left-turn	0.58	30.7	C	62/136	0.59	31.8	C	66/140	0.59	32.0	C	66/141
Lowell Road EB through/right-turn	0.32	21.5	C	43/94	0.33	21.9	C	46/99	0.36	22.2	C	53/108
Pleasant Street WB left-turn	0.41	34.9	C	15/48	0.43	35.8	D	16/49	0.45	36.1	D	17/53
Pleasant Street WB through	0.35	27.3	C	41/86	0.36	27.9	C	44/89	0.38	28.1	C	47/94
Pleasant Street WB right-turn	0.01	25.4	C	0/0	0.02	25.9	C	0/0	0.02	25.9	C	0/0
South Policy NB left-turn	0.59	28.2	C	80/171	0.60	28.5	C	83/179	0.60	28.6	C	84/180
South Policy NB through	0.28	19.7	B	52/116	0.29	19.9	B	55/122	0.29	20.1	C	55/123
South Policy NB right-turn	0.04	18.0	B	0/4	0.05	18.1	B	0/6	0.05	18.3	B	0/6
South Policy SB left-turn	0.40	33.0	C	23/65	0.41	33.7	C	25/67	0.42	33.9	C	25/68
South Policy SB through	0.45	28.1	C	59/128	0.46	28.8	C	62/131	0.47	29.0	C	63/133
South Policy SB right-turn	0.08	25.5	C	0/37	0.08	26.0	C	0/39	0.08	26.2	C	0/40
Overall Intersection	0.53	25.4	C	--/--	0.54	25.9	C	--/--	0.55	26.1	C	--/--
<i>Weekday PM:</i>												
Lowell Road EB left-turn	0.52	40.2	D	56/127	0.53	41.2	D	59/131	0.69	38.7	D	149/356
Lowell Road EB through/right-turn	0.67	35.2	D	126/224	0.68	35.7	D	134/233	0.37	25.3	C	105/215
Pleasant Street WB left-turn	0.52	40.0	D	55/121	0.54	41.4	D	58/126	0.08	22.6	C	0/47
Pleasant Street WB through	0.44	31.3	C	91/153	0.45	31.8	C	95/157	0.52	41.3	D	58/125
Pleasant Street WB right-turn	0.05	28.3	C	0/16	0.05	28.6	C	0/18	0.70	40.3	D	155/273
South Policy NB left-turn	0.66	36.1	D	135/329	0.68	38.0	D	144/346	0.06	30.1	C	0/24
South Policy NB through	0.32	21.7	C	94/197	0.33	22.2	C	100/206	0.53	41.5	D	60/133
South Policy NB right-turn	0.08	19.5	B	0/44	0.08	20.0	B	0/45	0.70	35.4	D	153/256
South Policy SB left-turn	0.54	43.2	D	43/102	0.56	44.5	D	46/106	0.54	41.7	D	61/129
South Policy SB through	0.65	36.2	D	143/256	0.66	37.3	D	151/266	0.45	31.0	C	106/171
South Policy SB right-turn	0.06	28.5	C	0/22	0.06	28.9	C	0/24	0.06	27.7	C	0/17
Overall Intersection	0.67	32.8	C	--/--	0.68	33.6	C	--/--	0.70	34.3	C	--/--

^a Volume-to-capacity ratio.

^c Level of service.

^b Average control delay in seconds per vehicle.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
17. Pleasant Street/Lowell Road at South Policy St												
<i>Saturday Midday:</i>												
Lowell Road EB left-turn	0.45	44.8	D	28/87	0.47	45.7	D	30/90	0.48	47.2	D	31/90
Lowell Road EB through/right-turn	0.65	36.1	D	120/245	0.66	36.8	D	127/258	0.70	37.8	D	154/300
Pleasant Street WB left-turn	0.65	45.2	D	78/220	0.67	46.7	D	82/239	0.68	48.6	D	87/244
Pleasant Street WB through	0.29	27.1	C	70/150	0.30	27.3	C	73/158	0.32	27.1	C	85/179
Pleasant Street WB right-turn	0.04	25.0	C	0/3	0.04	25.1	C	0/5	0.04	24.6	C	0/4
South Policy NB left-turn	0.69	39.5	D	139/412	0.73	42.1	D	148/442	0.75	45.6	D	156/445
South Policy NB through	0.38	29.2	C	89/227	0.40	29.9	C	94/238	0.41	31.3	C	99/239
South Policy NB right-turn	0.11	26.6	C	0/61	0.11	27.2	C	0/62	0.12	28.4	C	0/63
South Policy SB left-turn	0.55	43.2	D	58/141	0.56	43.8	D	60/147	0.57	45.8	D	63/147
South Policy SB through	0.66	42.9	D	109/234	0.66	43.3	D	114/242	0.66	44.7	D	119/243
South Policy SB right-turn	0.06	34.3	C	0/26	0.06	34.6	C	0/27	0.06	35.7	D	0/28
Overall Intersection	0.64	35.3	D	--/--	0.66	36.1	D	--/--	0.68	37.2	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 7 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2019 No-Build				2019 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
18. Pleasant Street at Site Driveway												
<i>Weekday AM:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.12	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.01	0.3	A	--/0
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.06	10.1	B	--/5
<i>Weekday PM:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.18	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.01	0.3	A	--/1
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.02	10.4	B	--/2
<i>Saturday Midday:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.18	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.02	0.6	A	--/2
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.05	11.5	B	--/4

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
1. Pelham Road at I-93 SB On/Off-Ramps												
<i>Weekday AM:</i>												
Pelham Road EB through	0.19	16.2	B	57/95	0.24	19.1	B	73/113	0.24	19.2	B	74/115
Pelham Road EB right-turn	0.18	0.3	A	0/0	0.20	0.3	A	0/0	0.20	0.3	A	0/0
Pelham Road WB left-turn	0.59	40.7	D	65/98	0.62	40.9	D	78/91	0.62	40.7	D	78/90
Pelham Road WB through	0.43	7.5	A	76/214	0.52	9.4	A	188/238	0.52	9.5	A	200/240
I-93 South SB Off-Ramp left-turn/through	0.54	35.5	D	117/157	0.57	34.0	C	138/187	0.59	34.2	C	143/193
I-93 South SB Off-Ramp right-turn	0.72	40.4	D	131/191	0.83	44.4	D	186/269	0.83	44.4	D	188/273
Overall Intersection	0.55	22.0	C	--/--	0.65	23.6	C	--/--	0.66	23.7	C	--/--
<i>Weekday PM:</i>												
Pelham Road EB through	0.98	39.2	D	277/300	1.15	95.7	F	355/370	1.17	103.7	F	362/376
Pelham Road EB right-turn	0.40	0.8	A	0/0	0.46	1.0	A	0/0	0.46	1.0	A	0/0
Pelham Road WB left-turn	0.61	24.8	C	40/55	0.68	26.5	C	47/53	0.68	26.4	C	47/52
Pelham Road WB through	0.21	0.2	A	0/0	0.25	0.1	A	0/0	0.25	0.1	A	0/0
I-93 South SB Off-Ramp left-turn/through	0.47	25.1	C	41/84	0.55	26.4	C	51/100	0.62	28.5	C	58/115
I-93 South SB Off-Ramp right-turn	0.09	21.9	C	0/26	0.10	21.7	C	0/27	0.10	21.7	C	0/27
Overall Intersection	0.84	22.1	C	--/--	0.97	45.1	D	--/--	0.98	48.3	D	--/--
<i>Saturday MIDDAY:</i>												
Pelham Road EB through	0.43	17.3	B	47/86	0.48	18.5	B	63/107	0.49	19.5	B	69/119
Pelham Road EB right-turn	0.15	0.2	A	0/0	0.17	0.2	A	0/0	0.17	0.2	A	0/0
Pelham Road WB left-turn	0.36	18.7	B	29/65	0.40	20.4	C	38/81	0.41	21.8	C	40/86
Pelham Road WB through	0.20	6.3	A	27/56	0.23	6.8	A	37/71	0.25	7.4	A	42/81
I-93 South SB Off-Ramp left-turn/through	0.30	17.7	B	28/73	0.35	19.2	B	40/95	0.39	19.6	B	49/114
I-93 South SB Off-Ramp right-turn	0.05	16.2	B	0/20	0.06	17.2	B	0/22	0.06	17.3	B	0/22
Overall Intersection	0.37	12.2	B	--/--	0.41	13.2	B	--/--	0.43	14.0	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
2. Pelham Road at I-93 NB On/Off-Ramps												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.37	29.6	C	37/54	0.41	29.1	C	42/61	0.41	29.0	C	42/61
Pelham Road EB through	0.30	3.5	A	16/35	0.36	4.9	A	20/59	0.37	5.2	A	24/64
Pelham Road WB through	0.76	22.2	C	107/198	0.88	29.0	C	133/238	0.89	30.1	C	137/242
Pelham Road WB right-turn	0.14	0.2	A	0/0	0.16	0.2	A	0/0	0.18	0.3	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.78	24.9	C	77/141	0.89	33.1	C	90/169	0.89	33.1	C	90/169
I-93 North NB Off-Ramp right-turn	0.12	16.5	B	0/28	0.14	16.6	B	0/30	0.17	16.8	B	2/33
Overall Intersection	0.69	16.7	B	--/--	0.80	20.4	C	--/--	0.81	20.5	C	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.79	24.4	C	91/95	0.86	23.2	C	104/104	0.86	23.4	C	106/106
Pelham Road EB through	0.35	2.3	A	16/22	0.42	2.4	A	22/24	0.45	2.8	A	27/28
Pelham Road WB through	0.81	29.8	C	126/186	1.01	58.6	E	172/229	1.03	63.6	E	177/235
Pelham Road WB right-turn	0.35	0.6	A	0/0	0.41	0.8	A	0/0	0.44	0.9	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.36	22.7	C	35/74	0.40	22.7	C	41/83	0.40	22.7	C	41/83
I-93 North NB Off-Ramp right-turn	0.11	20.8	C	0/30	0.32	21.7	C	21/55	0.37	22.0	C	26/61
Overall Intersection	0.74	15.8	B	--/--	0.86	21.5	C	--/--	0.87	22.3	C	--/--
<i>Saturday Middy:</i>												
Pelham Road EB left-turn	0.28	19.7	B	25/52	0.32	21.7	C	32/64	0.32	21.9	C	33/65
Pelham Road EB through	0.20	5.8	A	28/50	0.24	6.1	A	41/67	0.28	6.3	A	48/77
Pelham Road WB through	0.47	16.9	B	64/107	0.51	17.7	B	84/134	0.52	17.9	B	87/139
Pelham Road WB right-turn	0.15	0.2	A	0/0	0.19	0.3	A	0/0	0.22	0.3	A	0/0
I-93 North NB Off-Ramp left-turn/through	0.30	19.2	B	28/58	0.33	20.9	C	36/71	0.33	21.1	C	36/71
I-93 North NB Off-Ramp right-turn	0.11	18.3	B	0/28	0.13	19.8	B	0/31	0.13	20.0	B	0/31
Overall Intersection	0.37	13.0	B	--/--	0.41	13.6	B	--/--	0.43	13.2	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.64	30.9	C	302/452	0.79	40.3	D	376/625	0.79	40.3	D	376/625
Pelham Road EB through	0.17	23.2	C	64/104	0.24	26.9	C	88/136	0.26	27.2	C	96/145
Pelham Road EB right-turn	0.08	14.2	B	0/15	0.09	15.8	B	0/17	0.09	15.8	B	0/17
Main Street WB left-turn	0.42	52.8	D	52/100	0.47	53.2	D	59/111	0.47	53.2	D	59/111
Main Street WB through	0.99	100.0	F	139/211	1.23	182.8	F	171/270	1.32	220.9	F	187/299
Main Street WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
South Policy Street NB left-turn	0.68	59.7	E	103/154	0.69	58.3	E	117/171	0.69	58.3	E	117/171
South Policy Street NB through	0.32	35.7	D	92/145	0.32	32.6	C	100/157	0.32	32.6	C	100/157
South Policy Street NB right-turn	0.04	32.9	C	0/0	0.05	29.7	C	0/0	0.05	29.7	C	0/0
North Policy Street SB left-turn	0.39	61.9	E	11/33	0.43	62.2	E	13/37	0.43	62.2	E	13/37
North Policy Street SB through	0.62	49.2	D	151/224	0.62	47.2	D	169/247	0.62	47.2	D	169/247
North Policy Street SB right-turn	0.13	11.3	B	0/23	0.15	11.9	B	0/25	0.15	11.9	B	0/25
Overall Intersection	0.70	39.4	D	--/--	0.81	54.1	D	--/--	0.82	61.5	E	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.77	58.7	E	278/526	0.72	50.0	D	303/621	0.72	50.0	D	303/621
Pelham Road EB through	0.41	35.3	D	186/336	0.56	42.9	D	245/439	0.59	43.7	D	263/478
Pelham Road EB right-turn	0.08	17.3	B	0/27	0.09	19.9	B	0/29	0.10	20.1	C	0/30
Main Street WB left-turn	0.35	61.0	E	51/84	0.39	61.4	E	58/95	0.39	61.4	E	58/95
Main Street WB through	0.53	52.4	D	173/248	1.23	184.7	F	248/337	1.36	239.0	F	300/390
Main Street WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	0.01	0.0	A	0/0
South Policy Street NB left-turn	0.82	74.4	E	204/261	0.86	77.9	E	232/297	0.86	77.9	E	232/297
South Policy Street NB through	0.56	47.7	D	210/285	0.54	43.0	D	230/324	0.54	43.0	D	230/324
South Policy Street NB right-turn	0.05	40.9	D	0/0	0.06	36.4	D	0/1	0.06	36.4	D	0/1
North Policy Street SB left-turn	0.62	71.5	E	71/123	0.67	74.0	E	81/137	0.67	74.0	E	81/137
North Policy Street SB through	0.75	66.5	E	198/377	0.70	58.8	E	222/445	0.70	58.8	E	222/445
North Policy Street SB right-turn	0.21	28.2	C	18/63	0.25	21.6	C	34/101	0.25	21.6	C	34/101
Overall Intersection	0.68	46.4	D	--/--	0.78	65.1	E	--/--	0.80	75.6	E	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Saturday MIDDAY:</i>												
Pelham Road EB left-turn	0.62	49.3	D	104/170	0.67	55.8	E	135/210	0.68	58.3	E	141/218
Pelham Road EB through	0.59	40.5	D	152/205	0.74	49.7	D	210/270	0.77	50.4	D	250/313
Pelham Road EB right-turn	0.07	21.7	C	2/16	0.09	21.3	C	7/21	0.10	20.8	C	9/24
Main Street WB left-turn	0.33	47.8	D	35/77	0.31	50.4	D	47/93	0.32	52.6	D	49/96
Main Street WB through	0.58	44.4	D	115/168	0.69	51.4	D	163/223	0.72	52.1	D	196/263
Main Street WB right-turn	0.00	0.0	A	0/0	0.01	0.0	A	0/0	0.01	0.0	A	0/0
South Policy Street NB left-turn	0.62	46.2	D	115/185	0.56	44.4	D	144/225	0.57	46.4	D	151/233
South Policy Street NB through	0.22	18.8	B	66/141	0.25	21.3	C	106/178	0.26	22.9	C	114/187
South Policy Street NB right-turn	0.03	17.1	B	0/0	0.03	19.1	B	0/0	0.03	20.6	C	0/0
North Policy Street SB left-turn	0.42	56.7	E	11/38	0.33	59.8	E	14/44	0.35	62.3	E	15/46
North Policy Street SB through	0.47	31.9	C	154/279	0.61	41.4	D	210/362	0.64	44.3	D	223/395
North Policy Street SB right-turn	0.09	17.6	B	14/39	0.11	21.9	C	23/53	0.11	23.5	C	25/56
Overall Intersection	0.59	35.9	D	--/--	0.69	41.9	D	--/--	0.71	43.8	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
4. Main St at Pleasant St/Tuscan Market Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.40	71.7	E	21/54	0.40	72.1	E	21/54	0.40	72.7	E	21/55
Main Street EB through/right-turn	0.40	15.4	B	184/325	0.49	17.8	B	248/434	0.52	19.0	B	277/467
Main Street WB left-turn	0.64	70.0	E	95/166	0.68	71.1	E	109/186	0.69	72.3	E	113/190
Main Street WB through/right-turn	0.39	11.1	B	187/328	0.46	12.1	B	234/410	0.47	12.8	B	253/426
Pleasant Street NB left-turn	0.25	64.5	E	25/52	0.28	64.9	E	28/58	0.44	66.4	E	50/89
Pleasant Street NB through/right-turn	0.26	64.9	E	11/63	0.28	65.1	E	11/65	0.27	64.5	E	11/65
Tuscan Market Driveway SB left-turn	0.08	64.1	E	6/23	0.08	64.5	E	6/23	0.09	65.1	E	6/23
Tuscan Market Driveway SB through/right-turn	0.38	67.5	E	29/74	0.38	67.8	E	29/75	0.39	68.6	E	30/75
Overall Intersection	0.43	30.6	C	--/--	0.50	31.1	C	--/--	0.53	32.3	C	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.32	55.2	E	27/61	0.32	55.2	E	27/61	0.32	55.2	E	27/61
Main Street EB through/right-turn	0.87	45.8	D	408/939	1.13	115.6	F	567/1136	1.22	152.6	F	673/1197
Main Street WB left-turn	0.72	37.7	D	111/163	0.68	40.1	D	112/137	0.67	40.0	D	119/124
Main Street WB through/right-turn	0.46	14.0	B	211/318	0.57	11.7	B	193/306	0.62	11.9	B	220/313
Pleasant Street NB left-turn	0.33	54.6	D	30/66	0.37	54.6	D	35/74	0.40	54.8	D	39/81
Pleasant Street NB through/right-turn	0.35	55.0	D	16/124	0.36	54.7	D	16/137	0.36	54.5	D	16/136
Tuscan Market Driveway SB left-turn	0.11	52.1	D	11/28	0.11	52.1	D	11/28	0.11	52.1	D	11/28
Tuscan Market Driveway SB through/right-turn	0.46	55.8	E	40/76	0.46	55.8	E	40/76	0.46	55.8	E	40/76
Overall Intersection	0.70	39.2	D	--/--	0.80	64.9	E	--/--	0.84	78.6	E	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
4. Main St at Pleasant St/Tuscan Market Driveway												
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.43	50.9	D	20/62	0.47	57.6	E	23/69	0.38	58.4	E	25/74
Main Street EB through/right-turn	0.77	36.0	D	263/440	0.83	39.0	D	352/577	0.84	39.3	D	426/675
Main Street WB left-turn	0.54	35.6	D	112/245	0.65	43.6	D	147/361	0.72	52.3	D	177/430
Main Street WB through/right-turn	0.45	15.0	B	164/302	0.51	15.0	B	217/398	0.55	16.0	B	256/446
Pleasant Street NB left-turn	0.08	43.4	D	6/26	0.09	48.5	D	8/31	0.19	53.4	D	18/54
Pleasant Street NB through/right-turn	0.25	44.9	D	5/92	0.28	50.3	D	6/104	0.28	54.5	D	7/112
Tuscan Market Driveway SB left-turn	0.18	42.6	D	18/54	0.20	48.4	D	19/60	0.21	53.0	D	22/65
Tuscan Market Driveway SB through/right-turn	0.68	55.0	D	69/194	0.76	70.0	E	77/229	0.82	84.2	F	87/252
Overall Intersection	0.66	33.1	C	--/--	0.74	37.5	D	--/--	0.78	40.3	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
5. Main St at Central St/Tuscan Kitchen Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.00	8.9	A	--/0	0.00	9.3	A	--/0	0.00	9.4	A	--/0
Main Street EB through/right-turn	0.35	0.0	A	--/0	0.42	0.0	A	--/0	0.44	0.0	A	--/0
Main Street WB left-turn	0.00	8.9	A	--/0	0.00	9.4	A	--/0	0.00	9.6	A	--/0
Main Street WB through/right-turn	0.36	0.0	A	--/0	0.41	0.0	A	--/0	0.42	0.0	A	--/0
Central Street NB approach	0.09	22.7	C	--/7	0.13	28.3	D	--/11	0.13	28.9	D	--/11
<i>Weekday PM:</i>												
Main Street EB left-turn	0.00	8.8	A	--/0	0.00	9.3	A	--/0	0.00	9.5	A	--/0
Main Street EB through/right-turn	0.51	0.0	A	--/0	0.59	0.0	A	--/0	0.61	0.0	A	--/0
Main Street WB left-turn	0.02	10.5	B	--/1	0.02	11.8	B	--/2	0.02	12.0	B	--/2
Main Street WB through/right-turn	0.35	0.0	A	--/0	0.42	0.0	A	--/0	0.44	0.0	A	--/0
Central Street NB approach	0.08	17.8	C	--/6	0.14	25.2	D	--/12	0.15	27.7	D	--/13
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.01	9.0	A	--/1	0.01	9.5	A	--/1	0.01	9.8	A	--/1
Main Street EB through/right-turn	0.40	0.0	A	--/0	0.48	0.0	A	--/0	0.51	0.0	A	--/0
Main Street WB left-turn	0.00	9.3	A	--/0	0.00	10.0	B	--/0	0.00	10.4	B	--/0
Main Street WB through/right-turn	0.38	0.0	A	--/0	0.45	0.0	A	--/0	0.48	0.0	A	--/0
Central Street NB approach	0.05	17.4	A	--/4	0.11	28.0	D	--/9	0.14	35.7	E	--/12

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
6. South Broadway at Main St. and N. Broadway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.97	123.4	F	49/166	1.09	157.1	F	64/187
South Broadway NB through	0.68	39.3	D	72/120	0.53	46.9	D	113/113	0.56	47.0	D	120/117
South Broadway NB right-turn	0.09	60.0	E	0/6	0.12	12.2	B	21/21	0.13	11.1	B	20/0
South Broadway SB left-turn	--	--	--	--/--	0.81	79.1	E	62/153	0.81	79.1	E	62/153
North Broadway SB through/right-turn	1.03	81.7	F	238/370	1.16	130.0	F	295/415	1.20	145.1	F	312/434
Main Street EB left-turn	0.58	28.9	C	87/130	0.62	39.5	D	117/163	0.61	38.3	D	121/169
Main Street EB through	0.55	29.6	C	169/226	1.37	232.1	F	272/369	1.45	268.0	F	288/382
Main Street EB right-turn	0.08	24.1	C	0/0	0.17	27.3	C	15/49	0.22	28.3	C	25/60
Main Street WB left-turn	0.57	30.5	C	131/215	0.55	27.5	C	172/270	0.55	27.2	C	176/276
Main Street WB through/right-turn	0.88	45.4	D	317/539	1.14	119.3	F	450/694	1.19	137.6	F	462/702
Overall Intersection	0.92	49.8	D	--/--	1.05	100.0	F	--/--	1.09	111.3	F	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	--	--	--	--/--	1.76	433.7	F	195/330	2.20	627.6	F	266/409
South Broadway NB through	1.34	204.4	F	447/525	1.04	84.5	F	375/425	1.10	106.6	F	415/473
South Broadway NB right-turn	0.15	32.9	C	25/27	0.24	37.6	D	81/81	0.27	29.3	C	82/42
South Broadway SB left-turn	--	--	--	--/--	1.01	149.2	F	80/198	1.01	149.2	F	80/198
North Broadway SB through/right-turn	1.08	109.1	F	245/393	0.79	49.8	D	240/310	0.86	54.8	D	269/343
Main Street EB left-turn	0.68	23.3	C	126/303	0.63	23.0	C	132/280	0.63	21.8	C	132/263
Main Street EB through	0.90	39.0	D	368/815	1.44	249.5	F	535/749	1.64	336.9	F	588/706
Main Street EB right-turn	0.06	30.8	C	0/24	0.11	53.6	D	49/64	0.17	52.5	D	68/77
Main Street WB left-turn	0.51	42.2	D	100/219	0.56	44.8	D	141/363	0.56	42.6	D	156/415
Main Street WB through/right-turn	1.00	86.3	F	354/765	1.60	330.5	F	531/940	1.62	341.7	F	537/943
Overall Intersection	1.07	102.4	F	--/--	1.05	143.2	F	--/--	1.11	171.1	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
6. South Broadway at Main St. and N. Broadway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	--	--	--	--/--	1.10	162.0	F	121/268	1.50	315.5	F	204/368
South Broadway NB through	1.55	289.0	F	560/692	1.25	157.5	F	517/633	1.33	193.0	F	574/693
South Broadway NB right-turn	0.15	8.9	A	3/22	0.22	30.9	C	91/91	0.25	26.4	C	92/72
South Broadway SB left-turn	--	--	--	--/--	1.14	189.1	F	103/199	1.14	189.1	F	103/199
North Broadway SB through/right-turn	1.88	451.7	F	655/709	1.51	282.1	F	631/680	1.62	332.4	F	706/751
Main Street EB left-turn	0.62	41.1	D	192/463	0.67	41.2	D	221/519	0.67	41.0	D	224/528
Main Street EB through	0.65	43.0	D	216/515	1.52	304.8	F	347/630	1.76	414.3	F	409/638
Main Street EB right-turn	0.08	33.9	C	0/0	0.26	35.8	D	43/117	0.36	38.5	D	62/148
Main Street WB left-turn	0.78	57.5	E	186/383	0.64	40.2	D	213/545	0.67	39.6	D	227/605
Main Street WB through/right-turn	1.80	419.6	F	632/962	2.72	836.5	F	813/1194	2.80	871.2	F	824/1197
Overall Intersection	1.40	274.4	F	--/--	1.30	269.3	F	--/--	1.40	300.6	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
7. Main Street Geremonty Drive												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.07	25.1	C	7/27	0.10	26.9	C	9/30	0.10	26.9	C	9/30
Main Street EB through/right-turn	0.84	45.5	D	237/430	1.00	78.7	E	328/555	1.03	87.3	F	344/581
Main Street WB left-turn	0.66	22.5	C	71/153	0.81	38.6	D	95/213	0.84	45.7	D	106/230
Main Street WB through/right-turn	0.54	19.2	B	180/346	0.63	21.2	C	234/441	0.64	21.6	C	241/453
Geremonty Drive NB left-turn	0.72	40.7	D	79/126	0.85	56.4	E	106/148	0.85	56.4	E	106/148
Geremonty Drive NB through/right-turn	0.54	33.1	C	127/179	0.64	37.4	D	166/208	0.64	37.4	D	166/208
Geremonty Drive SB approach	1.52	300.3	F	333/452	1.85	446.1	F	439/528	1.85	446.1	F	439/528
Overall Intersection	0.87	82.8	F	--/--	1.03	120.3	F	--/--	1.04	122.4	F	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.11	21.6	C	15/51	0.14	22.6	C	17/58	0.14	22.6	C	17/58
Main Street EB through/right-turn	1.11	103.5	F	467/969	1.34	195.6	F	639/1216	1.37	211.9	F	670/1258
Main Street WB left-turn	0.55	23.1	C	34/98	0.61	25.2	C	39/116	0.61	25.2	C	39/116
Main Street WB through/right-turn	0.46	16.7	B	145/323	0.54	18.3	B	181/396	0.57	18.9	B	196/426
Geremonty Drive NB left-turn	0.50	27.6	C	76/180	0.59	29.7	C	91/222	0.59	29.7	C	91/222
Geremonty Drive NB through/right-turn	0.80	39.8	D	222/544	0.91	52.3	D	274/676	0.91	52.3	D	274/676
Geremonty Drive SB approach	0.45	39.7	D	67/141	0.61	44.6	D	80/181	0.61	44.6	D	80/181
Overall Intersection	0.97	54.6	D	--/--	1.13	90.8	F	--/--	1.16	96.9	F	--/--
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.09	21.1	C	11/36	0.12	22.2	C	13/41	0.13	22.2	C	13/41
Main Street EB through/right-turn	1.05	82.6	F	386/706	1.29	174.9	F	596/924	1.34	195.9	F	647/978
Main Street WB left-turn	0.55	22.3	C	33/97	0.60	25.0	C	39/116	0.61	25.1	C	39/116
Main Street WB through/right-turn	0.51	17.2	B	165/369	0.61	19.6	B	216/469	0.65	20.4	C	237/510
Geremonty Drive NB left-turn	0.53	28.6	C	70/169	0.63	31.4	C	84/222	0.63	31.9	C	84/243
Geremonty Drive NB through/right-turn	0.42	27.8	C	97/232	0.48	28.6	C	118/276	0.48	28.8	C	118/284
Geremonty Drive SB approach	0.80	57.5	E	111/216	0.94	85.2	F	131/268	0.94	86.9	F	131/277
Overall Intersection	0.85	47.2	D	--/--	1.02	84.2	F	--/--	1.06	92.8	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn/through	0.21	0.0	A	--/0	0.25	0.0	A	--/0	0.02	0.8	A	--/2
South Broadway NB through/right-turn	0.10	0.0	A	--/0	0.13	0.0	A	--/0	0.19	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.04	1.1	A	--/3	0.03	1.0	A	--/3
South Broadway SB through/right-turn	0.35	0.0	A	--/0	0.41	0.0	A	--/0	0.35	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	0.41	57.2	F	--/43
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.02	9.5	A	--/2
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.02	21.0	C	--/2	0.03	25.9	D	--/2
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.01	10.4	B	--/1	0.01	10.4	B	--/1
<i>Weekday PM:</i>												
South Broadway NB left-turn/through	0.45	0.0	A	--/0	0.53	0.0	A	--/0	0.05	1.4	A	--/4
South Broadway NB through/right-turn	0.22	0.0	A	--/0	0.28	0.0	A	--/0	0.40	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.05	1.8	A	--/4	0.05	1.5	A	--/4
South Broadway SB through/right-turn	0.27	0.0	A	--/0	0.32	0.0	A	--/0	0.31	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	2.33	754.2	F	--/348
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.04	9.1	A	--/3
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.24	68.4	F	--/21	0.41	137.5	F	--/36
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.11	15.4	C	--/9	0.11	15.2	C	--/9

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Saturday MIDDAY:</i>												
South Broadway NB left-turn/through	0.48	0.0	A	--/0	0.58	0.0	A	--/0	0.12	3.7	A	--/10
South Broadway NB through/right-turn	0.24	0.0	A	--/0	0.30	0.0	A	--/0	0.43	0.0	A	--/0
South Broadway SB left-turn/through	0.00	0.0	A	--/0	0.07	2.1	A	--/6	0.07	2.0	A	--/5
South Broadway SB through/right-turn	0.45	0.0	A	--/0	0.54	0.0	A	--/0	0.52	0.0	A	--/0
Site Driveway EB left-turn	--	--	--	--/--	--	--	--	--/--	12.57	Err	F	Err
Site Driveway EB through/right-turn	--	--	--	--/--	--	--	--	--/--	0.08	11.0	B	--/6
Coca-Cola Driveway WB left-turn	0.00	0.0	A	--/0	0.43	167.1	F	--/36	0.94	513.2	F	--/59
Coca-Cola Driveway WB through/right-turn	0.00	0.0	A	--/0	0.08	16.1	C	--/7	0.08	15.7	C	--/7

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
9. South Broadway at Post Office Driveway and Proposed Site Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.57	49.7	D	24/63	0.52	50.4	D	13/41
South Broadway NB through	0.21	11.6	B	75/106	0.27	11.8	B	92/137	0.27	11.5	B	91/137
South Broadway NB right-turn	0.04	18.0	B	0/9	0.04	7.5	A	0/4	0.04	7.5	A	0/1
South Broadway SB left-turn	--	--	--	--/--	0.47	58.2	E	28/35	0.47	57.5	E	29/34
South Broadway SB through/right-turn	0.33	4.3	A	62/87	0.44	4.6	A	26/239	0.42	4.7	A	23/237
Site Driveway EB left-turn	--	--	--	--/--	0.10	46.2	D	4/18	0.14	46.4	D	6/23
Site Driveway EB through/right-turn	--	--	--	--/--	0.11	46.3	D	4/18	0.21	46.8	D	8/28
Site Driveway EB right-turn	--	--	--	--/--	0.10	46.2	D	4/17	0.21	46.8	D	8/28
Post Office Driveway WB left-turn/through	0.43	46.2	D	29/53	0.60	54.0	D	29/54	0.60	54.0	D	29/54
Post Office Driveway WB right-turn	0.03	28.7	C	0/18	0.02	39.6	D	0/5	0.02	39.6	D	0/5
Overall Intersection	0.34	9.5	A	--/--	0.44	12.2	B	--/--	0.44	12.1	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.45	70.7	E	23/46	0.61	74.0	E	47/84
South Broadway NB through	0.37	4.4	A	42/83	0.51	9.7	A	73/393	0.50	9.5	A	72/397
South Broadway NB right-turn	0.08	2.3	A	1/5	0.07	5.0	A	0/13	0.07	4.3	A	0/11
South Broadway SB left-turn	--	--	--	--/--	0.60	67.4	E	67/82	0.59	66.4	E	64/78
South Broadway SB through/right-turn	0.34	4.6	A	61/65	0.35	10.1	B	32/377	0.38	10.7	B	43/386
Site Driveway EB left-turn	--	--	--	--/--	0.20	50.6	D	17/42	0.34	51.6	D	29/63
Site Driveway EB through/right-turn	--	--	--	--/--	0.15	50.2	D	14/40	0.17	50.3	D	17/44
Site Driveway EB right-turn	--	--	--	--/--	0.15	50.2	D	14/40	0.16	50.3	D	16/43
Post Office Driveway WB left-turn/through	0.60	56.4	E	74/126	0.67	61.0	E	73/127	0.67	61.0	E	73/127
Post Office Driveway WB right-turn	0.08	35.5	D	0/44	0.07	40.5	D	0/46	0.07	40.7	D	0/46
Overall Intersection	0.39	9.2	A	--/--	0.52	17.5	B	--/--	0.52	18.4	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
9. South Broadway at Post Office Driveway and Proposed Site Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	--	--	--	--/--	0.63	60.0	E	63/150	0.69	69.5	E	57/131
South Broadway NB through	0.49	14.7	B	247/312	0.64	19.8	B	281/568	0.64	19.8	B	281/572
South Broadway NB right-turn	0.12	10.8	B	19/50	0.09	12.6	B	1/42	0.09	12.5	B	0/40
South Broadway SB left-turn	--	--	--	--/--	0.63	66.8	E	73/73	0.62	65.0	E	70/70
South Broadway SB through/right-turn	0.54	8.0	A	120/120	0.63	12.3	B	58/456	0.62	12.4	B	75/449
Site Driveway EB left-turn	--	--	--	--/--	0.38	49.1	D	32/71	0.44	49.6	D	37/79
Site Driveway EB through/right-turn	--	--	--	--/--	0.23	47.6	D	30/68	0.19	47.4	D	26/61
Site Driveway EB right-turn	--	--	--	--/--	0.23	47.6	D	30/67	0.19	47.4	D	25/60
Post Office Driveway WB left-turn/through	0.69	58.6	E	110/171	0.80	69.9	E	109/206	0.79	69.4	E	109/205
Post Office Driveway WB right-turn	0.11	30.0	C	13/55	0.06	37.3	D	0/44	0.06	37.4	D	0/44
Overall Intersection	0.56	14.8	B	--/--	0.65	23.1	C	--/--	0.65	23.1	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
10. South Broadway at Rockingham Park Blvd and Veterans Memorial Pkwy												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.51	38.9	D	70/103	0.55	38.7	D	78/108	0.55	38.7	D	79/105
South Broadway NB through	0.16	27.6	C	39/62	0.21	27.8	C	52/79	0.21	27.9	C	52/78
South Broadway NB right-turn	0.09	51.1	D	0/51	0.10	37.4	D	0/66	0.10	37.5	D	0/67
South Broadway SB left-turn	0.31	45.4	D	23/41	0.36	51.1	D	35/57	0.38	49.8	D	35/60
South Broadway SB through/right-turn	1.03	28.1	C	91/106	1.22	53.2	D	126/248	1.21	53.5	D	130/249
Rockingham Park Blvd EB left-turn	0.43	40.2	D	41/58	0.52	39.9	D	56/79	0.49	38.1	D	38/58
Rockingham Park Blvd EB through	0.19	21.8	C	50/81	0.22	22.3	C	60/94	0.23	29.4	C	66/123
Rockingham Park Blvd EB right-turn	0.16	14.3	B	42/64	0.19	14.2	B	47/71	0.19	12.0	B	47/70
Veterans Memorial Pkwy WB left-turn	0.42	43.9	D	39/61	0.47	43.9	D	45/70	0.47	43.9	D	45/70
Veterans Memorial Pkwy WB through	0.73	32.2	C	244/298	0.87	40.3	D	301/396	0.86	39.2	D	299/388
Veterans Memorial Pkwy WB right-turn	0.16	19.4	B	42/72	0.22	20.4	C	59/96	0.22	20.1	C	60/96
Overall Intersection	0.64	30.7	C	--/--	0.76	39.9	D	--/--	0.76	39.8	D	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.58	38.6	D	162/289	0.72	45.4	D	202/339	0.72	45.3	D	201/341
South Broadway NB through	0.33	17.9	B	104/110	0.42	22.7	C	161/161	0.43	22.9	C	167/167
South Broadway NB right-turn	0.16	8.1	A	0/17	0.18	20.5	C	5/47	0.18	21.0	C	5/49
South Broadway SB left-turn	0.41	52.6	D	39/58	0.49	60.3	E	57/83	0.51	60.8	E	61/88
South Broadway SB through/right-turn	0.79	38.4	D	128/190	0.99	70.5	E	245/317	0.98	69.6	E	236/319
Rockingham Park Blvd EB left-turn	0.75	46.5	D	167/214	0.80	46.2	D	196/240	0.80	43.2	D	166/210
Rockingham Park Blvd EB through	0.77	56.7	E	207/252	0.79	55.4	E	246/288	0.80	53.9	D	238/306
Rockingham Park Blvd EB right-turn	0.44	18.3	B	171/228	0.51	19.2	B	211/261	0.51	16.7	B	214/268
Veterans Memorial Pkwy WB left-turn	0.70	56.0	E	110/156	0.77	59.0	E	127/178	0.77	59.0	E	127/178
Veterans Memorial Pkwy WB through	0.73	54.8	D	138/183	0.78	56.6	E	159/212	0.79	56.6	E	161/214
Veterans Memorial Pkwy WB right-turn	0.27	40.4	D	71/114	0.32	39.2	D	87/137	0.35	39.3	D	97/149
Overall Intersection	0.72	36.0	D	--/--	0.84	43.9	D	--/--	0.84	43.0	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
10. South Broadway at Rockingham Park Blvd and Veterans Memorial Pkwy												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	1.06	84.1	F	673/882	1.34	203.0	F	932/1058	1.34	200.1	F	937/1063
South Broadway NB through	0.31	22.6	C	172/193	0.43	27.4	C	236/244	0.43	27.5	C	241/250
South Broadway NB right-turn	0.21	36.9	D	53/87	0.24	42.1	D	64/104	0.24	42.1	D	64/107
South Broadway SB left-turn	0.61	64.4	E	86/124	0.66	64.5	E	109/151	0.67	64.6	E	114/156
South Broadway SB through/right-turn	1.09	116.9	F	360/457	1.36	229.1	F	526/624	1.34	217.5	F	512/610
Rockingham Park Blvd EB left-turn	0.76	53.9	D	172/218	0.83	54.0	D	216/252	0.80	51.8	D	182/239
Rockingham Park Blvd EB through	0.58	55.0	D	157/189	0.55	49.4	D	166/220	0.57	56.2	E	182/236
Rockingham Park Blvd EB right-turn	0.99	58.9	E	902/1058	1.13	106.0	F	1138/1290	1.13	100.4	F	1131/1291
Veterans Memorial Pkwy WB left-turn	1.07	121.6	F	279/396	1.23	181.7	F	357/478	1.23	181.7	F	357/478
Veterans Memorial Pkwy WB through	0.85	67.2	E	233/295	0.91	72.7	E	268/376	0.90	70.5	E	268/381
Veterans Memorial Pkwy WB right-turn	0.45	44.5	D	155/220	0.51	42.9	D	191/274	0.53	42.7	D	200/286
Overall Intersection	1.10	71.9	E	--/--	1.31	125.2	F	--/--	1.30	121.4	F	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11 .South Broadway at Kelly Road/Retail Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.55	47.2	D	61/103	0.51	43.3	D	70/113	0.52	43.4	D	70/115
South Broadway NB through/right-turn	0.19	4.5	A	26/76	0.23	4.9	A	35/103	0.23	5.0	A	35/104
South Broadway SB left-turn	0.05	55.7	E	0/2	0.05	56.8	E	0/3	0.05	55.5	E	0/3
South Broadway SB through/right-turn	0.23	10.7	B	97/155	0.28	13.3	B	121/196	0.29	13.5	B	123/199
Kelly Road EB left-turn	0.28	44.3	D	24/46	0.30	43.8	D	27/50	0.29	43.7	D	27/49
Kelly Road EB left-turn/through	0.28	44.4	D	24/47	0.29	43.8	D	27/50	0.29	43.7	D	27/49
Kelly Road EB right-turn	0.13	43.1	D	0/15	0.15	42.6	D	0/31	0.15	42.5	D	0/33
Shared Retail Driveway WB approach	0.00	0.0	A	0/0	0.00	0.0	A	0/0	0.00	0.0	A	0/0
Overall Intersection	0.30	18.1	B	--/--	0.34	18.4	B	--/--	0.35	18.5	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.65	54.1	D	136/201	0.68	53.8	D	154/225	0.68	53.8	D	155/225
South Broadway NB through/right-turn	0.50	11.8	B	183/385	0.59	13.6	B	236/496	0.60	13.8	B	242/510
South Broadway SB left-turn	0.41	62.9	E	16/28	0.41	62.3	E	16/24	0.41	61.0	E	15/22
South Broadway SB through/right-turn	0.57	21.8	C	223/420	0.70	25.8	C	371/610	0.71	25.6	C	384/623
Kelly Road EB left-turn	0.44	54.3	D	50/94	0.45	53.5	D	56/102	0.45	53.5	D	56/102
Kelly Road EB left-turn/through	0.44	54.3	D	51/95	0.44	53.4	D	56/102	0.44	53.4	D	56/102
Kelly Road EB right-turn	0.15	51.4	D	0/75	0.17	50.6	D	0/78	0.17	50.6	D	0/78
Shared Retail Driveway WB approach	0.20	57.1	E	10/32	0.20	57.1	E	10/32	0.20	57.1	E	10/32
Overall Intersection	0.55	24.4	C	--/--	0.64	26.4	C	--/--	0.65	26.3	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	0.67	64.6	E	154/224	0.71	64.8	E	175/248	0.71	64.8	E	176/249
South Broadway NB through/right-turn	0.67	17.0	B	350/701	0.80	22.0	C	490/1037	0.81	22.2	C	497/1051
South Broadway SB left-turn	0.39	71.7	E	14/14	0.39	72.0	E	14/14	0.39	72.4	E	14/14
South Broadway SB through/right-turn	0.89	28.0	C	678/834	1.10	77.4	E	1083/1083	1.11	80.7	F	1095/1095
Kelly Road EB left-turn	0.59	64.8	E	98/151	0.60	63.9	E	110/163	0.60	63.9	E	110/163
Kelly Road EB left-turn/through	0.58	64.0	E	96/148	0.61	64.1	E	112/165	0.61	64.1	E	112/165
Kelly Road EB right-turn	0.17	57.5	E	0/66	0.19	56.5	E	0/68	0.20	56.5	E	0/68
Shared Retail Driveway WB approach	0.36	66.4	E	28/66	0.36	66.4	E	28/66	0.36	66.4	E	28/66
Overall Intersection	0.79	30.1	C	--/--	0.93	52.6	D	--/--	0.93	54.1	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
12. Rockingham Park Blvd at Racetrack Driveway												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.11	51.0	D	1/9	0.11	50.5	D	1/7	0.62	42.7	D	89/139
Rockingham Park Blvd EB through	0.14	1.2	A	0/26	0.17	1.3	A	0/31	0.17	2.4	A	30/45
Rockingham Park Blvd WB through	0.41	3.9	A	0/131	0.47	4.3	A	0/156	0.59	12.3	B	247/427
Rockingham Park Blvd WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	0.03	0.0	A	0/0
Racetrack Driveway SB left-turn	0.29	49.1	D	7/17	0.29	49.1	D	7/17	0.18	42.8	D	13/25
Racetrack Driveway SB right-turn	0.00	40.6	D	0/2	0.00	40.6	D	0/2	0.23	28.4	C	23/35
Overall Intersection	0.40	3.7	A	--/--	0.46	3.9	A	--/--	0.57	12.3	B	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.38	56.9	E	28/64	0.38	54.4	D	27/62	0.69	42.2	D	226/316
Rockingham Park Blvd EB through	0.38	1.7	A	58/74	0.44	1.9	A	74/94	0.46	3.8	A	116/156
Rockingham Park Blvd WB through	0.30	2.7	A	36/49	0.35	3.1	A	53/60	0.54	13.2	B	163/180
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.03	0.0	A	0/0	0.05	0.0	A	0/0
Racetrack Driveway SB left-turn	0.30	55.7	E	20/33	0.30	55.7	E	20/33	0.25	48.2	D	39/52
Racetrack Driveway SB right-turn	0.01	43.1	D	0/11	0.03	43.3	D	3/15	0.30	22.8	C	100/100
Overall Intersection	0.39	4.2	A	--/--	0.46	4.2	A	--/--	0.56	12.7	B	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.43	35.5	D	34/67	0.43	35.3	D	37/70	1.43	244.7	F	509/774
Rockingham Park Blvd EB through	0.57	2.3	A	82/89	0.67	2.8	A	109/117	0.74	5.5	A	187/303
Rockingham Park Blvd WB through	0.67	14.8	B	454/511	0.78	19.2	B	598/598	1.11	82.7	F	704/704
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.03	0.0	A	0/0	0.07	0.0	A	0/0
Racetrack Driveway SB left-turn	0.13	31.4	C	5/15	0.13	31.4	C	5/15	0.17	25.5	C	18/34
Racetrack Driveway SB right-turn	0.03	20.2	C	3/11	0.04	20.3	C	4/11	0.37	13.7	B	71/98
Overall Intersection	0.65	8.8	A	--/--	0.76	11.0	B	--/--	1.05	54.9	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
13. Rockingham Park Blvd at Mall Road												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.06	43.7	D	5/19	0.06	43.7	D	5/19	0.07	43.7	D	5/21
Rockingham Park Blvd EB through	0.14	2.8	A	25/37	0.18	2.9	A	31/45	0.22	4.1	A	48/69
Rockingham Park Blvd WB through	0.68	9.4	A	153/464	0.79	12.6	B	524/608	0.87	12.8	B	568/568
Rockingham Park Blvd WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
Mall Road SB left-turn	0.11	41.3	D	10/23	0.11	41.3	D	10/23	0.08	37.6	D	10/22
Mall Road SB right-turn	0.22	31.6	C	38/59	0.22	31.6	C	39/60	0.37	30.0	C	75/100
Overall Intersection	0.60	9.4	A	--/--	0.69	11.2	B	--/--	0.77	12.0	B	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.50	53.8	D	64/112	0.50	53.8	D	64/112	0.48	53.0	D	64/112
Rockingham Park Blvd EB through	0.36	8.1	A	136/190	0.44	9.1	A	179/243	0.53	12.4	B	261/300
Rockingham Park Blvd WB through	0.48	8.8	A	89/233	0.59	9.8	A	120/286	0.78	16.2	B	164/185
Rockingham Park Blvd WB right-turn	0.21	0.3	A	0/0	0.22	0.3	A	0/0	0.22	0.3	A	0/0
Mall Road SB left-turn	0.46	41.8	D	120/144	0.46	41.0	D	122/146	0.38	36.7	D	112/144
Mall Road SB right-turn	0.53	31.1	C	176/184	0.53	30.6	C	186/192	0.63	29.1	C	241/259
Overall Intersection	0.53	15.6	B	--/--	0.60	15.3	B	--/--	0.75	17.9	B	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.68	65.2	E	146/213	0.68	65.2	E	146/213	0.66	62.8	E	147/213
Rockingham Park Blvd EB through	0.50	12.2	B	269/344	0.60	13.8	B	360/461	0.76	21.2	C	553/612
Rockingham Park Blvd WB through	0.83	26.5	C	402/860	1.01	46.7	D	556/1177	1.34	194.6	F	1272/1272
Rockingham Park Blvd WB right-turn	0.36	0.5	A	0/0	0.37	0.5	A	0/0	0.37	0.2	A	0/0
Mall Road SB left-turn	0.72	51.4	D	269/319	0.74	52.0	D	278/326	0.61	42.9	D	255/320
Mall Road SB right-turn	0.55	30.8	C	254/267	0.55	30.8	C	256/265	0.65	28.2	C	338/472
Overall Intersection	0.78	23.6	C	--/--	0.89	29.8	C	--/--	1.05	76.2	E	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.23	16.1	B	5/24	0.23	16.1	B	5/24	0.26	19.0	B	6/27
Mall Road NB through	0.24	16.0	B	5/20	0.24	16.0	B	5/21	0.28	18.9	B	6/23
Mall Road SB through/right-turn	0.32	14.4	B	12/34	0.32	14.4	B	12/34	0.40	14.6	B	24/58
Mall Driveway EB left-turn	0.00	0.00	A	0/0	0.00	0.00	A	0/0	0.00	0.00	A	0/0
Mall Driveway EB right-turn	0.01	10.1	B	0/0	0.01	10.1	B	0/0	0.01	12.7	B	0/0
Flyover WB left-turn/through	0.14	14.7	B	4/13	0.14	14.7	B	4/13	0.11	16.0	B	5/14
Flyover WB right-turn	0.08	6.5	A	0/8	0.08	6.5	A	0/8	0.15	6.0	A	0/5
Overall Intersection	0.23	12.4	B	--/--	0.23	12.4	B	--/--	0.31	12.2	B	--/--
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.69	25.9	C	98/251	0.68	25.8	C	98/252	0.73	30.8	C	114/282
Mall Road NB through	0.16	19.3	B	20/51	0.17	19.4	B	22/54	0.18	21.8	C	26/60
Mall Road SB through/right-turn	0.50	25.0	C	50/95	0.50	25.1	C	51/97	0.59	25.8	C	84/147
Mall Driveway EB left-turn	0.05	26.1	C	3/16	0.05	26.2	C	3/16	0.06	28.7	C	4/17
Mall Driveway EB right-turn	0.21	11.5	B	0/23	0.21	11.6	B	0/23	0.21	13.6	B	0/25
Flyover WB left-turn/through	0.48	25.4	C	44/87	0.48	25.5	C	44/87	0.47	27.5	C	49/93
Flyover WB right-turn	0.10	12.5	B	0/34	0.10	12.5	B	0/34	0.19	12.3	B	0/42
Overall Intersection	0.54	18.8	B	--/--	0.54	18.8	B	--/--	0.57	20.6	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	1.14	117.9	F	247/475	1.15	121.6	F	255/475	1.22	153.0	F	277/475
Mall Road NB through	0.38	25.3	C	62/111	0.41	25.7	C	68/117	0.44	28.2	C	74/118
Mall Road SB through/right-turn	0.63	29.5	C	96/148	0.64	29.5	C	101/155	0.81	34.7	C	163/256
Mall Driveway EB left-turn	0.14	31.4	C	10/33	0.14	31.7	C	10/33	0.14	33.7	C	11/33
Mall Driveway EB right-turn	0.29	15.9	B	0/38	0.29	16.2	B	0/38	0.31	18.2	B	6/45
Flyover WB left-turn/through	0.76	33.5	C	117/207	0.77	34.1	C	121/207	0.78	37.0	D	128/207
Flyover WB right-turn	0.16	12.1	B	0/38	0.16	12.0	B	0/38	0.36	13.0	B	31/98
Overall Intersection	0.80	37.9	D	--/--	0.80	38.6	D	--/--	0.87	42.6	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.01	7.8	A	--/1	0.01	7.8	A	--/1	0.01	7.8	A	--/1
Mall Road NB through/right-turn	0.09	0.0	A	--/0	0.09	0.0	A	--/0	0.15	0.0	A	--/0
Mall Road SB approach	0.08	0.0	A	--/0	0.08	0.0	A	--/0	0.01	1.0	A	--/1
Mall Driveway EB left-turn/through	0.00	0.0	A	--/0	0.00	0.0	A	--/0	0.00	0.0	A	--/0
Mall Driveway EB right-turn	0.01	10.1	A	--/0	0.01	10.1	B	--/0	0.01	10.1	B	--/0
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.21	12.8	B	--/20
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.02	7.5	A	--/1	0.02	7.5	A	--/1	0.02	7.5	A	--/1
Mall Road NB through/right-turn	0.11	0.0	A	--/0	0.12	0.0	A	--/0	0.21	0.0	A	--/0
Mall Road SB approach	0.07	0.0	A	--/0	0.07	0.0	A	--/0	0.04	2.6	A	--/3
Mall Driveway EB left-turn/through	0.00	10.7	B	--/0	0.00	10.8	B	--/0	0.00	12.3	B	--/0
Mall Driveway EB right-turn	0.06	9.1	A	--/5	0.06	9.1	A	--/5	0.06	9.1	A	--/5
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.43	19.2	C	--/54
<i>Saturday Midday:</i>												
Mall Road NB left-turn	0.04	7.6	A	--/3	0.04	7.7	A	--/3	0.04	7.7	A	--/3
Mall Road NB through/right-turn	0.16	0.0	A	--/0	0.18	0.0	A	--/0	0.36	0.0	A	--/0
Mall Road SB approach	0.10	0.0	A	--/0	0.11	0.0	A	--/0	0.05	2.3	A	--/4
Mall Driveway EB left-turn/through	0.01	12.7	B	--/1	0.01	13.2	B	--/1	0.02	16.4	C	--/1
Mall Driveway EB right-turn	0.08	9.5	A	--/7	0.09	9.6	A	--/7	0.08	9.5	A	--/7
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	1.17	153.8	F	--/333

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
16. Mall Road at Pleasant Street												
<i>Weekday AM:</i>												
Pleasant Street NB approach	0.28	6.4	A	17/51	0.31	6.5	A	21/59	0.33	6.7	A	22/63
Pleasant Street SB approach	0.18	6.0	A	15/43	0.20	6.1	A	17/48	0.22	6.2	A	19/53
Mall Road WB approach	0.47	13.2	B	19/47	0.47	13.4	B	19/49	0.50	13.5	B	20/52
Overall Intersection	0.34	8.2	A	--/--	0.36	8.2	A	--/--	0.38	8.3	A	--/--
<i>Weekday PM:</i>												
Pleasant Street NB approach	0.47	9.0	A	42/119	0.51	9.4	A	52/140	0.58	10.7	B	62/169
Pleasant Street SB approach	0.34	8.3	A	30/80	0.38	8.5	A	36/92	0.39	9.0	A	39/98
Mall Road WB approach	0.50	12.6	B	35/107	0.52	13.3	B	42/118	0.56	13.7	B	51/133
Overall Intersection	0.48	9.9	A	--/--	0.52	10.3	B	--/--	0.57	11.1	B	--/--
<i>Saturday Middy:</i>												
Pleasant Street NB approach	0.48	8.8	A	41/120	0.54	9.6	A	53/147	0.61	11.3	B	64/180
Pleasant Street SB approach	0.44	8.6	A	41/102	0.50	9.2	A	50/122	0.54	10.4	B	57/138
Mall Road WB approach	0.49	13.0	B	35/102	0.52	13.4	B	42/118	0.56	13.9	B	54/137
Overall Intersection	0.48	9.8	A	--/--	0.53	10.4	B	--/--	0.59	11.7	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
17. Pleasant Street/Lowell Road at South Policy St												
<i>Weekday AM:</i>												
Lowell Road EB left-turn	0.58	30.7	C	62/136	0.63	35.1	D	80/157	0.63	35.0	C	80/158
Lowell Road EB through/right-turn	0.32	21.5	C	43/94	0.37	23.9	C	60/115	0.40	24.2	C	68/127
Pleasant Street WB left-turn	0.41	34.9	C	15/48	0.48	38.9	D	19/55	0.50	39.2	D	21/58
Pleasant Street WB through	0.35	27.3	C	41/86	0.40	30.7	C	53/101	0.42	30.9	C	57/105
Pleasant Street WB right-turn	0.01	25.4	C	0/0	0.02	28.2	C	0/0	0.02	28.3	C	0/0
South Policy NB left-turn	0.59	28.2	C	80/171	0.60	29.5	C	100/207	0.60	29.6	C	100/209
South Policy NB through	0.28	19.7	B	52/116	0.30	20.4	C	65/139	0.30	20.6	C	65/141
South Policy NB right-turn	0.04	18.0	B	0/4	0.05	18.4	B	0/9	0.05	18.6	B	0/10
South Policy SB left-turn	0.40	33.0	C	23/65	0.46	36.7	D	30/74	0.46	36.8	D	31/75
South Policy SB through	0.45	28.1	C	59/128	0.52	31.7	C	76/149	0.52	32.0	C	77/150
South Policy SB right-turn	0.08	25.5	C	0/37	0.09	28.2	C	0/45	0.09	28.4	C	0/45
Overall Intersection	0.53	25.4	C	--/--	0.58	28.0	C	--/--	0.59	28.1	C	--/--
<i>Weekday PM:</i>												
Lowell Road EB left-turn	0.52	40.2	D	56/127	0.58	45.3	D	71/145	0.57	45.3	D	73/145
Lowell Road EB through/right-turn	0.67	35.2	D	126/224	0.72	38.1	D	170/267	0.74	37.8	D	190/292
Pleasant Street WB left-turn	0.52	40.0	D	55/121	0.59	45.9	D	70/141	0.59	46.1	D	73/142
Pleasant Street WB through	0.44	31.3	C	91/153	0.46	32.9	C	113/174	0.47	32.3	C	125/188
Pleasant Street WB right-turn	0.05	28.3	C	0/16	0.06	29.4	C	0/24	0.06	28.6	C	0/24
South Policy NB left-turn	0.66	36.1	D	135/329	0.81	50.3	D	180/412	0.81	51.0	D	186/412
South Policy NB through	0.32	21.7	C	94/197	0.37	24.6	C	123/240	0.42	27.7	C	130/244
South Policy NB right-turn	0.08	19.5	B	0/44	0.09	21.8	C	0/49	0.09	24.4	C	0/50
South Policy SB left-turn	0.54	43.2	D	43/102	0.61	49.7	D	55/118	0.56	45.1	D	68/135
South Policy SB through	0.65	36.2	D	143/256	0.70	40.2	D	182/307	0.74	43.3	D	187/307
South Policy SB right-turn	0.06	28.5	C	0/22	0.07	30.2	C	0/33	0.07	31.2	C	0/33
Overall Intersection	0.67	32.8	C	--/--	0.75	37.1	D	--/--	0.76	37.7	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
17. Pleasant Street/Lowell Road at South Policy St												
<i>Saturday Midday:</i>												
Lowell Road EB left-turn	0.45	44.8	D	28/87	0.50	48.6	D	35/99	0.52	50.1	D	37/99
Lowell Road EB through/right-turn	0.65	36.1	D	120/245	0.72	39.3	D	160/308	0.76	40.5	D	187/349
Pleasant Street WB left-turn	0.65	45.2	D	78/220	0.71	51.2	D	97/279	0.72	53.8	D	102/283
Pleasant Street WB through	0.29	27.1	C	70/150	0.31	27.7	C	84/178	0.34	27.7	C	97/201
Pleasant Street WB right-turn	0.04	25.0	C	0/3	0.05	25.3	C	0/11	0.05	24.9	C	0/11
South Policy NB left-turn	0.69	39.5	D	139/412	0.85	57.3	E	182/514	0.87	62.0	E	189/514
South Policy NB through	0.38	29.2	C	89/227	0.45	32.8	C	115/265	0.46	34.0	C	119/265
South Policy NB right-turn	0.11	26.6	C	0/61	0.13	29.4	C	0/65	0.13	30.5	C	0/65
South Policy SB left-turn	0.55	43.2	D	58/141	0.61	48.0	D	72/162	0.61	48.9	D	75/162
South Policy SB through	0.66	42.9	D	109/234	0.70	46.7	D	137/269	0.70	47.9	D	141/269
South Policy SB right-turn	0.06	34.3	C	0/26	0.07	36.0	D	0/37	0.07	36.9	D	0/37
Overall Intersection	0.64	35.3	D	--/--	0.73	40.0	D	--/--	0.75	41.3	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Tuscan Village (Phase II) – Salem, New Hampshire

Table 8 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2016 Existing				2029 No-Build				2029 Build			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
18. Pleasant Street at Site Driveway												
<i>Weekday AM:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.13	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.01	0.3	A	--/0
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.06	10.3	B	--/5
<i>Weekday PM:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.20	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.01	0.5	A	--/1
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.02	11.0	B	--/2
<i>Saturday Midday:</i>												
Pleasant Street NB approach	--	--	--	--/--	--	--	--	--/--	0.19	0.0	A	--/0
Pleasant Street SB approach	--	--	--	--/--	--	--	--	--/--	0.02	0.6	A	--/2
Site Driveway WB approach	--	--	--	--/--	--	--	--	--/--	0.05	11.8	B	--/4

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

RECOMMENDED IMPROVEMENTS

The final phase of the transportation analysis process is to identify improvement measures necessary to minimize the impact of the project and also improve existing operating conditions on the transportation system. Improvements considered necessary to address existing and future roadway system deficiencies are discussed below as they relate to impacts as a result of background growth and to project-generated impacts. The 2019 and 2029 capacity analysis results are shown in Tables 10 and 11, respectively.

Main Street/Pelham Road (NH Route 97) at North Policy Street and South Policy Street

Due to the impacts that the proposed project would have at the intersection of Main Street/Pelham Road at North Policy Street and South Policy Street during the weekday AM peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. These weekday AM modifications include slightly increasing the green time on the eastbound and westbound through/right-turn movements. These modifications can be accomplished by taking one second from each of the northbound/southbound phases without impacting level-of-service. With the improved timings, the intersection is anticipated to operate at an overall LOS D during the weekday AM peak hour, bringing operations back to the no-build condition.

Main Street (NH Route 97) at Central Street and Enter-Only Tuscan Kitchen Driveway

Improvements at this location include a connection to allow vehicles to enter the site from Central Street, but not allow vehicles to exit the site onto Central Street. Local traffic along Central Street will still be permitted to exit onto Main Street. In addition, left-turns from Main Street onto Central Street will be restricted. The roadway extension of Central Street into the site will allow a connection to the signalized northern site driveway on South Broadway (NH Route 28), thereby relieving The Depot of some Main Street eastbound right-turn movements. The anticipated increase in eastbound right-turns onto Central Street ranges from 114 to 177 vehicles. These right turns include site-generated traffic, as well as vehicles destined to South Broadway (NH Route 28) to the south.

Main Street (NH Route 97) at North Broadway/South Broadway (NH Route 28) – The Depot

Due to the connection road at Central Street, traffic patterns are expected to shift at the Depot intersection. The anticipated decrease in eastbound right-turns at the Depot ranges from 112 to 174 vehicles. In addition, since the left-turns from Main Street onto Central Street will be

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restricted, the eastbound left-turn lane at the Depot will be extended slightly, from 225 feet to 300 feet.

Per discussions with the Town, a ring road is also proposed to be constructed to the east of the Depot intersection in 2018. This ring road will reduce the number of westbound left turns at the Depot intersection. The volumes in the analysis does not account for this shift in traffic since engineered plans have not been prepared for this improvement, however, it is anticipated to alleviate traffic at the Depot.

Main Street (NH Route 97) at Geremonty Drive

Due to the impacts that the proposed project would have at the intersection of Main Street at Geremonty Drive during the weekday AM peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. These weekday AM modifications include increasing the green time on Main Street eastbound approach from 43 to 45 seconds. This modification can be accomplished by taking time from other approaches without impacting level-of-service. Specifically, lowering the green time on the Geremonty Drive approaches. With the improved timings, the intersection operations are brought back to the no-build condition.

It was noted in the field, that the LEFT TURN YIELD ON GREEN BALL sign (R10-12) facing the Geremonty Drive northbound approach was faded. It is recommended that this sign be replaced with a new one.

South Broadway (NH Route 28) at Coca-Cola Plant Driveway and Proposed Site Driveway

The intersection of South Broadway (NH Route 28) at the Coca-Cola northern driveway and the proposed site driveway is expected to operate with capacity constraints and safety concerns that will be further exacerbated by future traffic growth, as shown in the *Capacity and Queue Analysis* section of this report. In order to improve operating and safety conditions at this intersection, the installation of a traffic control signal was evaluated. To determine if traffic signal control will be warranted at this location, traffic signal warrant analyses were conducted under 2019 Build traffic-volume conditions.

As previously described, ATR counts were conducted along South Broadway (NH Route 28) adjacent to the proposed signal. Since traffic typically fluctuates throughout the year depending on the area and the type of roadway, the counted volumes were adjusted to annual average conditions, consistent with *Manual on Uniform Traffic Control Devices* (MUTCD)¹³ guidelines. Based on seasonal adjustment data provided by NHDOT and as described in the *Existing*

¹³ *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD); Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, 2010.

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Conditions – Traffic Volumes section of this report, the ATR counts were decreased by 3.3 percent to represent average-month conditions. The 2019 Build average-month traffic-volume data were compared with the requirements established in the MUTCD, a Federal Highway Administration (FHWA) publication. The available traffic data were compared with the requirements established in the MUTCD for the following volume-related warrants:

- Warrant 1 – Eight Hour Vehicular Volume
 - Condition A – Minimum Vehicular Volume
 - Condition B – Interruption of Continuous Traffic
 - Combination of Conditions A and B
- Warrant 2 – Four-Hour Vehicular Volume; and
- Warrant 3 – One-Hour Vehicular Volume.

In accordance with the MUTCD, a traffic control signal may only be installed if at least one of the signal warrants is met. A number of factors are involved in determining if signal control should be installed, however, including intersection operations, safety, and engineering judgment. It is only in very rare circumstances that a traffic control signal is installed on the basis of the peak hour warrant alone. Normally, at least one of the eight-hour warrants (Warrant 1, Condition A or B) should be met before signal control is considered. The peak-hour volume warrant is applied only in unusual cases such as driveways serving large office/industrial complexes, manufacturing plants, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short period of time. In addition, the combination of Conditions A and B under Warrant 1 should only be applied after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. Table 9 summarizes the results of these signal warrant analyses. The warrant analysis worksheet is provided in the Appendix.

Table 9
TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY

Intersection	Warrant 1			Warrant	Warrant
	A	B	Combo	No. 2	No. 3
South Broadway (NH Route 28) at Coca-Cola Driveway and Site Driveway	No	Yes	No	Yes	Yes

As shown in Table 9, the proposed intersection of South Broadway (NH Route 28) at the site driveway and the Coca-Cola northern driveway is expected to meet all of the volume-related

signal warrants. In accordance with the MUTCD, *“It is intended that Warrant 1 be treated as a single warrant. If Condition A is satisfied, then Warrant 1 is satisfied and analyses of Condition B and the combination of Conditions A and B are not needed. Similarly, if Condition B is satisfied, then Warrant 1 is satisfied and an analysis of the combination of Conditions A and B is not needed.”* Accordingly, a traffic signal is recommended to be installed at this location.

In addition to the signalization of the intersection, geometric improvements are also recommended which include a 200-foot northbound left-turn lane on South Broadway, a 200-foot southbound left-turn lane on South Broadway, a 200-foot southbound right-turn lane on South Broadway, and two approach lanes on the proposed Site driveway including an exclusive left-turn lane and a shared through/right-turn lane. With the proposed project and improvements in place, the intersection will operate under signal control at an overall LOS C or better during the weekday AM, weekday PM, and Saturday midday peak hours. Overall delays at the intersection are expected to be less than 25 seconds. A conceptual improvement sketch of the proposed improvements at this location (Node 8) is provided in the Appendix.

Due to the location of this intersection in close proximity to The Depot intersection, the recommended improvements at this location will be constructed and implemented in 2019 at the same time as The Depot improvements, which are also slated for a 2019 construction start. As the improvements at each location will match up to each other, construction all at one time will be better for the motoring public.

South Broadway (NH Route 28) at Kelly Road and Shared Retail Driveway

Due to the impacts that the proposed project would have at the intersection of South Broadway at Kelly Road during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. These Saturday midday modifications include increasing the green time on the South Broadway northbound and southbound through/right-turn movements by 8 to 13 seconds. These modifications can be accomplished by taking time from the eastbound and westbound approaches without impacting level-of-service. With the improved timings, the intersection operations are brought back to the no-build condition.

It was noted in the field that there was a crosswalk across South Broadway, but no pedestrian signal accommodations in order to cross safely. It is recommended that a concurrent pedestrian phase run with phase 3 (Kelly Road approach) in order to cross South Broadway.

Rockingham Park Boulevard at Racetrack Driveway/Proposed Site Driveway

Due to the impacts that the proposed project would have at the intersection of Rockingham Park Boulevard at the proposed site driveway during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are

recommended at this location. These Saturday midday modifications include increasing the cycle length from 70 seconds to 140 seconds and optimizing the signal timings. With the improved timings, the intersection is expected to operate at an overall LOS C with overall intersection delay of 25 seconds. All v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

Rockingham Park Boulevard at Mall Road (NH Route 38)

Due to the impacts that the proposed project would have at the intersection of Rockingham Park Boulevard at Mall Road during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. These Saturday midday modifications include increasing the green time on the Rockingham Park Boulevard eastbound and westbound through movements. These modifications can be accomplished by taking time from the eastbound left-turn movement and southbound approach. With the improved timings, the intersection is expected to operate at an overall LOS D with overall intersection delay of 43 seconds or less.

Mall Road (NH Route 38) at Mall Driveway and Rockingham Park Boulevard Flyover

Due to the impacts that the proposed project would have at the intersection of Mall Road at the Rockingham Park Boulevard Flyover during the weekday PM and Saturday midday peak hours, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. These modifications include increasing the green time on Mall Road in the northbound and southbound directions. These modifications can be accomplished by taking time from the eastbound and westbound approaches. With the improved timings, the intersection is anticipated to operate at and overall LOS B and LOS C during the weekday PM and Saturday midday peak hours, respectively. All v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

Mall Road (NH Route 38) at Mall Driveway and Proposed Site Driveway

The proposed site driveway creates the fourth leg to the unsignalized intersection of Mall Road at the Mall driveway, near the Sears Auto Center. Due to the added approach, a signal warrant was investigated, however, based on the available traffic volumes none of the traffic-volume warrants were met. The warrant analysis worksheet is provided in the Appendix. In addition, turn lane warrants were investigated for the unsignalized intersection. As a result, a southbound left-turn bay on Mall Road and a northbound right-turn bay on Mall Road were not warranted. It is recommended that the site driveway consist of two approach lanes including an exclusive left-turn lane and a shared through/right-turn lane. The turn lane warrant analysis worksheets are provided in the Appendix.

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With the proposed project and two-lane approach in place, this intersection will operate with all movements at LOS C or better with exception to the site driveway left-turn movement during the Saturday midday peak hour which will operate with long delays (LOS F). Delays on all other movements are expected to be less than 20 seconds with v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes. Queue lengths on Mall Road are expected to be 1 vehicle or less.

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Table 10

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.66	31.7	C	307/501	0.66	31.7	C	307/501	0.70	34.8	C	320/524
Pelham Road EB through	0.20	24.1	C	75/120	0.22	24.3	C	82/129	0.22	24.7	C	83/129
Pelham Road EB right-turn	0.08	14.5	B	0/16	0.08	14.5	B	0/16	0.08	14.7	B	0/16
Main Street WB left-turn	0.43	52.9	D	54/103	0.43	52.9	D	54/103	0.43	52.9	D	54/103
Main Street WB through	1.12	140.9	F	153/234	1.21	174.5	F	167/263	1.02	105.5	F	164/237
Main Street WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
South Policy Street NB left-turn	0.68	59.4	E	105/157	0.68	59.4	E	105/157	0.67	58.5	E	105/157
South Policy Street NB through	0.32	35.1	D	94/149	0.32	35.1	D	94/149	0.32	34.6	C	93/149
South Policy Street NB right-turn	0.04	32.3	C	0/0	0.04	32.3	C	0/0	0.04	31.8	C	0/0
North Policy Street SB left-turn	0.39	61.9	E	11/33	0.39	61.9	E	11/33	0.39	61.9	E	11/33
North Policy Street SB through	0.62	48.9	D	155/229	0.62	48.9	D	155/229	0.61	48.1	D	154/229
North Policy Street SB right-turn	0.14	11.2	B	0/23	0.14	11.2	B	0/23	0.14	12.2	B	0/24
Overall Intersection	0.73	45.9	D	--/--	0.74	52.3	D	--/--	0.74	41.9	D	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.75	56.3	E	284/545	0.75	56.3	E	284/545	--	--	--	--/--
Pelham Road EB through	0.45	37.2	D	206/380	0.48	37.8	D	222/419	--	--	--	--/--
Pelham Road EB right-turn	0.08	17.9	B	0/27	0.09	18.0	B	0/29	--	--	--	--/--
Main Street WB left-turn	0.36	61.1	E	53/87	0.36	61.1	E	53/87	--	--	--	--/--
Main Street WB through	0.67	58.9	E	203/296	0.75	62.1	E	231/348	--	--	--	--/--
Main Street WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	--	--	--	--/--
South Policy Street NB left-turn	0.82	74.9	E	210/269	0.82	74.9	E	210/269	--	--	--	--/--
South Policy Street NB through	0.55	46.6	D	215/293	0.55	46.6	D	215/293	--	--	--	--/--
South Policy Street NB right-turn	0.05	39.8	D	0/0	0.05	39.8	D	0/0	--	--	--	--/--
North Policy Street SB left-turn	0.63	71.5	E	73/128	0.63	71.5	E	73/128	--	--	--	--/--
North Policy Street SB through	0.74	64.5	E	204/391	0.74	64.5	E	204/391	--	--	--	--/--
North Policy Street SB right-turn	0.22	26.6	C	22/71	0.22	26.6	C	22/71	--	--	--	--/--
Overall Intersection	0.71	47.0	D	--/--	0.73	47.6	D	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Saturday Midday:</i>												
Pelham Road EB left-turn	0.63	51.7	D	112/183	0.64	54.0	D	117/190	--	--	--	--/--
Pelham Road EB through	0.62	41.8	D	176/236	0.66	42.4	D	211/274	--	--	--	--/--
Pelham Road EB right-turn	0.08	21.3	C	4/19	0.09	20.8	C	7/22	--	--	--	--/--
Main Street WB left-turn	0.34	49.7	D	39/80	0.35	51.8	D	40/85	--	--	--	--/--
Main Street WB through	0.62	46.0	D	137/195	0.66	46.8	D	167/232	--	--	--	--/--
Main Street WB right-turn	0.00	0.0	A	0/0	0.00	0.0	A	0/0	--	--	--	--/--
South Policy Street NB left-turn	0.62	47.0	D	124/198	0.62	49.0	D	129/205	--	--	--	--/--
South Policy Street NB through	0.23	19.9	B	72/153	0.23	21.3	C	77/161	--	--	--	--/--
South Policy Street NB right-turn	0.03	18.1	B	0/0	0.03	19.4	B	0/0	--	--	--	--/--
North Policy Street SB left-turn	0.45	59.3	E	12/39	0.46	61.7	E	12/40	--	--	--	--/--
North Policy Street SB through	0.50	34.4	C	168/303	0.52	36.6	D	177/318	--	--	--	--/--
North Policy Street SB right-turn	0.09	19.1	B	16/43	0.09	20.5	C	17/46	--	--	--	--/--
Overall Intersection	0.62	37.6	D	--/--	0.64	39.3	D	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
5. Main St at Central St/Tuscan Kitchen Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.00	9.0	A	--/0	0.00	9.1	A	--/0	0.00	9.1	A	--/0
Main Street EB through/right-turn	0.38	0.0	A	--/0	0.40	0.0	A	--/0	0.40	0.0	A	--/0
Main Street WB left-turn	0.00	9.1	A	--/0	0.00	9.2	A	--/0	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.38	0.0	A	--/0	0.38	0.0	A	--/0	0.39	0.0	A	--/0
Central Street NB approach	0.09	24.3	C	--/8	0.10	25.0	D	--/8	0.09	22.3	C	--/7
<i>Weekday PM:</i>												
Main Street EB left-turn	0.00	9.0	A	--/0	0.00	9.2	A	--/0	0.00	9.3	A	--/0
Main Street EB through/right-turn	0.54	0.0	A	--/0	0.55	0.0	A	--/0	0.56	0.0	A	--/0
Main Street WB left-turn	0.02	11.0	B	--/1	0.02	11.3	B	--/1	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.38	0.0	A	--/0	0.41	0.0	A	--/0	0.41	0.0	A	--/0
Central Street NB approach	0.09	19.6	C	--/7	0.10	21.2	C	--/8	0.09	19.1	C	--/7
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.01	9.2	A	--/1	0.01	9.5	A	--/1	0.01	9.5	A	--/1
Main Street EB through/right-turn	0.43	0.0	A	--/0	0.47	0.0	A	--/0	0.47	0.0	A	--/0
Main Street WB left-turn	0.00	9.6	A	--/0	0.00	9.9	A	--/0	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.41	0.0	A	--/0	0.44	0.0	A	--/0	0.44	0.0	A	--/0
Central Street NB approach	0.06	20.0	C	--/5	0.08	24.1	C	--/6	0.06	21.0	C	--/5

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
7. Main Street Geremonty Drive												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.08	25.7	C	8/27	0.08	25.9	C	8/27	0.07	24.4	C	7/26
Main Street EB through/right-turn	0.89	52.6	D	267/475	0.92	58.2	E	285/499	0.87	48.5	D	266/478
Main Street WB left-turn	0.69	24.4	C	74/158	0.70	25.6	C	74/159	0.68	23.3	C	70/152
Main Street WB through/right-turn	0.58	19.9	B	203/386	0.59	20.1	C	210/398	0.57	19.0	B	199/386
Geremonty Drive NB left-turn	0.77	46.2	D	90/135	0.78	46.7	D	91/135	0.80	51.3	D	91/138
Geremonty Drive NB through/right-turn	0.57	34.6	C	138/186	0.57	34.9	C	140/186	0.60	36.5	D	141/191
Geremonty Drive SB approach	1.62	344.8	F	361/470	1.62	384.0	F	366/470	1.74	399.1	F	369/482
Overall Intersection	0.91	92.5	F	--/--	0.93	93.9	F	--/--	0.92	101.2	F	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.12	22.1	C	15/52	0.12	22.2	C	15/53	--	--	--	--/--
Main Street EB through/right-turn	1.21	141.7	F	536/1066	1.25	157.2	F	568/1109	--	--	--	--/--
Main Street WB left-turn	0.56	23.9	C	35/101	0.56	23.9	C	35/101	--	--	--	--/--
Main Street WB through/right-turn	0.49	17.6	B	160/351	0.52	18.1	B	173/380	--	--	--	--/--
Geremonty Drive NB left-turn	0.52	27.7	C	81/190	0.52	27.7	C	81/190	--	--	--	--/--
Geremonty Drive NB through/right-turn	0.81	40.6	D	233/573	0.81	40.6	D	233/573	--	--	--	--/--
Geremonty Drive SB approach	0.45	39.8	D	70/144	0.45	39.8	D	70/144	--	--	--	--/--
Overall Intersection	1.03	68.8	E	--/--	1.05	74.5	E	--/--	--	--	--	--/--
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.10	21.3	C	12/37	0.11	21.4	C	12/38	--	--	--	--/--
Main Street EB through/right-turn	1.16	119.5	F	500/803	1.22	144.3	F	550/862	--	--	--	--/--
Main Street WB left-turn	0.56	23.3	C	34/101	0.56	23.3	C	34/101	--	--	--	--/--
Main Street WB through/right-turn	0.55	18.1	B	188/412	0.59	18.9	B	208/453	--	--	--	--/--
Geremonty Drive NB left-turn	0.56	29.2	C	75/178	0.56	29.2	C	75/178	--	--	--	--/--
Geremonty Drive NB through/right-turn	0.43	27.9	C	101/240	0.43	27.9	C	101/240	--	--	--	--/--
Geremonty Drive SB approach	0.84	63.5	E	116/230	0.84	63.5	E	116/230	--	--	--	--/--
Overall Intersection	0.92	61.6	E	--/--	0.96	71.2	E	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.49	23.4	C	5/28
South Broadway NB left-turn/through	0.22	0.0	A	--/0	0.02	0.8	A	--/2	--	--	--	--/--
South Broadway NB through/right-turn	0.12	0.0	A	--/0	0.18	0.0	A	--/0	0.36	13.6	B	76/154
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.47	29.2	C	9/10
South Broadway SB left-turn/through	0.03	1.1	A	--/3	0.03	1.0	A	--/3	0.51	5.2	A	2/199
South Broadway SB through/right-turn	0.38	0.0	A	--/0	0.32	0.0	A	--/0	0.07	2.4	A	0/11
Site Driveway EB left-turn	--	--	--	--/--	0.32	41.7	E	--/32	0.28	20.6	C	12/35
Site Driveway EB through/right-turn	--	--	--	--/--	0.02	9.2	A	--/1	0.64	26.8	C	32/75
Coca-Cola Driveway WB left-turn/through	0.02	18.7	C	--/2	0.03	22.1	C	--/2	0.03	18.3	B	2/9
Coca-Cola Driveway WB right-turn	0.01	10.2	B	--/1	0.01	10.2	B	--/1	0.00	16.6	B	0/0
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.55	10.7	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.53	28.4	C	15/57
South Broadway NB left-turn/through	0.48	0.0	A	--/0	0.05	1.3	A	--/4	--	--	--	--/--
South Broadway NB through/right-turn	0.25	0.0	A	--/0	0.37	0.0	A	--/0	0.72	18.4	B	307/307
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.28	39.2	D	13/13
South Broadway SB left-turn/through	0.05	1.7	A	--/4	0.04	1.4	A	--/3	0.38	2.4	A	43/43
South Broadway SB through/right-turn	0.29	0.0	A	--/0	0.29	0.0	A	--/0	0.12	1.7	A	8/9
Site Driveway EB left-turn	--	--	--	--/--	1.79	488.5	F	--/304	0.67	30.5	C	47/110
Site Driveway EB through/right-turn	--	--	--	--/--	0.04	9.1	A	--/3	0.55	25.1	C	44/91
Coca-Cola Driveway WB left-turn/through	0.18	50.3	F	--/16	0.30	89.9	F	--/27	0.08	20.7	C	5/20
Coca-Cola Driveway WB right-turn	0.10	14.4	B	--/8	0.10	14.2	B	--/8	0.02	18.0	B	0/13
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.70	14.9	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.65	40.6	D	26/66
South Broadway NB left-turn/through	0.53	0.0	A	--/0	0.11	3.0	A	--/9	--	--	--	--/--
South Broadway NB through/right-turn	0.27	0.0	A	--/0	0.39	0.0	A	--/0	0.80	24.2	C	386/386
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.35	39.6	D	17/17
South Broadway SB left-turn/through	0.06	1.8	A	--/5	0.06	1.7	A	--/5	0.66	7.0	A	340/340
South Broadway SB through/right-turn	0.49	0.0	A	--/0	0.48	0.0	A	--/0	0.22	1.5	A	13/13
Site Driveway EB left-turn	--	--	--	--/--	8.09	Err	F	Err	0.83	44.2	D	67/164
Site Driveway EB through/right-turn	--	--	--	--/--	0.07	10.6	B	--/6	0.67	28.3	C	60/134
Coca-Cola Driveway WB left-turn/through	0.30	100.6	F	--/26	0.60	270.2	F	--/47	0.07	19.9	B	5/18
Coca-Cola Driveway WB right-turn	0.08	14.9	B	--/6	0.07	14.6	B	--/6	0.01	17.3	B	0/8
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.80	18.8	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.49	43.4	D	64/106	0.49	43.3	D	64/107	--	--	--	--/--
South Broadway NB through/right-turn	0.21	4.7	A	31/88	0.21	4.7	A	30/89	--	--	--	--/--
South Broadway SB left-turn	0.05	55.7	E	0/2	0.05	55.7	E	0/2	--	--	--	--/--
South Broadway SB through/right-turn	0.25	12.3	B	106/176	0.26	12.5	B	108/190	--	--	--	--/--
Kelly Road EB left-turn	0.29	44.2	D	25/48	0.29	44.2	D	25/47	--	--	--	--/--
Kelly Road EB left-turn/through	0.28	44.2	D	25/48	0.28	44.2	D	25/47	--	--	--	--/--
Kelly Road EB right-turn	0.13	43.0	D	0/19	0.13	43.0	D	0/21	--	--	--	--/--
Shared Retail Driveway WB approach	0.00	0.0	A	0/0	0.00	0.0	A	0/0	--	--	--	--/--
Overall Intersection	0.31	18.0	B	--/--	0.32	18.1	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.66	54.3	D	139/206	0.66	54.1	D	140/207	--	--	--	--/--
South Broadway NB through/right-turn	0.53	12.3	B	201/418	0.54	12.5	B	206/430	--	--	--	--/--
South Broadway SB left-turn	0.41	63.2	E	16/27	0.41	61.2	E	15/25	--	--	--	--/--
South Broadway SB through/right-turn	0.61	22.4	C	264/491	0.62	22.3	C	270/503	--	--	--	--/--
Kelly Road EB left-turn	0.45	54.2	D	52/96	0.45	54.2	D	52/96	--	--	--	--/--
Kelly Road EB left-turn/through	0.44	54.1	D	52/96	0.44	54.1	D	52/96	--	--	--	--/--
Kelly Road EB right-turn	0.15	51.2	D	0/76	0.15	51.2	D	0/76	--	--	--	--/--
Shared Retail Driveway WB approach	0.20	57.1	E	10/32	0.20	57.1	E	10/32	--	--	--	--/--
Overall Intersection	0.58	24.7	C	--/--	0.59	24.6	C	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	0.67	64.6	E	154/224	0.68	64.6	E	161/232	0.70	66.5	E	161/237
South Broadway NB through/right-turn	0.67	17.0	B	350/701	0.72	18.5	B	402/805	0.72	18.4	B	404/786
South Broadway SB left-turn	0.39	72.1	E	14/14	0.39	72.9	E	14/14	0.39	73.0	E	14/14
South Broadway SB through/right-turn	0.89	27.4	C	680/748	0.97	32.0	C	791/885	0.96	30.6	C	790/835
Kelly Road EB left-turn	0.59	64.8	E	98/151	0.60	64.9	E	101/154	0.60	65.3	E	101/154
Kelly Road EB left-turn/through	0.58	64.0	E	96/148	0.59	64.7	E	100/153	0.59	64.8	E	100/153
Kelly Road EB right-turn	0.17	57.5	E	0/66	0.18	57.5	E	0/68	0.18	57.6	E	0/68
Shared Retail Driveway WB approach	0.36	66.4	E	28/66	0.36	66.4	E	28/66	0.38	66.7	E	29/68
Overall Intersection	0.79	29.9	C	--/--	0.84	32.1	C	--/--	0.84	31.6	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
12. Rockingham Park Blvd at Racetrack Driveway												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.11	50.8	D	1/8	0.62	42.9	D	89/140	--	--	--	--/--
Rockingham Park Blvd EB through	0.15	1.3	A	0/28	0.16	2.3	A	26/40	--	--	--	--/--
Rockingham Park Blvd WB through	0.42	4.0	A	0/138	0.53	11.0	B	179/383	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.01	0.0	A	0/0	0.03	0.0	A	0/0	--	--	--	--/--
Racetrack Driveway SB left-turn	0.29	49.1	D	7/17	0.18	43.0	D	13/25	--	--	--	--/--
Racetrack Driveway SB right-turn	0.00	40.6	D	0/2	0.22	28.5	C	22/34	--	--	--	--/--
Overall Intersection	0.42	3.8	A	--/--	0.53	11.7	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.38	55.0	E	28/63	0.69	42.3	D	223/311	--	--	--	--/--
Rockingham Park Blvd EB through	0.40	1.7	A	63/80	0.42	3.5	A	97/131	--	--	--	--/--
Rockingham Park Blvd WB through	0.32	3.1	A	45/56	0.48	13.1	B	144/167	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.05	0.0	A	0/0	--	--	--	--/--
Racetrack Driveway SB left-turn	0.30	55.7	E	20/33	0.26	48.5	D	39/52	--	--	--	--/--
Racetrack Driveway SB right-turn	0.01	43.1	D	0/11	0.29	22.9	C	94/94	--	--	--	--/--
Overall Intersection	0.41	4.3	A	--/--	0.53	13.0	B	--/--	--	--	--	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.43	35.3	D	35/70	1.43	244.8	F	499/768	0.90	55.8	E	421/527
Rockingham Park Blvd EB through	0.60	2.4	A	90/98	0.67	4.1	A	125/190	0.52	3.7	A	276/276
Rockingham Park Blvd WB through	0.71	16.0	B	485/499	1.00	38.1	D	514/515	0.75	38.1	D	553/553
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.07	0.0	A	0/0	0.07	0.0	A	0/0
Racetrack Driveway SB left-turn	0.13	31.4	C	5/15	0.17	25.5	C	18/34	0.55	67.7	E	44/70
Racetrack Driveway SB right-turn	0.04	20.3	C	3/11	0.37	13.7	B	71/98	0.41	31.9	C	163/189
Overall Intersection	0.69	9.3	A	--/--	0.99	38.6	D	--/--	0.79	24.5	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
13. Rockingham Park Blvd at Mall Road												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.06	43.7	D	5/19	0.07	43.7	D	5/21	--	--	--	--/--
Rockingham Park Blvd EB through	0.16	2.8	A	27/41	0.20	4.1	A	43/64	--	--	--	--/--
Rockingham Park Blvd WB through	0.71	10.0	B	168/548	0.78	10.2	B	492/492	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	--	--	--	--/--
Mall Road SB left-turn	0.11	41.3	D	10/23	0.08	37.6	D	10/22	--	--	--	--/--
Mall Road SB right-turn	0.22	31.6	C	39/60	0.37	30.0	C	75/99	--	--	--	--/--
Overall Intersection	0.63	9.6	A	--/--	0.70	10.6	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.50	53.8	D	64/112	0.48	53.0	D	64/112	--	--	--	--/--
Rockingham Park Blvd EB through	0.39	8.4	A	150/206	0.48	11.7	B	225/261	--	--	--	--/--
Rockingham Park Blvd WB through	0.52	9.4	A	106/256	0.70	15.5	B	157/177	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.21	0.3	A	0/0	0.21	0.3	A	0/0	--	--	--	--/--
Mall Road SB left-turn	0.46	41.4	D	120/144	0.38	36.7	D	110/141	--	--	--	--/--
Mall Road SB right-turn	0.53	30.9	C	181/188	0.62	29.1	C	239/256	--	--	--	--/--
Overall Intersection	0.55	15.5	B	--/--	0.71	17.7	B	--/--	--	--	--	--/--
<i>Saturday MIDDAY:</i>												
Rockingham Park Blvd EB left-turn	0.68	65.2	E	146/213	0.66	62.8	E	147/213	0.80	79.5	E	151/262
Rockingham Park Blvd EB through	0.54	12.7	B	298/380	0.68	19.2	B	461/513	0.58	10.0	B	311/346
Rockingham Park Blvd WB through	0.89	29.9	C	458/971	1.21	137.1	F	1071/1192	0.92	53.5	D	932/1010
Rockingham Park Blvd WB right-turn	0.36	0.5	A	0/0	0.36	0.3	A	0/0	0.36	0.5	A	0/0
Mall Road SB left-turn	0.72	51.4	D	271/320	0.60	42.6	D	248/312	0.93	74.6	E	292/403
Mall Road SB right-turn	0.55	30.8	C	255/267	0.65	28.2	C	338/372	0.89	52.5	D	427/540
Overall Intersection	0.81	24.6	C	--/--	0.97	56.9	E	--/--	0.95	36.3	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.23	16.1	B	5/24	0.26	19.0	B	6/27	--	--	--	--/--
Mall Road NB through	0.24	16.0	B	5/20	0.27	18.9	B	6/23	--	--	--	--/--
Mall Road SB through/right-turn	0.32	14.4	B	12/34	0.40	14.6	B	24/58	--	--	--	--/--
Mall Driveway EB left-turn	0.00	0.00	A	0/0	0.00	0.0	A	0/0	--	--	--	--/--
Mall Driveway EB right-turn	0.01	10.1	B	0/0	0.01	12.7	B	0/0	--	--	--	--/--
Flyover WB left-turn/through	0.14	14.7	B	4/13	0.11	16.0	B	5/14	--	--	--	--/--
Flyover WB right-turn	0.08	6.5	A	0/8	0.15	6.0	A	0/5	--	--	--	--/--
Overall Intersection	0.23	12.4	B	--/--	0.31	12.2	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.69	25.9	C	98/251	0.73	30.8	C	113/282	0.63	24.8	C	114/203
Mall Road NB through	0.16	19.4	B	21/51	0.17	21.7	C	24/56	0.15	19.9	B	24/47
Mall Road SB through/right-turn	0.50	25.0	C	50/95	0.58	25.7	C	83/144	0.58	26.0	C	87/145
Mall Driveway EB left-turn	0.05	26.1	C	3/16	0.06	28.6	C	4/17	0.07	30.1	C	4/18
Mall Driveway EB right-turn	0.21	11.5	B	0/23	0.21	13.6	B	0/25	0.21	12.9	B	0/22
Flyover WB left-turn/through	0.48	25.4	C	44/87	0.47	27.3	C	49/93	0.53	29.1	C	52/100
Flyover WB right-turn	0.10	12.5	B	0/34	0.19	12.3	B	0/42	0.19	13.2	B	0/48
Overall Intersection	0.54	18.8	B	--/--	0.57	20.5	C	--/--	0.56	19.8	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	1.14	118.0	F	247/475	1.22	153.0	F	277/475	0.92	51.3	D	226/403
Mall Road NB through	0.39	25.3	C	64/113	0.42	28.0	C	70/113	0.31	24.3	C	67/102
Mall Road SB through/right-turn	0.64	29.6	C	97/150	0.79	34.0	C	159/248	0.76	33.0	C	164/224
Mall Driveway EB left-turn	0.14	31.5	C	10/33	0.14	33.6	C	11/33	0.26	38.5	D	12/36
Mall Driveway EB right-turn	0.29	15.9	B	0/38	0.31	18.2	B	6/45	0.36	18.1	B	25/67
Flyover WB left-turn/through	0.76	33.6	C	117/207	0.78	36.9	D	128/207	0.90	50.6	D	140/232
Flyover WB right-turn	0.16	12.1	B	0/38	0.36	12.9	B	29/94	0.43	14.8	B	69/151
Overall Intersection	0.80	37.9	D	--/--	0.87	42.5	D	--/--	0.84	30.8	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.00	7.8	A	0/1	0.01	7.8	A	--/1	0.01	7.8	A	--/1
Mall Road NB through/right-turn	0.01	0.0	A	0/0	0.15	0.0	A	--/0	0.15	0.0	A	--/0
Mall Road SB approach	0.01	0.0	A	0/0	0.01	1.0	A	--/1	0.01	1.0	A	--/1
Mall Driveway EB left-turn/through	0.09	0.0	A	0/0	0.00	0.0	A	--/0	0.00	0.0	A	--/0
Mall Driveway EB right-turn	0.08	10.1	B	0/0	0.01	10.1	B	--/0	0.01	10.1	B	--/0
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	0.20	12.9	B	--/19
Site Driveway WB through/right-turn	--	--	--	--/--	0.21	12.8	B	--/20	0.01	9.3	A	--/1
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.02	7.5	A	--/1	0.02	7.5	A	--/1	0.02	7.5	A	--/1
Mall Road NB through/right-turn	0.11	0.0	A	--/0	0.21	0.0	A	--/0	0.21	0.0	A	--/0
Mall Road SB approach	0.07	0.0	A	--/0	0.04	2.7	A	--/3	0.04	2.7	A	--/3
Mall Driveway EB left-turn/through	0.00	10.7	B	--/0	0.00	12.1	B	--/0	0.00	12.1	B	--/0
Mall Driveway EB right-turn	0.06	9.1	A	--/5	0.06	9.1	A	--/5	0.06	9.1	A	--/5
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	0.38	19.1	C	--/44
Site Driveway WB through/right-turn	--	--	--	--/--	0.42	18.7	C	--/52	0.04	9.5	A	--/3

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 10 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2019 CONDITIONS

Intersection/Peak Hour/Lane Group	2019 No-Build				2019 Build				2019 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	0.04	7.6	A	--/3	0.04	7.6	A	--/3	0.04	7.6	A	--/3
Mall Road NB through/right-turn	0.17	0.0	A	--/0	0.35	0.0	A	--/0	0.35	0.0	A	--/0
Mall Road SB approach	0.10	0.0	A	--/0	0.05	2.3	A	--/4	0.05	2.3	A	--/4
Mall Driveway EB left-turn/through	0.01	12.8	B	--/1	0.02	15.7	C	--/1	0.02	15.7	C	--/1
Mall Driveway EB right-turn	0.08	9.5	A	--/7	0.08	9.5	A	--/7	0.08	9.5	A	--/7
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	1.03	111.0	F	--/247
Site Driveway WB through/right-turn	--	--	--	--/--	1.10	125.5	F	--/302	0.07	10.6	B	--/6

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Weekday AM:</i>												
Pelham Road EB left-turn	0.79	40.3	D	376/625	0.79	40.3	D	376/625	0.85	47.8	D	393/649
Pelham Road EB through	0.24	26.9	C	88/136	0.26	27.2	C	96/145	0.27	28.1	C	98/145
Pelham Road EB right-turn	0.09	15.8	B	0/17	0.09	15.8	B	0/17	0.09	16.2	B	0/17
Main Street WB left-turn	0.47	53.2	D	59/111	0.47	53.2	D	59/111	0.47	53.2	D	59/111
Main Street WB through	1.23	182.8	F	171/270	1.32	220.9	F	187/299	1.13	139.2	F	182/274
Main Street WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	0.06	0.1	A	0/0
South Policy Street NB left-turn	0.69	58.3	E	117/171	0.69	58.3	E	117/171	0.67	56.6	E	116/171
South Policy Street NB through	0.32	32.6	C	100/157	0.32	32.6	C	100/157	0.31	31.6	C	98/157
South Policy Street NB right-turn	0.05	29.7	C	0/0	0.05	29.7	C	0/0	0.05	28.8	C	0/0
North Policy Street SB left-turn	0.43	62.2	E	13/37	0.43	62.2	E	13/37	0.43	62.2	E	13/37
North Policy Street SB through	0.62	47.2	D	169/247	0.62	47.2	D	169/247	0.60	46.0	D	168/247
North Policy Street SB right-turn	0.15	11.9	B	0/25	0.15	11.9	B	0/25	0.15	13.0	B	0/26
Overall Intersection	0.81	54.1	D	--/--	0.82	61.5	E	--/--	0.82	49.9	D	--/--
<i>Weekday PM:</i>												
Pelham Road EB left-turn	0.72	50.0	D	303/621	0.72	50.0	D	303/621	--	--	--	--/--
Pelham Road EB through	0.56	42.9	D	245/439	0.59	43.7	D	263/478	--	--	--	--/--
Pelham Road EB right-turn	0.09	19.9	B	0/29	0.10	20.1	C	0/30	--	--	--	--/--
Main Street WB left-turn	0.39	61.4	E	58/95	0.39	61.4	E	58/95	--	--	--	--/--
Main Street WB through	1.23	184.7	F	248/337	1.36	239.0	F	300/390	--	--	--	--/--
Main Street WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	--	--	--	--/--
South Policy Street NB left-turn	0.86	77.9	E	232/297	0.86	77.9	E	232/297	--	--	--	--/--
South Policy Street NB through	0.54	43.0	D	230/324	0.54	43.0	D	230/324	--	--	--	--/--
South Policy Street NB right-turn	0.06	36.4	D	0/1	0.06	36.4	D	0/1	--	--	--	--/--
North Policy Street SB left-turn	0.67	74.0	E	81/137	0.67	74.0	E	81/137	--	--	--	--/--
North Policy Street SB through	0.70	58.8	E	222/445	0.70	58.8	E	222/445	--	--	--	--/--
North Policy Street SB right-turn	0.25	21.6	C	34/101	0.25	21.6	C	34/101	--	--	--	--/--
Overall Intersection	0.78	65.1	E	--/--	0.80	75.6	E	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
3. Main Street at N. Policy Street/S. Policy Street												
<i>Saturday Midday:</i>												
Pelham Road EB left-turn	0.67	55.8	E	135/210	0.68	58.3	E	141/218	--	--	--	--/--
Pelham Road EB through	0.74	49.7	D	210/270	0.77	50.4	D	250/313	--	--	--	--/--
Pelham Road EB right-turn	0.09	21.3	C	7/21	0.10	20.8	C	9/24	--	--	--	--/--
Main Street WB left-turn	0.31	50.4	D	47/93	0.32	52.6	D	49/96	--	--	--	--/--
Main Street WB through	0.69	51.4	D	163/223	0.72	52.1	D	196/263	--	--	--	--/--
Main Street WB right-turn	0.01	0.0	A	0/0	0.01	0.0	A	0/0	--	--	--	--/--
South Policy Street NB left-turn	0.56	44.4	D	144/225	0.57	46.4	D	151/233	--	--	--	--/--
South Policy Street NB through	0.25	21.3	C	106/178	0.26	22.9	C	114/187	--	--	--	--/--
South Policy Street NB right-turn	0.03	19.1	B	0/0	0.03	20.6	C	0/0	--	--	--	--/--
North Policy Street SB left-turn	0.33	59.8	E	14/44	0.35	62.3	E	15/46	--	--	--	--/--
North Policy Street SB through	0.61	41.4	D	210/362	0.64	44.3	D	223/395	--	--	--	--/--
North Policy Street SB right-turn	0.11	21.9	C	23/53	0.11	23.5	C	25/56	--	--	--	--/--
Overall Intersection	0.69	41.9	D	--/--	0.71	43.8	D	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
5. Main St at Central St/Tuscan Kitchen Driveway												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.00	9.3	A	--/0	0.00	9.4	A	--/0	0.00	9.4	A	--/0
Main Street EB through/right-turn	0.42	0.0	A	--/0	0.44	0.0	A	--/0	0.44	0.0	A	--/0
Main Street WB left-turn	0.00	9.4	A	--/0	0.00	9.6	A	--/0	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.41	0.0	A	--/0	0.42	0.0	A	--/0	0.42	0.0	A	--/0
Central Street NB approach	0.13	28.3	D	--/11	0.13	28.9	D	--/11	0.11	25.4	D	--/9
<i>Weekday PM:</i>												
Main Street EB left-turn	0.00	9.3	A	--/0	0.00	9.5	A	--/0	0.00	9.5	A	--/0
Main Street EB through/right-turn	0.59	0.0	A	--/0	0.61	0.0	A	--/0	0.62	0.0	A	--/0
Main Street WB left-turn	0.02	11.8	B	--/2	0.02	12.0	B	--/2	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.42	0.0	A	--/0	0.44	0.0	A	--/0	0.45	0.0	A	--/0
Central Street NB approach	0.14	25.2	D	--/12	0.15	27.7	D	--/13	0.13	24.4	C	--/11
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.01	9.5	A	--/1	0.01	9.8	A	--/1	0.01	9.8	A	--/1
Main Street EB through/right-turn	0.48	0.0	A	--/0	0.51	0.0	A	--/0	0.52	0.0	A	--/0
Main Street WB left-turn	0.00	10.0	B	--/0	0.00	10.4	B	--/0	0.00	0.0	A	--/0
Main Street WB through/right-turn	0.45	0.0	A	--/0	0.48	0.0	A	--/0	0.48	0.0	A	--/0
Central Street NB approach	0.11	28.0	D	--/9	0.14	35.7	E	--/12	0.12	29.8	D	--/10

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
7. Main Street Geremonty Drive												
<i>Weekday AM:</i>												
Main Street EB left-turn	0.10	26.9	C	9/30	0.10	26.9	C	9/30	0.09	25.6	C	9/29
Main Street EB through/right-turn	1.00	78.7	E	328/555	1.03	87.3	F	344/581	0.98	71.1	E	332/558
Main Street WB left-turn	0.81	38.6	D	95/213	0.84	45.7	D	106/230	0.79	34.2	C	87/204
Main Street WB through/right-turn	0.63	21.2	C	234/441	0.64	21.6	C	241/453	0.62	19.9	B	229/438
Geremonty Drive NB left-turn	0.85	56.4	E	106/148	0.85	56.4	E	106/148	0.90	70.0	E	109/160
Geremonty Drive NB through/right-turn	0.64	37.4	D	166/208	0.64	37.4	D	166/208	0.68	40.3	D	172/214
Geremonty Drive SB approach	1.85	446.1	F	439/528	1.85	446.1	F	439/528	1.97	502.7	F	451/540
Overall Intersection	1.03	120.3	F	--/--	1.04	122.4	F	--/--	1.03	129.0	F	--/--
<i>Weekday PM:</i>												
Main Street EB left-turn	0.14	22.6	C	17/58	0.14	22.6	C	17/58	--	--	--	--/--
Main Street EB through/right-turn	1.34	195.6	F	639/1216	1.37	211.9	F	670/1258	--	--	--	--/--
Main Street WB left-turn	0.61	25.2	C	39/116	0.61	25.2	C	39/116	--	--	--	--/--
Main Street WB through/right-turn	0.54	18.3	B	181/396	0.57	18.9	B	196/426	--	--	--	--/--
Geremonty Drive NB left-turn	0.59	29.7	C	91/222	0.59	29.7	C	91/222	--	--	--	--/--
Geremonty Drive NB through/right-turn	0.91	52.3	D	274/676	0.91	52.3	D	274/676	--	--	--	--/--
Geremonty Drive SB approach	0.61	44.6	D	80/181	0.61	44.6	D	80/181	--	--	--	--/--
Overall Intersection	1.13	90.8	F	--/--	1.16	96.9	F	--/--	--	--	--	--/--
<i>Saturday Midday:</i>												
Main Street EB left-turn	0.12	22.2	C	13/41	0.13	22.2	C	13/41	--	--	--	--/--
Main Street EB through/right-turn	1.29	174.9	F	596/924	1.34	195.9	F	647/978	--	--	--	--/--
Main Street WB left-turn	0.60	25.0	C	39/116	0.61	25.1	C	39/116	--	--	--	--/--
Main Street WB through/right-turn	0.61	19.6	B	216/469	0.65	20.4	C	237/510	--	--	--	--/--
Geremonty Drive NB left-turn	0.63	31.4	C	84/222	0.63	31.9	C	84/243	--	--	--	--/--
Geremonty Drive NB through/right-turn	0.48	28.6	C	118/276	0.48	28.8	C	118/284	--	--	--	--/--
Geremonty Drive SB approach	0.94	85.2	F	131/268	0.94	86.9	F	131/277	--	--	--	--/--
Overall Intersection	1.02	84.2	F	--/--	1.06	92.8	F	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.49	23.5	C	5/28
South Broadway NB left-turn/through	0.25	0.0	A	--/0	0.02	0.8	A	--/2	--	--	--	--/--
South Broadway NB through/right-turn	0.13	0.0	A	--/0	0.19	0.0	A	--/0	0.40	14.1	B	84/173
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.47	27.1	C	17/19
South Broadway SB left-turn/through	0.04	1.1	A	--/3	0.03	1.0	A	--/3	0.56	11.1	B	77/214
South Broadway SB through/right-turn	0.41	0.0	A	--/0	0.35	0.0	A	--/0	0.07	5.7	A	7/12
Site Driveway EB left-turn	--	--	--	--/--	0.41	57.2	F	--/43	0.28	20.4	C	12/35
Site Driveway EB through/right-turn	--	--	--	--/--	0.02	9.5	A	--/2	0.68	29.1	C	35/88
Coca-Cola Driveway WB left-turn/through	0.02	21.0	C	--/2	0.03	25.9	D	--/2	0.03	18.3	B	2/9
Coca-Cola Driveway WB right-turn	0.01	10.4	B	--/1	0.01	10.4	B	--/1	0.00	16.5	B	0/0
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.60	13.9	B	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.53	30.2	C	18/59
South Broadway NB left-turn/through	0.53	0.0	A	--/0	0.05	1.4	A	--/4	--	--	--	--/--
South Broadway NB through/right-turn	0.28	0.0	A	--/0	0.40	0.0	A	--/0	0.80	22.1	C	363/363
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.28	35.1	D	15/16
South Broadway SB left-turn/through	0.05	1.8	A	--/4	0.05	1.5	A	--/4	0.42	10.1	B	201/201
South Broadway SB through/right-turn	0.32	0.0	A	--/0	0.31	0.0	A	--/0	0.12	6.7	A	23/27
Site Driveway EB left-turn	--	--	--	--/--	2.33	754.2	F	--/348	0.67	30.5	C	47/110
Site Driveway EB through/right-turn	--	--	--	--/--	0.04	9.1	A	--/3	0.59	26.1	C	47/95
Coca-Cola Driveway WB left-turn/through	0.24	68.4	F	--/21	0.41	137.5	F	--/36	0.08	20.7	C	5/20
Coca-Cola Driveway WB right-turn	0.11	15.4	C	--/9	0.11	15.2	C	--/9	0.02	18.0	B	0/13
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.75	19.1	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)

INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
8. South Broadway at Coca-Cola Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	--	--	--	--/--	--	--	--	--/--	0.65	40.7	D	27/62
South Broadway NB left-turn/through	0.58	0.0	A	--/0	0.12	3.7	A	--/10	--	--	--	--/--
South Broadway NB through/right-turn	0.30	0.0	A	--/0	0.43	0.0	A	--/0	0.89	28.9	C	453/495
South Broadway SB left-turn	--	--	--	--/--	--	--	--	--/--	0.35	36.4	D	21/21
South Broadway SB left-turn/through	0.07	2.1	A	--/6	0.07	2.0	A	--/5	0.73	16.3	B	377/377
South Broadway SB through/right-turn	0.54	0.0	A	--/0	0.52	0.0	A	--/0	0.22	5.7	A	32/32
Site Driveway EB left-turn	--	--	--	--/--	12.57	Err	F	Err	0.83	44.2	D	67/164
Site Driveway EB through/right-turn	--	--	--	--/--	0.08	11.0	B	--/6	0.71	30.5	C	64/144
Coca-Cola Driveway WB left-turn/through	0.43	167.1	F	--/36	0.94	513.2	F	--/59	0.07	19.9	B	5/18
Coca-Cola Driveway WB right-turn	0.08	16.1	C	--/7	0.08	15.7	C	--/7	0.01	17.3	B	0/8
Overall Intersection	--	--	--	--/--	--	--	--	--/--	0.85	24.4	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11 .South Broadway at Kelly Road/Retail Driveway												
<i>Weekday AM:</i>												
South Broadway NB left-turn	0.51	43.3	D	70/113	0.52	43.4	D	70/115	--	--	--	--/--
South Broadway NB through/right-turn	0.23	4.9	A	35/103	0.23	5.0	A	35/104	--	--	--	--/--
South Broadway SB left-turn	0.05	56.8	E	0/3	0.05	55.5	E	0/3	--	--	--	--/--
South Broadway SB through/right-turn	0.28	13.3	B	121/196	0.29	13.5	B	123/199	--	--	--	--/--
Kelly Road EB left-turn	0.30	43.8	D	27/50	0.29	43.7	D	27/49	--	--	--	--/--
Kelly Road EB left-turn/through	0.29	43.8	D	27/50	0.29	43.7	D	27/49	--	--	--	--/--
Kelly Road EB right-turn	0.15	42.6	D	0/31	0.15	42.5	D	0/33	--	--	--	--/--
Shared Retail Driveway WB approach	0.00	0.0	A	0/0	0.00	0.0	A	0/0	--	--	--	--/--
Overall Intersection	0.34	18.4	B	--/--	0.35	18.5	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
South Broadway NB left-turn	0.68	53.8	D	154/225	0.68	53.8	D	155/225	--	--	--	--/--
South Broadway NB through/right-turn	0.59	13.6	B	236/496	0.60	13.8	B	242/510	--	--	--	--/--
South Broadway SB left-turn	0.41	62.3	E	16/24	0.41	61.0	E	15/22	--	--	--	--/--
South Broadway SB through/right-turn	0.70	25.8	C	371/610	0.71	25.6	C	384/623	--	--	--	--/--
Kelly Road EB left-turn	0.45	53.5	D	56/102	0.45	53.5	D	56/102	--	--	--	--/--
Kelly Road EB left-turn/through	0.44	53.4	D	56/102	0.44	53.4	D	56/102	--	--	--	--/--
Kelly Road EB right-turn	0.17	50.6	D	0/78	0.17	50.6	D	0/78	--	--	--	--/--
Shared Retail Driveway WB approach	0.20	57.1	E	10/32	0.20	57.1	E	10/32	--	--	--	--/--
Overall Intersection	0.64	26.4	C	--/--	0.65	26.3	C	--/--	--	--	--	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
11. South Broadway at Kelly Road/Retail Driveway												
<i>Saturday Midday:</i>												
South Broadway NB left-turn	0.71	64.8	E	175/248	0.71	64.8	E	176/249	0.73	67.6	E	176/258
South Broadway NB through/right-turn	0.80	22.0	C	490/1037	0.81	22.2	C	497/1051	0.80	21.7	C	497/1005
South Broadway SB left-turn	0.39	72.0	E	14/14	0.39	72.4	E	14/14	0.39	72.5	E	14/14
South Broadway SB through/right-turn	1.10	77.4	E	1083/1083	1.11	80.7	F	1095/1095	1.09	70.3	E	1093/1093
Kelly Road EB left-turn	0.60	63.9	E	110/163	0.60	63.9	E	110/163	0.62	65.2	E	110/167
Kelly Road EB left-turn/through	0.61	64.1	E	112/165	0.61	64.1	E	112/165	0.63	65.6	E	112/169
Kelly Road EB right-turn	0.19	56.5	E	0/68	0.20	56.5	E	0/68	0.20	57.0	E	0/70
Shared Retail Driveway WB approach	0.36	66.4	E	28/66	0.36	66.4	E	28/66	0.38	66.7	E	29/68
Overall Intersection	0.93	52.6	D	--/--	0.93	54.1	D	--/--	0.93	49.7	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
12. Rockingham Park Blvd at Racetrack Driveway												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.11	50.5	D	1/7	0.62	42.7	D	89/139	--	--	--	--/--
Rockingham Park Blvd EB through	0.17	1.3	A	0/31	0.17	2.4	A	30/45	--	--	--	--/--
Rockingham Park Blvd WB through	0.47	4.3	A	0/156	0.59	12.3	B	247/427	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.01	0.0	A	0/0	0.03	0.0	A	0/0	--	--	--	--/--
Racetrack Driveway SB left-turn	0.29	49.1	D	7/17	0.18	42.8	D	13/25	--	--	--	--/--
Racetrack Driveway SB right-turn	0.00	40.6	D	0/2	0.23	28.4	C	23/35	--	--	--	--/--
Overall Intersection	0.46	3.9	A	--/--	0.57	12.3	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.38	54.4	D	27/62	0.69	42.2	D	226/316	--	--	--	--/--
Rockingham Park Blvd EB through	0.44	1.9	A	74/94	0.46	3.8	A	116/156	--	--	--	--/--
Rockingham Park Blvd WB through	0.35	3.1	A	53/60	0.54	13.2	B	163/180	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.05	0.0	A	0/0	--	--	--	--/--
Racetrack Driveway SB left-turn	0.30	55.7	E	20/33	0.25	48.2	D	39/52	--	--	--	--/--
Racetrack Driveway SB right-turn	0.03	43.3	D	3/15	0.30	22.8	C	100/100	--	--	--	--/--
Overall Intersection	0.46	4.2	A	--/--	0.56	12.7	B	--/--	--	--	--	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.43	35.3	D	37/70	1.43	244.7	F	509/774	0.90	54.1	D	420/524
Rockingham Park Blvd EB through	0.67	2.8	A	109/117	0.74	5.5	A	187/303	0.57	4.0	A	336/336
Rockingham Park Blvd WB through	0.78	19.2	B	598/598	1.11	82.7	F	704/704	0.83	40.6	D	627/627
Rockingham Park Blvd WB right-turn	0.03	0.0	A	0/0	0.07	0.0	A	0/0	0.07	0.0	A	0/0
Racetrack Driveway SB left-turn	0.13	31.4	C	5/15	0.17	25.5	C	18/34	0.55	67.7	E	44/70
Racetrack Driveway SB right-turn	0.04	20.3	C	4/11	0.37	13.7	B	71/98	0.41	31.9	C	164/190
Overall Intersection	0.76	11.0	B	--/--	1.05	54.9	D	--/--	0.84	25.0	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

TRAFFIC IMPACT AND ACCESS STUDY

Tuscan Village (Phase II) – Salem, New Hampshire

Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
13. Rockingham Park Blvd at Mall Road												
<i>Weekday AM:</i>												
Rockingham Park Blvd EB left-turn	0.06	43.7	D	5/19	0.07	43.7	D	5/21	--	--	--	--/--
Rockingham Park Blvd EB through	0.18	2.9	A	31/45	0.22	4.1	A	48/69	--	--	--	--/--
Rockingham Park Blvd WB through	0.79	12.6	B	524/608	0.87	12.8	B	568/568	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.06	0.1	A	0/0	0.06	0.1	A	0/0	--	--	--	--/--
Mall Road SB left-turn	0.11	41.3	D	10/23	0.08	37.6	D	10/22	--	--	--	--/--
Mall Road SB right-turn	0.22	31.6	C	39/60	0.37	30.0	C	75/100	--	--	--	--/--
Overall Intersection	0.69	11.2	B	--/--	0.77	12.0	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Rockingham Park Blvd EB left-turn	0.50	53.8	D	64/112	0.48	53.0	D	64/112	--	--	--	--/--
Rockingham Park Blvd EB through	0.44	9.1	A	179/243	0.53	12.4	B	261/300	--	--	--	--/--
Rockingham Park Blvd WB through	0.59	9.8	A	120/286	0.78	16.2	B	164/185	--	--	--	--/--
Rockingham Park Blvd WB right-turn	0.22	0.3	A	0/0	0.22	0.3	A	0/0	--	--	--	--/--
Mall Road SB left-turn	0.46	41.0	D	122/146	0.38	36.7	D	112/144	--	--	--	--/--
Mall Road SB right-turn	0.53	30.6	C	186/192	0.63	29.1	C	241/259	--	--	--	--/--
Overall Intersection	0.60	15.3	B	--/--	0.75	17.9	B	--/--	--	--	--	--/--
<i>Saturday Midday:</i>												
Rockingham Park Blvd EB left-turn	0.68	65.2	E	146/213	0.66	62.8	E	147/213	0.80	78.6	E	151/262
Rockingham Park Blvd EB through	0.60	13.8	B	360/461	0.76	21.2	C	553/612	0.64	11.0	B	373/412
Rockingham Park Blvd WB through	1.01	46.7	D	556/1177	1.34	194.6	F	1272/1272	1.02	73.2	E	1078/1217
Rockingham Park Blvd WB right-turn	0.37	0.5	A	0/0	0.37	0.2	A	0/0	0.37	0.4	A	0/0
Mall Road SB left-turn	0.74	52.0	D	278/326	0.61	42.9	D	255/320	0.95	78.5	E	300/418
Mall Road SB right-turn	0.55	30.8	C	256/265	0.65	28.2	C	338/472	0.89	52.9	D	431/561
Overall Intersection	0.89	29.8	C	--/--	1.05	76.2	E	--/--	1.02	42.7	D	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.23	16.1	B	5/24	0.26	19.0	B	6/27	--	--	--	--/--
Mall Road NB through	0.24	16.0	B	5/21	0.28	18.9	B	6/23	--	--	--	--/--
Mall Road SB through/right-turn	0.32	14.4	B	12/34	0.40	14.6	B	24/58	--	--	--	--/--
Mall Driveway EB left-turn	0.00	0.00	A	0/0	0.00	0.00	A	0/0	--	--	--	--/--
Mall Driveway EB right-turn	0.01	10.1	B	0/0	0.01	12.7	B	0/0	--	--	--	--/--
Flyover WB left-turn/through	0.14	14.7	B	4/13	0.11	16.0	B	5/14	--	--	--	--/--
Flyover WB right-turn	0.08	6.5	A	0/8	0.15	6.0	A	0/5	--	--	--	--/--
Overall Intersection	0.23	12.4	B	--/--	0.31	12.2	B	--/--	--	--	--	--/--
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.68	25.8	C	98/252	0.73	30.8	C	114/282	0.62	24.7	C	115/203
Mall Road NB through	0.17	19.4	B	22/54	0.18	21.8	C	26/60	0.16	20.0	B	26/50
Mall Road SB through/right-turn	0.50	25.1	C	51/97	0.59	25.8	C	84/147	0.59	26.2	C	91/148
Mall Driveway EB left-turn	0.05	26.2	C	3/16	0.06	28.7	C	4/17	0.07	30.2	C	4/18
Mall Driveway EB right-turn	0.21	11.6	B	0/23	0.21	13.6	B	0/25	0.21	13.0	B	0/22
Flyover WB left-turn/through	0.48	25.5	C	44/87	0.47	27.5	C	49/93	0.53	29.3	C	53/100
Flyover WB right-turn	0.10	12.5	B	0/34	0.19	12.3	B	0/42	0.19	13.3	B	0/48
Overall Intersection	0.54	18.8	B	--/--	0.57	20.6	C	--/--	0.56	19.9	B	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
14. Mall Road at Rockingham Park Blvd												
Flyover and Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	1.15	121.6	F	255/475	1.22	153.0	F	277/475	0.92	51.3	D	226/403
Mall Road NB through	0.41	25.7	C	68/117	0.44	28.2	C	74/118	0.33	24.5	C	71/107
Mall Road SB through/right-turn	0.64	29.5	C	101/155	0.81	34.7	C	163/256	0.78	33.5	C	168/229
Mall Driveway EB left-turn	0.14	31.7	C	10/33	0.14	33.7	C	11/33	0.26	38.5	D	12/36
Mall Driveway EB right-turn	0.29	16.2	B	0/38	0.31	18.2	B	6/45	0.36	18.2	B	25/67
Flyover WB left-turn/through	0.77	34.1	C	121/207	0.78	37.0	D	128/207	0.90	50.9	D	140/232
Flyover WB right-turn	0.16	12.0	B	0/38	0.36	13.0	B	31/98	0.44	14.9	B	74/158
Overall Intersection	0.80	38.6	D	--/--	0.87	42.6	D	--/--	0.85	30.9	C	--/--

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Weekday AM:</i>												
Mall Road NB left-turn	0.01	7.8	A	--/1	0.01	7.8	A	--/1	0.01	7.8	A	--/1
Mall Road NB through/right-turn	0.09	0.0	A	--/0	0.15	0.0	A	--/0	0.15	0.0	A	--/0
Mall Road SB approach	0.08	0.0	A	--/0	0.01	1.0	A	--/1	0.01	1.0	A	--/1
Mall Driveway EB left-turn/through	0.00	0.0	A	--/0	0.00	0.0	A	--/0	0.00	0.0	A	--/0
Mall Driveway EB right-turn	0.01	10.1	B	--/0	0.01	10.1	B	--/0	0.01	10.1	B	--/0
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	0.20	12.9	B	--/19
Site Driveway WB through/right-turn	--	--	--	--/--	0.21	12.8	B	--/20	0.01	9.2	A	--/1
<i>Weekday PM:</i>												
Mall Road NB left-turn	0.02	7.5	A	--/1	0.02	7.5	A	--/1	0.02	7.5	A	--/1
Mall Road NB through/right-turn	0.12	0.0	A	--/0	0.21	0.0	A	--/0	0.21	0.0	A	--/0
Mall Road SB approach	0.07	0.0	A	--/0	0.04	2.6	A	--/3	0.04	2.6	A	--/3
Mall Driveway EB left-turn/through	0.00	10.8	B	--/0	0.00	12.3	B	--/0	0.00	12.3	B	--/0
Mall Driveway EB right-turn	0.06	9.1	A	--/5	0.06	9.1	A	--/5	0.06	9.1	A	--/5
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	0.39	19.7	C	--/46
Site Driveway WB through/right-turn	--	--	--	--/--	0.43	19.2	C	--/54	0.04	9.6	A	--/3

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

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Table 11 (continued)
INTERSECTION CAPACITY ANALYSIS SUMMARY – 2029 CONDITIONS

Intersection/Peak Hour/Lane Group	2029 No-Build				2029 Build				2029 Build with Mitigation			
	V/C ^a	Del. ^b	LOS ^c	Queue ^d	V/C	Del.	LOS	Queue	V/C	Del.	LOS	Queue
15. Mall Road at Mall Driveway												
<i>Saturday MIDDAY:</i>												
Mall Road NB left-turn	0.04	7.7	A	--/3	0.04	7.7	A	--/3	0.04	7.7	A	--/3
Mall Road NB through/right-turn	0.18	0.0	A	--/0	0.36	0.0	A	--/0	0.36	0.0	A	--/0
Mall Road SB approach	0.11	0.0	A	--/0	0.05	2.3	A	--/4	0.05	2.3	A	--/4
Mall Driveway EB left-turn/through	0.01	13.2	B	--/1	0.02	16.4	C	--/1	0.02	16.4	C	--/1
Mall Driveway EB right-turn	0.09	9.6	A	--/7	0.08	9.5	A	--/7	0.08	9.5	A	--/7
Site Driveway WB left-turn	--	--	--	--/--	--	--	--	--/--	1.10	136.8	F	--/273
Site Driveway WB through/right-turn	--	--	--	--/--	1.17	153.8	F	--/333	0.07	10.8	B	--/6

^a Volume-to-capacity ratio.

^b Average control delay in seconds per vehicle.

^c Level of service.

^d Maximum queue length in feet per lane during an average/95th percentile cycle (assuming 25 feet per vehicle).

CONCLUSIONS AND RECOMMENDATIONS

Existing and future conditions in the study area have been described, analyzed, and evaluated with respect to traffic operations and the impact of the proposed Tuscan Village project. Conclusions of this effort are presented below.

- The project consists of the redevelopment of an approximate 50-acre parcel currently occupied by barns associated with the Rockingham Park racetrack located directly south of the Project site. The redevelopment of this parcel involves the construction of a variety of residential and retail uses, along with the previously approved auto dealership. Specifically, the residential portion consists of 250 apartments and 100 townhouses. The retail portion consists of an 80,000 square foot supermarket, 120,000 square feet of retail space, and the previously approved 38,500 square foot auto dealership. Phase I of the Project consisted of the auto dealership, and Phase II consists of the remaining Tuscan Village mixed-use development.
- The proposed Tuscan Village development is expected to generate 586 *new* vehicle trips (311 entering and 275 exiting) during the weekday AM peak hour, 1,177 *new* vehicle trips (606 entering and 571 exiting) during the weekday PM peak hour, and 1,724 *new* vehicle trips (892 entering and 832 exiting) during the Saturday midday peak hour. Traffic-volume increases beyond the study area during the peak hours are projected to be 10 percent or less over 2019 opening year traffic-volumes. It should be noted that these traffic-volume increases could be less than as evaluated due to the lower percentage of *pass-by* trips used.
- Available sight distances at the proposed driveways exceed both the minimum and desirable SSD and ISD requirements for safe operation. In addition to meeting AASHTO requirements, these available sight distances meet the NHDOT requirement of 400 feet of All-Season Safe Sight Distance. Some of the driveways are currently signalized or are proposed to be signalized. In accordance with AASHTO, *“At signalized intersections, the first vehicle stopped on one approach should be visible to the driver of the first vehicle stopped on each of the other approaches.”* Therefore, the minimum required sight lines, which are met, would be necessary only when the traffic signal is not working, such as during power outages or when the signal is on flashing operation. To ensure the safe and efficient flow of traffic to and from the site, any proposed plantings, vegetation, landscaping, and signing along South Broadway, Rockingham Park Boulevard, Mall Road, and Pleasant Street should be kept low to the ground (no more than 3.0 feet above street level) or set back sufficiently from the edge of the Site driveways and adjacent roadways so as not to inhibit the available sight lines.

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- Under existing and future conditions, the intersections of Pelham Road at the I-93 southbound and northbound on/off-ramps are expected to operate at an overall LOS D or better during the weekday AM, weekday PM, and Saturday midday peak hours with or without the development in place. Increases in delay as a result of the project are anticipated to be 8 seconds or less on any movement with no drops in LOS. The proposed project is expected to add 1 vehicle or less to the queue length on any approach.
- Due to the impacts that the proposed project would have at the intersection of Main Street/ Pelham Road at North Policy Street and South Policy Street during the weekday AM peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection is anticipated to operate at an overall LOS D during the weekday AM peak hour, bringing operations back to the no-build condition.
- Under existing and future conditions, the intersection of Main Street at Pleasant Street and the Tuscan Market driveway is expected to operate at an overall LOS C during the weekday AM peak hour, LOS E or better during the weekday PM peak hour, and LOS D or better during the Saturday midday peak hour. Increases in overall delay as a result of the project are anticipated to be less than 14 seconds with no drops in overall LOS.
- Improvements at the intersection of Main Street at Central Street and Enter-Only Tuscan Kitchen Driveway include a connection to allow vehicles to enter the site from Central Street, but not allow vehicles to exit the site onto Central Street. Local traffic along Central Street will still be permitted to exit onto Main Street. In addition, left-turns from Main Street onto Central Street will be restricted. The roadway extension of Central Street into the site will allow a connection to the signalized northern site driveway on South Broadway (NH Route 28), thereby relieving The Depot of some Main Street eastbound right-turn movements. The anticipated increase in eastbound right-turns onto Central Street ranges from 114 to 177 vehicles. These right turns include site-generated traffic, as well as vehicles destined to South Broadway (NH Route 28) to the south.
- Due to the connection road at Central Street, traffic patterns are expected to shift at the Depot intersection. The anticipated decrease in eastbound right-turns at the Depot ranges from 112 to 174 vehicles. In addition, since the left-turns from Main Street onto Central Street will be restricted, the eastbound left-turn lane at the Depot will be extended slightly, from 225 feet to 300 feet. Per discussions with the Town, a ring road is also proposed to be constructed to the east of the Depot intersection in 2018. This ring road will reduce the number of westbound left turns at the Depot intersection. The volumes in the analysis does not account for this shift in traffic since engineered plans have not been prepared for this improvement, however, it is anticipated to alleviate traffic at the Depot.

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- Due to the impacts that the proposed project would have at the intersection of Main Street at Geremonty Drive during the weekday AM peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection operations are brought back to the no-build condition. It was noted in the field, that the LEFT TURN YIELD ON GREEN BALL sign (R10-12) facing the Geremonty Drive northbound approach was faded. It is recommended that this sign be replaced with a new one.
- The intersection of South Broadway (NH Route 28) at the Coca-Cola northern driveway and the proposed site driveway is expected to operate with capacity constraints and safety concerns that will be further exacerbated by future traffic growth. In order to improve operating and safety conditions at this intersection, the installation of a traffic control signal was evaluated. The proposed intersection of South Broadway (NH Route 28) at the site driveway and the Coca-Cola northern driveway is expected to meet all of the volume-related signal warrants. Accordingly, a traffic signal is recommended to be installed at this location. In addition to the signalization of the intersection, geometric improvements are also recommended which include a 200-foot northbound left-turn lane on South Broadway, a 200-foot southbound left-turn lane on South Broadway, a 200-foot southbound right-turn lane on South Broadway, and two approach lanes on the proposed Site driveway including an exclusive left-turn lane and a shared through/right-turn lane. With the proposed project and improvements in place, the intersection will operate under signal control at an overall LOS C or better during the weekday AM, weekday PM, and Saturday midday peak hours. Overall delays at the intersection are expected to be less than 25 seconds. Due to the location of this intersection in close proximity to The Depot intersection, these improvements will be implemented in 2019 at the same time as The Depot intersection improvements being implemented by the Town and NHDOT.
- Under existing and future conditions, the intersection of South Broadway at the Post Office driveway and the site driveway is expected to operate at an overall LOS B or better during the weekday AM and weekday PM peak hours, and an overall LOS C or better during the Saturday midday peak hour. Increases in delay on South Broadway and the Post Office driveway as a result of the project (Phase II) are anticipated to be less than 10 seconds with no drops in LOS. The proposed project is expected to add 1 vehicle or less to the queue length on any approach. Accordingly, no additional improvements are recommended as a result of Phase II.
- Under existing and future traffic-volume conditions, the overall intersection of South Broadway at Rockingham Park Boulevard and Veterans Memorial Parkway is anticipated to operate at LOS D or better during the weekday AM and weekday PM peak hours, and LOS E/F during the Saturday midday peak hour. As a result of the proposed development, increases delay on any movement are expected to be approximately

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7 seconds or less. Increases in queue lengths on any movement are expected to be 2 vehicles or less. The only drop in LOS as a result of the project is on the Rockingham Park Boulevard eastbound through movement during the Saturday midday due to an increase in delay of 7 seconds.

- Due to the impacts that the proposed project would have at the intersection of South Broadway at Kelly Road during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection operations are brought back to the no-build condition. It was noted in the field that there was a crosswalk across South Broadway, but no pedestrian signal accommodations in order to cross safely. It is recommended that a concurrent pedestrian phase run with phase 3 (Kelly Road approach) in order to cross South Broadway.
- Due to the impacts that the proposed project would have at the intersection of Rockingham Park Boulevard at the proposed site driveway during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection is expected to operate at an overall LOS C with overall intersection delay of 25 seconds. All v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.
- Due to the impacts that the proposed project would have at the intersection of Rockingham Park Boulevard at Mall Road during the Saturday midday peak hour, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection is expected to operate at an overall LOS D with overall intersection delay of 43 seconds or less.
- Due to the impacts that the proposed project would have at the intersection of Mall Road at the Rockingham Park Boulevard Flyover during the weekday PM and Saturday midday peak hours, improvement measures have been investigated. Accordingly, traffic signal timing modifications are recommended at this location. With the improved timings, the intersection is anticipated to operate at an overall LOS B and LOS C during the weekday PM and Saturday midday peak hours, respectively. All v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.
- The proposed site driveway creates the fourth leg to the unsignalized intersection of Mall Road at the Mall driveway, near the Sears Auto Center. Due to the added approach, a signal warrant was investigated, however, based on the available traffic volumes none of

the traffic-volume warrants were met. In addition, turn lane warrants were investigated for the unsignalized intersection. As a result, a southbound left-turn bay on Mall Road and a northbound right-turn bay on Mall Road were not warranted. It is recommended that the site driveway consist of two approach lanes including an exclusive left-turn lane and a shared through/right-turn lane. With the proposed project and two-lane approach in place, this intersection will operate with all movements at LOS C or better with exception to the site driveway left-turn movement during the Saturday midday peak hour which will operate with long delays (LOS F). Delays on all other movements are expected to be less than 20 seconds with v/c ratios below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes. Queue lengths on Mall Road are expected to be 1 vehicle or less.

- Under existing and future traffic-volume conditions, all movements at the intersection of Mall Road at Pleasant Street are anticipated to operate at LOS B or better during all peak hours. As a result of the proposed development, increases in delay are expected to be less than 2 seconds on any movement. Increases in queue lengths on any movement are expected to be 2 vehicles or less. Any drop in LOS on any movement as a result of the project is due to an increase in delay of less than 2 seconds.
- Under existing and future traffic-volume conditions, the overall intersection of Pleasant Street/Lowell Road at South Policy Street is anticipated to operate at LOS D or better during all peak hours. As a result of the proposed development, increases in overall intersection delay are expected to be negligible with increases on any movement to be less than 5 seconds. Increases in queue lengths on any movement are expected to be 2 vehicles or less. Any drop in LOS on any movement as a result of the project is due to an increase in delay of less than 5 seconds.
- The intersection of Pleasant Street at the proposed site driveway is unsignalized. With the proposed project in place, the intersection will operate with all movements at LOS B or better. Delays on Pleasant Street are expected to be negligible (< 1 second) and delays on the site driveway are expected to be less than 12 seconds with queue lengths of 1 vehicle or less. All v/c ratios are anticipated to be well below 1.00, indicating there will be adequate capacity to accommodate the anticipated traffic volumes.

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APPENDIX

**SALEM SCOPING MEETING FORM
TRAFFIC-COUNT DATA
TRAFFIC-VOLUME ADJUSTMENT DATA
BACKGROUND DEVELOPMENT DATA
VHB SCHEMATIC PLAN AND SIGNAL TIMINGS (NODE 6)
TRIP-GENERATION DATA
TRIP-DISTRIBUTION DATA
CONCEPTUAL IMPROVEMENT PLAN (NODE 9)
CAPACITY ANALYSIS METHODOLOGY
CAPACITY AND QUEUE ANALYSIS WORKSHEETS
WARRANT ANALYSES
CONCEPTUAL IMPROVEMENT SKETCH (NODE 8)**
