Bright View Engineering
Moving you forward

Traffic Impact Study

Lackawanna Redevelopment Plan Traffic Study
Montclair Township
Essex County, New Jersey
January 19, 2023

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I. INTRODUCTION

Bright View Engineering, LLC was tasked with performing a traffic impact study for the Lackawanna Plaza Redevelopment Plan, formerly known as the Lackawanna Station. The project site is divided by Grove Street into to the east site and west site. The east site is bounded by Glenridge Avenue to the North, Bloomfield Avenue to the South, and Grove Street to the West. The west site is bounded by Glenridge Avenue to the North, Bloomfield Avenue to the South, Grove Street to the East, and Lackawanna Plaza to the West.

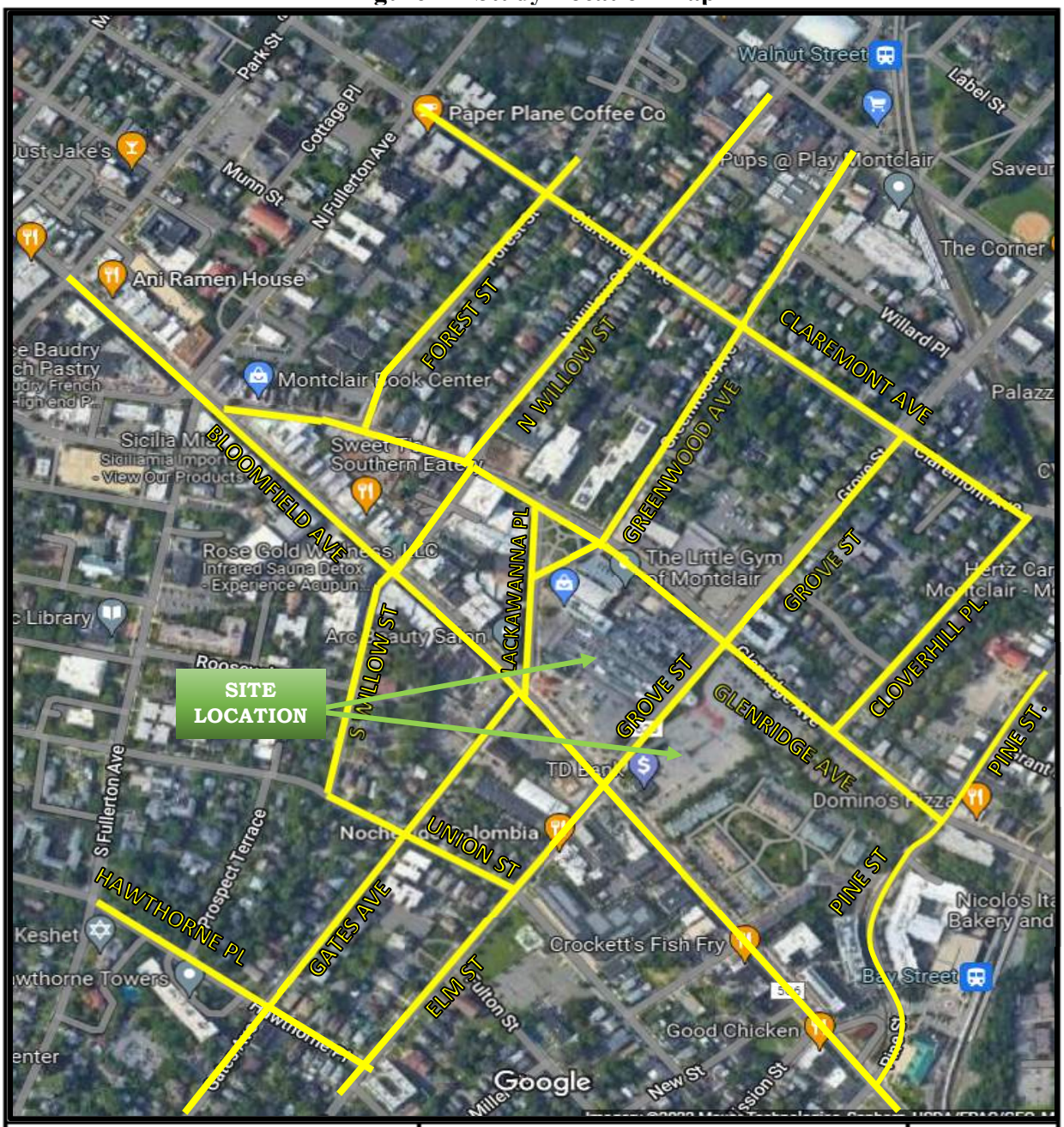
It is proposed to redevelop the east site to include 12,078 sf of retail space and 284 multi-family residential units, and the west site to include 39,671 sf grocery space, 35,440 sf retail space, 98,427 sf office space, and 86 multi-family residential units. A site location map is included within **Figure 1** on the following page.

Access to the east site is proposed via one (1) full-movement driveway along Glenridge Avenue, one (1) right-in/right-out driveway along Bloomfield Avenue, and a pick-up/drop-off driveway along Grove Street. Access to the west is proposed via two (2) full-movement driveways along Lackawanna Plaza, one (1) full-movement driveway along Glenridge Avenue, and one (1) right-in/right-out driveway pair along Bloomfield Avenue.

This study presents an evaluation of the current and future traffic conditions in the vicinity of the development and provides an analysis of the traffic impacts of the proposed development plan. Specific elements included in this study are:

- An inventory of the roadway facilities in the vicinity of the project, including the existing physical and traffic operating characteristics;
- Data Collection of the 2023 Existing Traffic Conditions;
- Site Generated Trips using the ITE Trip Generation Manual, 11th Edition;
- Trip Distribution and Assignment of the new vehicle trips;
- Full Build Traffic Volumes for the Full-Build year of 2026;
- Peak Hour Capacity Analysis for the Existing, No Build and Full Build Conditions;
- Recommendations for improvements to mitigate traffic impacts attributed to the proposed development;
- Summary and Conclusions.

Figure 1 – Study Location Map



Bright View Engineering *Moving you forward*	LACKAWANNA PLAZA REDEVELOPMENT PLAN MONTCLAIR TWP, ESSEX COUNTY, NJ	FIGURE 1

II. EXISTING CONDITIONS

A field investigation was conducted adjacent to the project site to obtain an inventory of existing roadway conditions, posted traffic controls, adjacent land uses, lane configurations of the roadways in the study area, and existing vehicular and pedestrian traffic patterns. The following is a brief description of the roadways:

Bloomfield Avenue (CR 506) has a general east to west orientation which spans approximately 0.6 miles in the study area. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97 The road acts as an Urban Principal Arterial under County jurisdiction according to the most recent NJDOT Straight Line Diagram (*last inventoried June 2012)*. The existing right-of-way width of Bloomfield Avenue is 72 ft. Bloomfield Ave generally consists of two travel lanes in each direction with no shoulders.

Grove Street (CR 623)/ Elm Street (CR 668) has a general north to south orientation which spans approximately 0.58 miles in the study area. The roadway is under County jurisdiction and is classified as an Urban Minor Arterial according to the most recent NJDOT Straight Line Diagram, *(last inventoried July 2011).* The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. The roadway provides one lane in each direction. The existing right-of-way width of Grove Street/Elm Street is 40 ft. On-street parking permitted along the roadway.

Lackawanna Avenue/ Gates Avenue has a general north to south orientation which spans approximately 0.39 miles in the study area. The road acts as an Urban Major Collector under Municipal jurisdiction according to the most recent NJDOT Straight Line Diagram (*last inventoried July 2011).*The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. Lackawanna Ave/ Gates Ave provides for bi-directional travel with a pavement width of 32 feet. On street parking is allowed on the southbound lane on Gates Avenue and both sides along Lackawanna Ave.

North Willow Street/ South Willow Street has a general north to south orientation which spans 0.42 miles along the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. North Willow Street/ South Willow Street allows for bi-directional travel with a pavement width of 32

feet. On-street parking is allowed on both sides on North Willow Street. South Willow Street prohibits parking along the northbound lane.

Glenridge Avenue has a general east to west orientation which spans approximately 0.45 miles along the study area. The road is under Municipal jurisdiction and is classified as an Urban Major Collector according to the most recent NJDOT Straight Diagram *(last inventoried September 2015)* . The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. The roadway provides for bi-directional travel with a pavement width of 30 feet. On-street parking is allowed in the study area.

Pine Street has a general south-north orientation which spans 0.25 miles along the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. Pine Street allows for bi-directional travel with a pavement width of 32 feet. On-street parking is allowed along the study area.

Cloverhill Place is a south-north oriented roadway which spans 0.19 miles along the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. The roadway consists of a pavement width of 24 feet and allows for bi-directional travels. On-street parking is prohibited along the southbound lane.

Claremont Avenue is an east-west orientated roadway which spans 0.36 miles in the study area . The roadway is under Municipal jurisdiction and is classified as an Urban Major Arterial according to the most recent NJDOT Straight Line Diagram, *(last inventoried August 2015).* The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. The roadway provides for bi-directional travel. The existing right-of-way width of Claremount Ave is 28 ft. On-street parking is prohibited along the roadway.

Greenwood Avenue has a general north-south orientation which spans 0.16 miles along the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section

98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. Greenwood Avenue allows for bi-directional travel with a pavement width of 38 feet. On-street parking is allowed in the study area.

Forest Street has a general south-north orientation which spans 0.19 miles along the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. The roadways allow for bi-directional travel with a pavement width of 34 feet. On-street parking is allowed in the study area.

Hawthorne Street is an east-west oriented roadway which spans 0.1 miles in the study area. There are no NJDOT Straight-line Diagrams available for this roadway. The speed limit for this roadway is posted at 25 MPH. It is our opinion that a 25 MPH speed limit is appropriate and conforms with the guidance set forth within the New Jersey Statutes Title 39, Chapter 4, Section 98, and the provisions set forth in R.S.39:4-96 and R.S.39:4-97. Hawthorne Street allows for bi-directional travel with a pavement width of 32 feet. On-street parking is allowed in the study area.

III. 2023 EXISTING TRAFFIC CONDITIONS

In order to gain a better understanding of existing traffic conditions, Bright View Engineering collected traffic data at the following locations in the vicinity of the site:

1. Bloomfield Avenue (CR 506) & Grove Street (CR 623) / Elm Street (CR 668)
2. Bloomfield Avenue (CR 506) & Lackawanna Avenue / Gates Avenue
3. Bloomfield Avenue (CR 506) & South Willow Street / North Willow Street
4. Glenridge Avenue & Pine Street
5. Glenridge Avenue & Clover Hill Road
6. Grove Street (CR 623) & Glenridge Avenue
7. Grove Street (CR 623) & Claremont Avenue
8. Glenridge Avenue & Greenwood Avenue
9. Glenridge Avenue & Lackawanna Plaza
10. Glenridge Avenue & South Willow Street / North Willow Street
11. Glenridge Avenue & Forest Street
12. Union Avenue / Washington Street & Elm Street
13. Gates Avenue & Union Street
14. Gates Avenue & Hawthorne Street

Manual Turning Movement Counts (*MTMC*) at the aforementioned locations were conducted on Thursday January 5, 2023, from 7:00 AM to 9:00 AM in the morning and from 2:00 PM to 6:00 PM and on Saturday January 7, 2023, from 10:00 AM to 2:00 PM. The common weekday morning peak hour for the entire network was determined to be 7:45 AM to 8:45 AM, the weekday evening peak hour is 5:00 PM to 6:00 PM, and the Saturday mid-day peak hour is 12:30 PM – 1:30 PM.

Establishment of Peak Hour Factor

The *peak hour factor (PHF)* is a ratio which expresses the relationship between the peak 15-minute flow rates and the full hourly volume. The PHF is calculated by multiplying the peak 15-minute flow rate at an intersection by four and then dividing the intersection hourly volume by that value. PHFs are usually observed between 0.80 and 0.98. These statistics indicate that the recorded traffic volumes approach the intersection consistently, with minimal interruption in the traffic stream.

The formula for the PHF is detailed below. **Table 1** depicts the observed peak hour factors:

$$PHF = \frac{V}{4*V15}$$ Whereas:

PHF .....represents the Peak Hour Factor
V.....represents the total hourly Volume; and,
V15.....represents the peak 15-minute Volume.

Table 1 – Peak Hour Factors (PHF)

Intersection	PHF by Peak Hour Period		
	AM	PM	SAT
Glenridge Ave. & Pine St.	0.92	0.95	0.97
Glenridge & Cloverhill Pl.	0.84	0.97	0.95
Glenridge Ave. & Grove St.	0.93	0.95	0.95
Grove St. & Claremont Ave.	0.88	0.95	0.96
Glenridge Ave. & Greenwood Ave.	0.87	0.94	0.97
Glenridge Ave. & Lackawanna Plaza	0.78	0.89	0.88
Glenridge Ave. & N Willow St.	0.94	0.94	0.90
Glenridge Ave. & Forest St.	0.81	0.87	0.92
Bloomfield Ave. & N Willow St. / S Willow St.	0.93	0.95	0.97
Bloomfield Ave. & Lackawanna Plaza	0.95	0.97	0.97
Bloomfield Ave. & Grove St.	0.91	0.96	0.95
Elm St. & Union St. / Washington St.	0.97	0.96	0.90
Gates Ave. & Union St.	0.87	0.93	0.87
Gates Ave. & Hawthorne Pl.	0.79	0.84	0.88
Avg.	**0.89**	**0.93**	**0.93**

These PHF's indicate consistent traffic progression during the peak hour, with no sudden increases in traffic during the fifteen-minute intervals counted. We noted during our field observations that traffic flow was consistent throughout the peak periods further corroborating the PHF calculation. It should be noted that based on our field observations and the resulting PHFs from our data collection, we opted to utilize the existing PHFs for all analyses. We felt that this was a reasonably conservative approach when examining the conditions in the study area. It is our opinion that each PHF is justified based on the background growth and the trip generation. This will result in increased trips and a more even distribution of traffic volume throughout all approaches in the study area. The 2023 existing traffic volumes can be found within **Appendix A.**

Establishment of Heavy Vehicle Factor

The *heavy vehicle (%)* is the percentage of heavy vehicles (*buses, two-axle six tire vehicles or larger*) utilizing the roadway. By accounting for heavy vehicles as an overall percentage of total vehicles on a roadway segment, we are better able to analyze how these vehicles impact the roadway network and get a better understanding of just what types of vehicles are using the roadway network during peak traffic periods. **Table 2** below depicts the heavy vehicles factors observed at each intersection during the AM, and PM Peak Hours.

Table 2 – Heavy Vehicle (%)

Intersection	Heavy Vehicle % by Peak Hour Period		
	AM	PM	SAT
Glenridge Ave. & Pine St.	5%	1%	0%
Glenridge & Cloverhill Pl.	3%	0%	0%
Glenridge Ave. & Grove St.	3%	3%	2%
Grove St. & Claremont Ave.	1%	1%	0%
Glenridge Ave. & Greenwood Ave.	3%	0%	0%
Glenridge Ave. & Lackawanna Plaza	2%	0%	0%
Glenridge Ave. & N Willow St.	1%	1%	1%
Glenridge Ave. & Forest St.	2%	0%	0%
Bloomfield Ave. & N Willow St. / S Willow St.	5%	1%	0%
Bloomfield Ave. & Lackawanna Plaza	3%	1%	1%
Bloomfield Ave. & Grove St.	4%	2%	3%
Elm St. & Union St. / Washington St.	12%	1%	1%
Gates Ave. & Union St.	4%	0%	0%
Gates Ave. & Hawthorne Pl.	4%	0%	0%
Avg.	**4%**	**1%**	**1%**

We utilized the existing heavy vehicle percentages for all analyses with a minimum of 2% heavy vehicle percentage per approach to be conservative. It is our opinion that each HV% is justified based on the background growth and the trip generation.

IV. HCM CAPACITY ANALYSIS

The peak hour traffic operations within the project vicinity were evaluated at each of the study intersections. The analyses were performed using the latest version of *Synchro, Version 11*; a traffic analysis and simulation program. The results of these analyses provide Level of Service (LOS), volume/capacity descriptions and average seconds of delay for the intersection movements.

The efficiency with which an intersection operates is a function of volume and capacity. The capacity of an intersection is the volume of vehicles it can accommodate during a peak hour. Level of Service is a qualitative measure describing operational conditions within a traffic stream in terms of traffic characteristics such as freedom to maneuver, traffic interruption, comfort, and convenience. Six LOS are defined for each type of facility with analysis procedures available. Levels of Service range from "A" through "F", with "A" representing excellent conditions with no delays and failure and deficient operations denoted by Level "F". The HCS 6th Edition LOS criteria for intersections are summarized in **Table 3**.

Table 3 – HCM 6th Edition: Signalized and Unsignalized LOS/Delay Criteria

Level of Service	Average Control Delay (sec/veh)	
	Signalized Intersection	Unsignalized Intersection
A	< 10	< 10
B	> 10 - 20	> 10 - 15
C	> 20 - 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

2023 Existing Conditions HCM Capacity Analysis

The existing peak hours of operation were evaluated at the study intersections for AM, PM, and Saturday traffic volumes. The results of these analyses provide Level of Service and average seconds of delay for the intersection movements. Levels of Service (LOS) are briefly detailed for the 2023 existing conditions in the **Table 4** below. Further details regarding the operating level of service and approach delays may be observed within the Synchro Reports found within the appendices at the end of this report.

Table 4 – 2023 Existing Conditions LOS/Delay

Intersection	Approach	AM	PM	SAT
Bloomfield Avenue & Grove Street / Elm Street	EBL	C/24.3	B/16.2	B/15.6
	EBTR	D/44.0	C/25.5	C/22.6
	WBL	C/20.2	C/22.3	B/18.9
	WBTR	C/34.4	D/38.9	C/33.3
	NBL	C/23.2	C/21.6	C/25.2
	NBTR	D/48.5	D/44.0	D/48.0
	SBL	C/31.5	C/24.6	C/27.7
	SBTR	D/46.1	D/41.1	E/56.8
	Overall	***D/39.4***	***C/33.6***	***C/34.2***
Bloomfield Avenue & Lackawanna Plaza / Gates Avenue	EBTR	A/9.7	B/12.4	A/6.9
	WBL	A/7.3	A/7.5	A/8.1
	WBTR	B/11.2	B/11.7	B/12.4
	NBLTR	D/36.9	C/34.7	C/29.9
	SBL	D/39.1	D/38.1	D/36.8
	SBTR	C/34.9	C/26.8	C/31.9
	Overall	***B/15.7***	***B/15.4***	***B/13.8***
Bloomfield Avenue & N Willow Street / S Willow Street	EBL	B/15.1	A/7.9	B/17.2
	EBT	B/16.7	A/9.7	C/20.6
	EBR	B/16.7	A/9.7	C/20.7
	WBL	C/27.4	A/0.9	A/7.2
	WBT	C/27.9	A/1.1	A/7.8
	WBR	C/27.9	A/1.1	A/7.8
	NBL	C/32.5	D/45.3	C/28.6
	NBT	C/26.7	D/37.2	C/23.2
	NBR	C/26.7	D/37.2	C/23.2
	SBL	D/39.9	D/53.4	D/35.2
	SBT	D/39.9	D/53.4	D/35.2
	SBR	D/39.9	D/53.4	D/35.2
	Overall	***C/24.3***	***B/12.5***	***B/17.0***

Table 4 – 2023 Existing Conditions LOS/Delay (*cont.*)

Intersection	Approach	AM	PM	SAT
Glenridge Avenue & Pine Street	EBL	A/0.5	A/0.6	A/0.5
	EBT	A/0.5	A/0.6	A/0.5
	EBR	A/0.5	A/0.6	A/0.5
	WBL	A/8.6	A/8.4	A/8.5
	WBT	A/8.6	A/8.4	A/8.5
	WBR	A/8.6	A/8.4	A/8.5
	NBL	C/24.8	C/24.7	C/24.6
	NBT	C/26.9	C/25.7	C/26.7
	NBR	C/26.9	C/25.7	C/26.7
	SBL	C/25.9	C/26.5	C/26.2
	SBT	C/25.9	C/26.5	C/26.2
	SBR	C/25.9	C/26.5	C/26.2
	Overall	***B/12.6***	***B/11.2***	***B/11.9***
Glenridge Avenue & Cloverhill Place	EB	A/0.6	A/0.5	A/0.2
	WB	A/0.0	A/0.0	A/0.0
	SB	B/13.0	B/10.7	B/12.0
Glenridge Avenue & Grove Street	EBL	C/22.3	C/24.6	C/24.0
	EBT	C/23.6	C/26.5	C/24.7
	EBR	C/23.6	C/26.5	C/24.7
	WBL	B/16.4	B/15.8	B/19.8
	WBT	B/16.4	B/15.8	B/19.8
	WBR	B/16.4	B/15.8	B/19.8
	NBL	B/15.7	B/15.4	B/14.1
	NBT	B/15.7	B/15.4	B/14.1
	NBR	B/15.7	B/15.4	B/14.1
	SBL	A/2.2	B/16.6	A/2.7
	SBT	A/2.2	B/16.6	A/2.7
	SBR	A/2.2	B/16.6	A/2.7
	Overall	***B/12.1***	***B/17.9***	***B/12.6***
Grove Street & Claremont Avenue	EBL	C/32.0	C/32.3	C/33.1
	EBT	C/30.6	D/36.0	C/30.4
	EBR	C/30.6	D/36.0	C/30.4
	WBL	D/37.2	D/43.7	D/36.0
	WBT	C/28.3	C/27.2	C/27.0
	WBR	C/28.3	C/27.2	C/27.0
	NBL	A/2.7	A/2.4	A/1.9
	NBT	A/2.7	A/2.4	A/1.9
	NBR	A/2.7	A/2.4	A/1.9
	SBL	B/13.6	B/14.3	B/14.6
	SBT	B/13.6	B/14.3	B/14.6
	SBR	B/13.6	B/14.3	B/14.6
	Overall	***B/17.6***	***B/19.5***	***B/17.7***
Glenridge Avenue & Greenwood Avenue	EB	A/1.1	A/0.9	A/0.4
	WB	A/0.0	A/0.0	A/0.0
	NB	B/11.3	B/12.1	B/11.3
	SB	B/12.7	C/15.4	B/12.3

Table 4 – 2023 Existing Conditions LOS/Delay (*cont.*)

Intersection	Approach	AM	PM	SAT
Glenridge Avenue & Lackawanna Plaza	EB	A/0.8	A/0.3	A/0.2
	WB	A/3.1	A/2.5	A/3.4
	NB	B/13.8	B/12.7	B/13.5
	SB	B/13.3	B/14.1	B/12.6
Glenridge Avenue & Willow Street	EB	A/7.6	A/8.6	A/8.9
	WB	A/8.5	A/9.3	A/9.6
	NB	A/7.8	A/9.0	A/9.5
	SB	A/8.2	A/8.8	A/8.9
Glenridge Avenue & Forest Street	EB	A/1.7	A/1.6	A/1.4
	SB	A/9.2	A/9.8	B/10.4
Elm Street & Union Street / Washington Street	EBL	C/25.7	C/25.4	C/25.1
	EBT	C/25.7	C/25.4	C/25.1
	EBR	C/25.7	C/25.4	C/25.1
	WBL	C/23.2	C/23.8	C/23.4
	WBT	C/23.2	C/23.8	C/23.4
	WBR	C/23.2	C/23.8	C/23.4
	NBL	B/10.4	B/10.7	B/10.2
	NBT	B/10.4	B/10.7	B/10.2
	NBR	B/10.4	B/10.7	B/10.2
	SBL	B/11.8	B/10.9	B/11.2
	SBT	B/11.8	B/10.9	B/11.2
	SBR	B/11.8	B/10.9	B/11.2
	Overall	***B/13***	***B/12.9***	***B/12.5***
Gates Avenue & Hawthorne Place	EB	B/11.7	B/11.5	B/10.6
	WB	B/14.8	B/12.7	B/11.1
	NB	B/0.5	A/0.3	A/0.3
	SB	B/3.0	A/3.3	A/2.8
Gates Avenue & Union Street	EB	A/9.4	A/9.3	A/8.7
	WB	B/10.3	A/9.1	A/9.1
	NB	A/9.3	A/8.7	A/8.3
	SB	A/8.8	A/9.0	A/8.4

Based on our analysis of the Existing Conditions, most of the movements of the study intersection operate at a Level of Service 'D' or better for all peak hours. However, at the intersection of Bloomfield Avenue and Elm Street / Grove Street, the southbound through-right movement operates at a Level of Service 'E' for the Saturday mid-day peak hour.

2026 No-Build Conditions

The No-Build traffic volumes refer to the Existing traffic volumes, plus background traffic growth and any additional traffic from projects in the area, not including the subject project. An overall growth rate of 2.00% (as per the current NJDOT annual background growth rate table for Essex County – Urban Minor Arterial) to the existing traffic volumes over a span of three (3) years yields the 2026 No Build traffic volumes.

The 2026 No Build peak hour volumes were developed by applying the growth rates to the study area roadways' existing traffic volumes and adding the site generated trips from the following developments:

- 10 Elm Street Mixed-Use Development (Montclair) – The development is comprised of 20 dwelling units and 1,100-sf of office space.
- 161 – 167 Glenridge Avenue Mixed-Use Development (Montclair) – The development is comprised of 17 dwelling units and 1,200-sf of retail space.
- 172 Glenridge Avenue Mixed-Use Development (Montclair) – The development is comprised of 17 dwelling units and 1,885-sf of retail space.
- 369-371 Bloomfield Avenue Residential Development (Montclair) – This development is comprised of 11 dwelling units.
- 103 Grove Street Self-Storage Facility (Montclair) – This development is comprised of 73,640-sf self-storage space with 665 storage units.
- 37 Orange Road Mixed-Use Development (Montclair) – This development is comprised of 40 dwelling units and 2,235-sf retail space.
- 59 Church Street Mixed-Use Development (Montclair) – This development is comprised of 74 dwelling units and 3,936-sf retail space.
- 6 Gates Avenue Mixed-Use Development (Montclair) – This development is comprised of 13,769-sf of office space and 4,854-sf of retail space.
- 610-612, 616 & 622 Bloomfield Avenue, 18 Ward Street, & 7 Farrand Street Mixed-Use Development (Bloomfield) – This development is comprised of 15 single-family townhouses and a 6-8 story building with 210 apartment units and 7,283-sf of retail space.
- 656-662 Bloomfield Avenue Mixed-Use Development (Bloomfield) – This development is comprised of 21 dwelling units and 1,423-sf of commercial space.

The Borough of Glen Ridge was contacted as well, but its Planning Board indicated there are no anticipated developments currently.

Traffic volumes from the developments above were based on trip generation rates obtained from the *Institute of Transportation Engineers (ITE), 11th Edition*. The resulting volumes are indicated on **Appendix A** for the Weekday morning, evening, and Saturday mid-day peak hours.

The Levels of Service (LOS) are briefly detailed for the 2026 No Build Conditions in **Table 5**. Further details regarding the operating level of service and approach delays may be observed within the Synchro Reports found within the appendices at the end of this report.

Table 5 – 2026 No-Build Conditions LOS/Delay

Intersection	Approach	AM	PM	SAT
Bloomfield Avenue & Grove Street / Elm Street	EBL	C/28.0	C/20.8	C/21.6
	EBTR	D/54.3	C/28.2	C/26.1
	WBL	C/21.6	C/24.2	C/21.1
	WBTR	D/36.4	D/41.8	D/37.2
	NBL	C/25.4	C/23.6	C/24.9
	NBTR	E/56.7	D/52.9	D/48.6
	SBL	D/41.0	C/30.2	C/28.3
	SBTR	D/53.7	D/45.8	E/58.2
	Overall	***D/45.8***	***D/37.9***	***D/36.9***
Bloomfield Avenue & Lackawanna Plaza / Gates Avenue	EBTR	B/11	B/12.1	A/7.2
	WBL	A/3.6	A/3.3	A/3.6
	WBTR	A/9.8	A/5.1	A/4.9
	NBLTR	D/39.1	D/36.3	C/30.3
	SBL	D/40.2	D/38.7	D/37.2
	SBTR	D/36	C/28	C/32.8
	Overall	***B/15.8***	***B/12.9***	***B/11.0***
Bloomfield Avenue & N Willow Street / S Willow Street	EBL	B/15.5	A/8.8	B/17.4
	EBT	B/17.2	B/11.1	C/21.3
	EBR	B/17.2	B/11.1	C/21.4
	WBL	C/28.2	A/1.2	A/7.8
	WBT	C/28.8	A/1.4	A/8.5
	WBR	C/28.8	A/1.4	A/8.5
	NBL	C/32.8	D/43.9	C/28.9
	NBT	C/32.8	D/43.9	C/28.9
	NBR	C/26.9	D/35.7	C/23.4
	SBL	D/41.0	D/52.5	D/36.1
	SBT	D/41.0	D/52.5	D/36.1
	SBR	D/41.0	D/52.5	D/36.1
	Overall	***C/25.1***	***B/13.2***	***B/17.7***
Glenridge Avenue & Pine Street	EBL	A/0.5	A/0.7	A/0.6
	EBT	A/0.5	A/0.7	A/0.6
	EBR	A/0.5	A/0.7	A/0.6
	WBL	A/8.8	A/8.6	A/8.7
	WBT	A/8.8	A/8.6	A/8.7
	WBR	A/8.8	A/8.6	A/8.7
	NBL	C/25.0	C/24.9	C/24.8
	NBT	C/27.2	C/25.9	C/26.9
	NBR	C/27.2	C/25.9	C/26.9
	SBL	C/26.0	C/26.7	C/26.5
	SBT	C/26.0	C/26.7	C/26.5
	SBR	C/26.0	C/26.7	C/26.5
	Overall	***B/12.7***	***B/11.2***	***B/12.0***

Table 5 – 2026 No-Build Conditions LOS/Delay (*cont.*)

Intersection	Approach	AM	PM	SAT
Glenridge Avenue & Cloverhill Place	EB	A/0.7	A/0.5	A/0.3
	WB	A/0.0	A/0.0	A/0.0
	SB	B/13.6	B/11.1	B/12.4
Glenridge Avenue & Grove Street	EBL	C/22.7	C/26.0	C/24.8
	EBT	C/23.9	C/27.1	C/25.1
	EBR	C/23.9	C/27.1	C/25.1
	WBL	B/17.6	B/17.5	C/20.7
	WBT	B/17.6	B/17.5	C/20.7
	WBR	B/17.6	B/17.5	C/20.7
	NBL	B/16.8	B/16.9	B/15.0
	NBT	B/16.8	B/16.9	B/15.0
	NBR	B/16.8	B/16.9	B/15.0
	SBL	A/3.0	A/4.2	A/3.6
	SBT	A/3.0	A/4.2	A/3.6
	SBR	A/3.0	A/4.2	A/3.6
	Overall	***B/12.9***	***B/14.4***	***B/13.4***
Grove Street & Claremont Avenue	EBL	C/33.5	C/34.2	D/35.1
	EBT	C/32.3	D/40.5	C/32.2
	EBR	C/32.3	D/40.5	C/32.2
	WBL	D/40.3	D/51.9	D/39.1
	WBT	C/29.2	C/28.0	C/27.7
	WBR	C/29.2	C/28.0	C/27.7
	NBL	A/3.8	A/3.5	A/2.5
	NBT	A/3.8	A/3.5	A/2.5
	NBR	A/3.8	A/3.5	A/2.5
	SBL	B/14.6	B/15.3	B/15.5
	SBT	B/14.6	B/15.3	B/15.5
	SBR	B/14.6	B/15.3	B/15.5
	Overall	***B/18.7***	***C/21.5***	***B/18.7***
Glenridge Avenue & Greenwood Avenue	EB	A/1.1	A/0.9	A/0.4
	WB	A/0.0	A/0.0	A/0.0
	NB	B/11.7	B/12.7	B/11.7
	SB	B/13.5	C/17.3	B/12.9
Glenridge Avenue & Lackawanna Plaza	EB	A/0.8	A/0.3	A/0.2
	WB	A/3.1	A/2.4	A/3.3
	NB	C/15.0	B/13.5	B/14.6
	SB	B/14.2	C/15.4	B/13.5
Glenridge Avenue & Willow Street	EB	A/7.8	A/9.0	A/9.3
	WB	A/8.7	A/9.9	B/10.2
	NB	A/7.9	A/9.5	B/10.1
	SB	A/8.4	A/9.1	A/9.2
Glenridge Avenue & Forest Street	EB	A/1.8	A/1.6	A/1.4
	SB	A/9.3	B/10.0	B/10.6

Table 5 – 2026 No-Build Conditions LOS/Delay (*cont.*)

Intersection	Approach	AM	PM	SAT
Elm Street & Union Street / Washington Street	EBL	C/26.6	C/26.6	C/25.7
	EBT	C/26.6	C/26.6	C/25.7
	EBR	C/26.6	C/26.6	C/25.7
	WBL	C/23.3	C/23.9	C/23.5
	WBT	C/23.3	C/23.9	C/23.5
	WBR	C/23.3	C/23.9	C/23.5
	NBL	B/10.8	B/11.3	B/10.6
	NBT	B/10.8	B/11.3	B/10.6
	NBR	B/10.8	B/11.3	B/10.6
	SBL	B/12.7	B/11.6	B/11.8
	SBT	B/12.7	B/11.6	B/11.8
	SBR	B/12.7	B/11.6	B/11.8
	Overall	***B/13.9***	***B/13.8***	***B/13.2***
Gates Avenue & Hawthorne Place	EB	B/12.3	B/11.9	B/10.9
	WB	C/16.3	B/13.4	B/11.5
	NB	A/0.5	A/0.4	A/0.4
	SB	A/3.0	A/3.1	A/2.8
Gates Avenue & Union Street	EB	A/10.0	A/10.0	A/9.0
	WB	B/11.2	A/9.8	A/9.6
	NB	A/9.8	A/9.1	A/8.6
	SB	A/9.4	A/9.6	A/8.8

Based on our analysis of the 2026 No-Build Conditions, the study intersections maintain an overall Level of Service ‘D’ or better for all peak hours. At the intersection of Bloomfield Avenue and Elm Street / Grove Street, the southbound through-right movement maintains a Level of Service ‘E’ for the Saturday mid-day peak hour but has a slight increase in delay while the northbound through-right movement increases in delay to a Level of Service ‘E’ for the weekday morning peak hour.

V. TRIP GENERATION AND DISTRIBUTION

The proposed development is located within the Township of Montclair, Essex County, New Jersey. The proposed development is separated into the east site which consists of residential and retail spaces, and the west site which consists of residential, retail, and office spaces. The area surrounding the proposed site is observed to be a combination of commercial and residential type land uses. As part of our analysis, we examined the surrounding land uses in order to gain a better understanding as to the trip generation and distribution in the project area. Trip generation and distribution were calculated based upon the *Institute of Transportation Engineers* (ITE) accepted design standards and the naturally occurring traffic patterns observed during our data collection period.

Trip Generation

The proposed sites will be redeveloped as follows:

West Site	East Site
39,671 SF – Grocery Space	12,078 SF – Retail Space
35,440 SF – Retail Space	284 DU – Multi-family Residential units
98,427 SF – Office Space	
86 DU – Multi-family Residential Units	

In order to better understand the trip generation for the proposed use, we examined various land use codes within the ITE Manual, 11th Edition and determined that the following land use codes were appropriate for the proposed development:

- LUC 710 General Office Building
- LUC 220 Multifamily Housing (Low-Rise)
- LUC 821 Shopping Plaza (40,000 sf – 150,000 sf)
- LUC 822 Strip Retail Plaza (less than 40,000 sf)

The development is located in close proximity to major train and bus services. For our analysis, we utilized the sub-category: Close to Rail Transit for the LUC 220 Multifamily Housing (Low-Rise) for the morning and evening peak hours. Since this sub-category is not provided for the Saturday peak hour, Not Close to Rail Transit was utilized for this peak hour.

Table 6 depicts the trip generation rates for the West Site and East Site utilized based on the ITE Manual, 11th Edition. The ITE Trip Generation Rates were utilized for the analysis as it provided an accurate description of the different land uses for the proposed mix use development.

Table 6a – ITE 11th Edition Trip Generation Rates – West Site

LUC	Unit	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
710	98,427 SF	145	20	165	28	136	164	28	24	52
220	86 DU	9	24	33	31	21	52	18	17	35
821	75.111 SF	164	101	265	334	361	695	355	341	696
Total		**365**	**246**	**611**	**526**	**611**	**1147**	**498**	**479**	**977**

Table 6b – ITE 11th Edition Trip Generation Rates – East Site

LUC	Unit	AM Peak Hour			PM Peak Hour			SAT Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL	IN	OUT	TOTAL
220	284 DU	31	77	108	104	69	173	58	58	116
822	12,078 SF	20	13	33	45	44	99	40	39	79
Total		**365**	**246**	**611**	**526**	**611**	**1147**	**498**	**479**	**977**

There is one (1) pick-up/drop-off and rideshare driveway on each site. Based on the US rideshare market, approximately 15% of Americans use rideshare services daily. We obtained 15% of the residential and retail trips and distributed them to the pick-up/drop off and rideshare driveways for each site. The remaining site trips were then distributed to the other full movement driveways on each site.

Per the ITE guidelines, pass-by trips are a subset of trip generation which typically are only applied to commercial and retail developments as these types of developments are commonly located along business roadways and are more likely to attract traffic passing by the site on route to another destination. These trips are attributed to existing traffic on the roadway network, which is attracted to the development and are not considered to be "new traffic".

A pass-by rate of 40% was applied to the Weekday evening peak hour, and a pass-by rate of 31% was applied to the Saturday peak hour consistent with ITE and NJDOT recommended pass-by rates. The pass-by trips associated with the proposed development plan is anticipated as follows:

Table 6c – ITE 11th Edition Trip Generation Rates – Pass-by Trips

Site	LUC	PM Peak Hour			SAT Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
West Site	821 – Shopping Plaza	139	139	278	108	108	216
East Site	821 – Shopping Plaza	18	18	36	12	12	24

Trip Distribution

Trip distribution methodology is developed based on a variety of factors. These factors include the size and type of land use generating trips, the existing travel patterns within the adjacent roadway network adjacent land uses, traffic restrictions, type of traffic generated by the proposed land use, and the proximity of major arterials within the project vicinity.

We utilized gravity models for each land use, including the office, residential, and retail space, within the development to determine the distribution for this study. The office component of the gravity model utilizes US Census Journey to Work data to estimate where people who work in Montclair live and uses Google Maps routing to route each town of residence to the site. The residential component of the gravity model utilizes a similar approach, based on where people who live in Montclair commute to work. The retail model is based on a weighted analysis of population centers in the vicinity of the site, utilizing population and distance.

Access to the east site is proposed via one (1) full movement driveway along Glenridge Avenue, one (1) right-in/right-out driveway along Bloomfield Avenue, and a pick-up/drop-off driveway along Grove Street. Access to the west is proposed via two (2) full movement driveways along Lackawanna Plaza, one (1) full movement driveway along Glen Ridge Avenue, and one (1) one-way right-in right-out driveway pair along Bloomfield Avenue.

The resulting total Site Generated Trips are illustrated within **Appendix A.** The gravity models trip distribution for the Office Trips, Residential Trips, Retail New Trips, and Retail Pass-by Trips are illustrated within **Appendix B**. The various gravity models and corresponding map routes can also be found within **Appendix B**.

The overall trip distribution utilized for the site generated trips are detailed in the **Table 7** below.

Table 7 – Trip Distribution

Origin	Approach	% Distribution		
		Office	**Residential**	**Retail**
N	To/From Grove Street	45%	32%	18%
S	To/From Elm Street	12%	9%	9%
	To/From Gates Avenue	2%	0%	5%
E	To/From Claremont Avenue	0%	5%	14%
	To/From Glenridge Avenue	13%	2%	19%
	To/From Bloomfield Avenue	19%	20%	8%
W	To/From Claremont Avenue	0%	9%	18%
	To/From Bloomfield Avenue	9%	14%	3%
	To/From Union Street	0%	9%	6%
Total		**100%**	**100%**	**100%**

VI. 2026 FULL-BUILD TRAFFIC CONDITIONS

To assess the impact of the proposed development, the site generated trips for the proposed development were added to the 2026 No Build volumes previously discussed. Access to the west site is proposed via a full-movement driveway along Glenridge Avenue, two (2) full-movement driveways along Lackawanna Plaza, and a pick-up/drop-off and ride share parking area with a horseshoe driveway off Bloomfield Avenue. Access to the east site is proposed via a right-in/right-out driveway on Bloomfield Avenue, a full-movement driveway on Glenridge Avenue, and a small horseshoe driveway for a pick-up/drop-off and ride share parking area off Grove Street. The site driveways and the study intersections were analyzed using *Synchro* version 11. The resulting 2026 Full-Build Volumes of the project are provided in **Appendix A** for the Weekday morning, evening, and Saturday mid-day peak hours.

Under the 2026 Full Build Conditions, all movements at the proposed access points operate at Level of Service 'C' or better during the Weekday morning, evening, and Saturday mid-day peak hours, with the exception of the Building B driveway on Glenridge Ave during the Weekday evening peak hour, which operates at a Level of Service 'D'.

The intersection of **Bloomfield Avenue & Grove Street/Elm Street** operates at an overall Level of Service 'D' during both all three (3) peak hours. The northbound through-right movement operates at Level of Service 'E' during the Weekday morning and evening peak hour, while the southbound through-right movement operates at a Level of Service 'E' during the Weekday morning and Saturday mid-day peak hour.

The intersection of **Grove Street & Glenridge Avenue** operates at an overall Level of Service 'E' or better during all three (3) peak hours; however, the eastbound left movement operate at Level of Service 'F' during the Weekday evening peak hour. The westbound left movement operates at a Level of Service 'E' during the Weekday evening peak hour, and the eastbound left movement operates at a Level of Service 'E' during the Saturday mid-day peak hour.

The intersection of **Grove Street & Claremont Avenue** operates at an overall Level of Service 'C' during all three (3) peak hours; however, the westbound left and northbound left movements operate at a Level of Service 'F' during the Weekday evening peak hour.

The 2026 Full Build Conditions traffic simulation also showed queue spillback along Grove Street/Elm Street northbound extending from the intersection with Claremont Avenue to the intersection with Washington Street/Union Street, as well as Grove Street southbound from the intersection with Bloomfield Avenue to the intersection with Claremont Avenue.

Along Grove Street near the project site, improvements have been identified to address both existing deficiencies and the new site generated traffic. At the intersection of **Bloomfield Avenue & Grove Street/Elm Street**, improvements include minor timing modifications. At the intersection of **Grove Street & Glenridge Avenue**, improvements include adding dedicated left-turn lanes to the southbound, westbound, and northbound approaches, as well as adding a lead left turn phase for Glenridge Avenue. At the intersection of **Grove Street & Claremont Avenue**, improvements include adding dedicated left-turn lanes to the northbound and southbound approaches. Finally, due to the new site generated traffic, the offset at **Bloomfield Avenue & Willow Street** can be modified to further improve traffic conditions along this segment of Bloomfield Avenue. Concept level improvement plans and order of magnitude cost estimate have been prepared to depict the identified improvements. These plans are located in **Appendix C**.

The resulting volumes for the full build conditions are depicted in **Appendix A**. Levels of Service (LOS) are briefly detailed for the 2026 No Build, Full Build, and Full Build with Mitigation in **Table 8a, Table 8b and Table 8c** for the Weekday morning, evening, and Saturday mid-day peak hours, respectively. **Table 9** details the Levels of Service (LOS) for the proposed driveways for the development. Further details regarding the operating level of service and approach delays may be observed within the Synchro Reports found within the appendices at the end of this report.

Table 8a – 2026 No- Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay - AM

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Bloomfield Avenue & Grove Street / Elm Street	EBL	C/28.0	C/28.5	B/19.2
	EBTR	D/54.3	D/54.0	C/25.0
	WBL	C/21.6	C/22.0	C/25.1
	WBTR	D/36.4	D/38.2	D/41.7
	NBL	C/25.4	C/30.7	C/25.4
	NBTR	E/56.7	E/61.1	D/52.7
	SBL	D/41.0	D/46.4	C/34.8
	SBTR	D/53.7	E/58.5	D/49.2
	Overall	***D/45.8***	***D/48.1***	***D/38.3***
Bloomfield Avenue & Lackawanna Plaza / Gates Avenue	EBTR	B/11	B/11.2	A/9.5
	WBL	A/3.6	A/3.7	A/3.9
	WBTR	A/9.8	A/9.8	A/6.2
	NBLTR	D/39.1	D/41.4	D/39.6
	SBL	D/40.2	D/43.9	D/42.7
	SBTR	D/36	D/36.5	D/36.5
	Overall	***B/15.8***	***B/16.7***	***B/14.5***
Bloomfield Avenue & N Willow Street / S Willow Street	EBL	B/15.5	B/15.6	B/14.3
	EBT	B/17.2	B/17.4	B/17.4
	EBR	B/17.2	B/17.4	B/17.4
	WBL	C/28.2	C/28.4	B/14.1
	WBT	C/28.8	C/29.1	B/14.4
	WBR	C/28.8	C/29.1	B/14.4
	NBL	C/32.8	C/32.8	C/32.8
	NBT	C/26.9	C/26.9	C/26.9
	NBR	C/26.9	C/26.9	C/26.9
	SBL	D/41.0	D/41.0	D/41.0
	SBT	D/41.0	D/41.0	D/41.0
	SBR	D/41.0	D/41.0	D/41.0
	Overall	***C/25.1***	***C/25.2***	***B/19.1***
Glenridge Avenue & Pine Street	EBL	A/0.5	A/0.6	A/0.6
	EBT	A/0.5	A/0.6	A/0.6
	EBR	A/0.5	A/0.6	A/0.6
	WBL	A/8.8	A/9.2	A/9.2
	WBT	A/8.8	A/9.2	A/9.2
	WBR	A/8.8	A/9.2	A/9.2
	NBL	C/25.0	C/25.0	C/25.0
	NBT	C/27.2	C/27.2	C/27.2
	NBR	C/27.2	C/27.2	C/27.2
	SBL	C/26.0	C/26.0	C/26.0
	SBT	C/26.0	C/26.0	C/26.0
	SBR	C/26.0	C/26.0	C/26.0
	Overall	***B/12.7***	***B/12.3***	***B/12.3***
Glenridge Avenue & Cloverhill Place	EB	A/0.6	A/0.6	A/0.6
	WB	A/0.0	A/0.0	A/0.0
	SB	B/14.6	B/14.6	B/14.6

Table 8a – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – AM (*cont.*)

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Glenridge Avenue & Grove Street	EBL	C/22.7	C/28.6	C/20.5
	EBT	C/23.9	C/24.3	C/24.3
	EBR	C/23.9	C/24.3	C/24.3
	WBL	B/17.6	C/28.5	B/18.3
	WBT	B/17.6	C/28.5	B/18.3
	WBR	B/17.6	C/28.5	B/18.3
	NBL	B/16.8	B/18.5	C/34.4
	NBT	B/16.8	B/18.5	C/27.8
	NBR	B/16.8	B/18.5	C/27.8
	SBL	A/3.0	A/8.1	B/19.9
	SBT	A/3.0	A/8.1	C/20.8
	SBR	A/3.0	A/8.1	C/20.8
	Overall	***B/12.9***	***B/17.7***	***C/22.8***
Grove Street & Claremont Avenue	EBL	C/33.5	C/33.5	C/33.5
	EBT	C/32.3	C/34.1	C/34.1
	EBR	C/32.3	C/34.1	C/34.1
	WBL	D/40.3	D/46.1	D/46.1
	WBT	C/29.2	C/29.2	C/29.2
	WBR	C/29.2	C/29.2	C/29.2
	NBL	A/3.8	A/10.0	A/8.6
	NBT	A/3.8	A/10.0	A/2.5
	NBR	A/3.8	A/10.0	A/2.5
	SBL	B/14.6	B/16.9	A/9.7
	SBT	B/14.6	B/16.9	B/16.7
	SBR	B/14.6	B/16.9	B/16.7
	Overall	***B/18.7***	***C/21.4***	***B/19.2***
Glenridge Avenue & Greenwood Avenue	EB	A/1.1	A/1.1	A/1.1
	WB	A/0.0	A/0.0	A/0.0
	NB	B/11.7	B/11.7	B/11.7
	SB	B/13.5	B/13.5	B/13.5
Glenridge Avenue & Lackawanna Plaza	EB	A/0.8	A/0.8	A/0.8
	WB	A/3.1	A/3.1	A/3.1
	NB	C/15.0	C/15.0	C/15.0
	SB	B/14.2	B/14.2	B/14.2
Glenridge Avenue & Willow Street	EB	A/7.8	A/7.8	A/7.8
	WB	A/8.7	A/8.7	A/8.7
	NB	A/7.9	A/7.9	A/7.9
	SB	A/8.4	A/8.4	A/8.4
Glenridge Avenue & Forest Street	EB	A/1.8	A/1.8	A/1.8
	SB	A/9.3	A/9.3	A/9.3

Table 8a – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – AM (*cont.)*

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Elm Street & Union Street / Washington Street	EBL	C/26.6	C/26.7	C/26.7
	EBT	C/26.6	C/26.7	C/26.7
	EBR	C/26.6	C/26.7	C/26.7
	WBL	C/23.3	C/23.3	C/23.3
	WBT	C/23.3	C/23.3	C/23.3
	WBR	C/23.3	C/23.3	C/23.3
	NBL	B/10.8	B/11.1	B/11.1
	NBT	B/10.8	B/11.1	B/11.1
	NBR	B/10.8	B/11.1	B/11.1
	SBL	B/12.7	B/13.1	B/13.1
	SBT	B/12.7	B/13.1	B/13.1
	SBR	B/12.7	B/13.1	B/13.1
	Overall	***B/13.9***	***B/14.1***	***B/14.1***
Gates Avenue & Hawthorne Place	EB	B/12.3	B/12.5	B/12.5
	WB	C/16.3	C/16.8	C/16.8
	NB	A/0.5	A/0.4	A/0.4
	SB	A/3.0	A/2.9	A/2.9
Gates Avenue & Union Street	EB	A/10.0	B/10.3	B/10.3
	WB	B/11.2	B/11.7	B/11.7
	NB	A/9.8	B/10.1	B/10.1
	SB	A/9.4	A/9.6	A/9.6

Table 8b – 2026 No- Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay - PM

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Bloomfield Avenue & Grove Street / Elm Street	EBL	C/20.8	C/25.6	C/29.4
	EBTR	C/28.2	C/34.8	C/32.0
	WBL	C/24.2	C/26.0	C/32.0
	WBTR	D/41.8	D/44.3	D/41.1
	NBL	C/23.6	C/29.2	C/29.5
	NBTR	D/52.9	E/58.8	D/46.5
	SBL	C/30.2	D/36.8	D/37.0
	SBTR	D/45.8	D/49.6	D/39.7
	Overall	***D/37.9***	***D/42.4***	***D/37.8***
Bloomfield Avenue & Lackawanna Plaza / Gates Avenue	EBTR	B/12.1	B/12.8	B/13.3
	WBL	A/3.3	A/4.0	A/4.7
	WBTR	A/5.1	A/6.4	A/6.3
	NBLTR	D/36.3	D/40.7	D/40.7
	SBL	D/38.7	D/52.7	D/52.7
	SBTR	C/28	C/33.7	C/33.7
	Overall	***B/12.9***	***B/16.5***	***B/16.7***
Bloomfield Avenue & N Willow Street / S Willow Street	EBL	A/8.8	A/8.8	A/8.8
	EBT	B/11.1	B/11.3	B/11.2
	EBR	B/11.1	B/11.2	B/11.2
	WBL	A/1.2	A/1.2	A/1.2
	WBT	A/1.4	A/1.5	A/1.4
	WBR	A/1.4	A/1.5	A/1.4
	NBL	D/43.9	D/43.9	D/43.9
	NBT	D/35.7	D/35.7	D/35.7
	NBR	D/35.7	D/35.7	D/35.7
	SBL	D/52.5	D/52.5	D/52.5
	SBT	D/52.5	D/52.5	D/52.5
	SBR	D/52.5	D/52.5	D/52.5
	Overall	***B/13.2***	***B/13.1***	***B/13.1***
Glenridge Avenue & Pine Street	EBL	A/0.7	A/1.0	B/15.8
	EBT	A/0.7	A/1.0	B/15.8
	EBR	A/0.7	A/1.0	B/15.8
	WBL	A/8.6	A/9.0	A/9.0
	WBT	A/8.6	A/9.0	A/9.0
	WBR	A/8.6	A/9.0	A/9.0
	NBL	C/24.9	C/24.9	C/24.9
	NBT	C/25.9	C/25.9	C/25.9
	NBR	C/25.9	C/25.9	C/25.9
	SBL	C/26.7	C/26.7	C/26.7
	SBT	C/26.7	C/26.7	C/26.7
	SBR	C/26.7	C/26.7	C/26.7
	Overall	***B/11.2***	***B/10.5***	***B/16.5***
Glenridge Avenue & Cloverhill Place	EB	A/0.5	A/0.4	A/0.4
	WB	A/0.0	A/0.0	A/0.0
	SB	B/11.1	B/11.9	B/11.9

Table 8b – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – PM (*cont.*)

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Glenridge Avenue & Grove Street	EBL	C/26.0	F/218.9	D/41.8
	EBT	C/27.1	C/30.6	D/35.5
	EBR	C/27.1	C/30.6	D/35.5
	WBL	B/17.5	E/62.0	C/25.4
	WBT	B/17.5	E/62.0	D/49.0
	WBR	B/17.5	E/62.0	D/49.0
	NBL	B/16.9	B/19.6	C/28.6
	NBT	B/16.9	B/19.6	C/25.5
	NBR	B/16.9	B/19.6	C/25.5
	SBL	A/4.2	D/47.2	C/24.9
	SBT	A/4.2	D/47.2	B/17.6
	SBR	A/4.2	D/47.2	B/17.6
	Overall	***B/14.4***	***E/61.2***	***C/29.6***
Grove Street & Claremont Avenue	EBL	C/34.2	C/34.2	C/28.8
	EBT	D/40.5	D/50.3	C/34.3
	EBR	D/40.5	D/50.3	C/34.3
	WBL	D/51.9	F/108.0	D/54.1
	WBT	C/28.0	C/28.0	C/23.4
	WBR	C/28.0	C/28.0	C/23.4
	NBL	A/3.5	D/40.7	B/17.2
	NBT	A/3.5	D/40.7	A/7.1
	NBR	A/3.5	D/40.7	A/7.1
	SBL	B/15.3	B/18.5	B/13.3
	SBT	B/15.3	B/18.5	C/21.8
	SBR	B/15.3	B/18.5	C/21.8
	Overall	***C/21.5***	***D/37.9***	***C/21.7***
Glenridge Avenue & Greenwood Avenue	EB	A/0.9	A/0.9	A/0.9
	WB	A/0.0	A/0.0	A/0.0
	NB	B/12.7	B/12.7	B/12.7
	SB	C/17.3	C/17.3	C/17.3
Glenridge Avenue & Lackawanna Plaza	EB	A/0.3	A/0.3	A/0.3
	WB	A/2.4	A/2.4	A/2.4
	NB	B/13.5	B/13.5	B/13.5
	SB	C/15.4	C/15.4	C/15.4
Glenridge Avenue & Willow Street	EB	A/9.0	A/9.0	A/9.0
	WB	A/9.9	A/9.9	A/9.9
	NB	A/9.5	A/9.5	A/9.5
	SB	A/9.1	A/9.1	A/9.1
Glenridge Avenue & Forest Street	EB	A/1.6	A/1.6	A/1.6
	SB	B/10.0	B/10.0	B/10.0

Table 8b – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – PM (*cont.*)

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Elm Street & Union Street / Washington Street	EBL	C/26.6	C/26.9	C/26.9
	EBT	C/26.6	C/26.9	C/26.9
	EBR	C/26.6	C/26.9	C/26.9
	WBL	C/23.9	C/23.9	C/23.9
	WBT	C/23.9	C/23.9	C/23.9
	WBR	C/23.9	C/23.9	C/23.9
	NBL	B/11.3	B/11.7	B/11.7
	NBT	B/11.3	B/11.7	B/11.7
	NBR	B/11.3	B/11.7	B/11.7
	SBL	B/11.6	B/12.4	B/12.4
	SBT	B/11.6	B/12.4	B/12.4
	SBR	B/11.6	B/12.4	B/12.4
	Overall	***B/13.8***	***B/14.3***	***B/14.3***
Gates Avenue & Hawthorne Place	EB	B/11.9	B/12.4	B/12.4
	WB	B/13.4	B/14.0	B/14.0
	NB	A/0.4	A/0.3	A/0.3
	SB	A/3.1	A/2.5	A/2.5
Gates Avenue & Union Street	EB	A/10.0	B/10.8	B/10.8
	WB	A/9.8	B/10.4	B/10.4
	NB	A/9.1	A/9.6	A/9.6
	SB	A/9.6	B/10.3	B/10.3

Table 8c – 2026 No- Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay - SAT

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Bloomfield Avenue & Grove Street / Elm Street	EBL	C/21.6	C/25.8	C/29.4
	EBTR	C/26.1	C/29.7	C/32.0
	WBL	C/21.1	C/22.5	C/32.0
	WBTR	D/37.2	D/39.7	D/41.1
	NBL	C/24.9	C/28.2	C/29.5
	NBTR	D/48.6	D/48.6	D/46.5
	SBL	C/28.3	C/28.1	D/37.0
	SBTR	E/58.2	E/59.1	D/39.7
	Overall	***D/36.9***	***D/38.9***	***D/37.8***
Bloomfield Avenue & Lackawanna Plaza / Gates Avenue	EBTR	A/7.2	A/7.4	A/8.6
	WBL	A/3.6	A/4.1	A/4.6
	WBTR	A/4.9	A/6.2	A/6.4
	NBLTR	C/30.3	D/35.1	D/35.1
	SBL	D/37.2	D/43.3	D/43.3
	SBTR	C/32.8	D/35.7	D/35.7
	Overall	***B/11.0***	***B/13.7***	***B/14.3***
Bloomfield Avenue & N Willow Street / S Willow Street	EBL	B/17.4	B/17.4	B/17.4
	EBT	C/21.3	C/21.5	C/21.5
	EBR	C/21.4	C/21.6	C/21.6
	WBL	A/7.8	A/7.9	A/7.9
	WBT	A/8.5	A/8.6	A/8.6
	WBR	A/8.5	A/8.6	A/8.6
	NBL	C/28.9	C/28.9	C/28.9
	NBT	C/28.9	C/28.9	C/28.9
	NBR	C/23.4	C/23.4	C/23.4
	SBL	D/36.1	D/36.1	D/36.1
	SBT	D/36.1	D/36.1	D/36.1
	SBR	D/36.1	D/36.1	D/36.1
	Overall	***B/17.7***	***B/17.7***	***B/17.7***
Glenridge Avenue & Pine Street	EBL	A/0.6	A/0.7	A/0.7
	EBT	A/0.6	A/0.7	A/0.7
	EBR	A/0.6	A/0.7	A/0.7
	WBL	A/8.7	A/9.1	A/9.1
	WBT	A/8.7	A/9.1	A/9.1
	WBR	A/8.7	A/9.1	A/9.1
	NBL	C/24.8	C/24.8	C/24.8
	NBT	C/26.9	C/26.9	C/26.9
	NBR	C/26.9	C/26.9	C/26.9
	SBL	C/26.5	C/26.5	C/26.5
	SBT	C/26.5	C/26.5	C/26.5
	SBR	C/26.5	C/26.5	C/26.5
	Overall	***B/12.0***	***B/11.4***	***B/11.4***
Glenridge Avenue & Cloverhill Place	EB	A/0.3	A/0.2	A/0.2
	WB	A/0.0	A/0.0	A/0.0
	SB	B/12.4	B/13.5	B/13.5

Table 8c – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – SAT (*cont.*)

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Glenridge Avenue & Grove Street	EBL	C/24.8	E/69.1	D/49.1
	EBT	C/25.1	C/26.5	D/35.2
	EBR	C/25.1	C/26.5	D/35.2
	WBL	C/20.7	D/36.0	C/24.1
	WBT	C/20.7	D/36.0	D/46.6
	WBR	C/20.7	D/36.0	D/46.6
	NBL	B/15.0	B/15.7	B/12.2
	NBT	B/15.0	B/15.7	B/17.0
	NBR	B/15.0	B/15.7	B/17.0
	SBL	A/3.6	B/14.3	A/5.6
	SBT	A/3.6	B/14.3	A/7.2
	SBR	A/3.6	B/14.3	A/7.2
	Overall	***B/13.4***	***C/25.6***	***C/23.0***
Grove Street & Claremont Avenue	EBL	D/35.1	D/35.1	D/35.1
	EBT	C/32.2	D/35.9	D/35.9
	EBR	C/32.2	D/35.9	D/35.9
	WBL	D/39.1	D/50.8	D/50.8
	WBT	C/27.7	C/27.7	C/27.7
	WBR	C/27.7	C/27.7	C/27.7
	NBL	A/2.5	B/10.1	A/9.4
	NBT	A/2.5	B/10.1	A/9.4
	NBR	A/2.5	B/10.1	A/9.4
	SBL	B/15.5	B/17.8	A/9.8
	SBT	B/15.5	B/17.8	B/17.5
	SBR	B/15.5	B/17.8	B/17.5
	Overall	***B/18.7***	***C/22.1***	***B/20.0***
Glenridge Avenue & Greenwood Avenue	EB	A/0.4	A/0.4	A/0.4
	WB	A/0.0	A/0.0	A/0.0
	NB	B/11.7	B/11.7	B/11.7
	SB	B/12.9	B/12.9	B/12.9
Glenridge Avenue & Lackawanna Plaza	EB	A/0.2	A/0.2	A/0.2
	WB	A/3.3	A/3.3	A/3.3
	NB	B/14.6	C/14.6	C/14.6
	SB	B/13.5	B/13.5	B/13.5
Glenridge Avenue & Willow Street	EB	A/9.3	A/9.3	A/9.3
	WB	B/10.2	B/10.2	B/10.2
	NB	B/10.1	B/10.1	B/10.1
	SB	A/9.2	A/9.2	A/9.2
Glenridge Avenue & Forest Street	EB	A/1.4	A/1.4	A/1.4
	SB	B/10.6	B/10.6	B/10.6

Table 8c – 2026 No-Build vs Full-Build vs Full-Build w/ Mitigation LOS/Delay – SAT (*cont.*)

Intersection	Approach	No-Build	Full Build	Full Build – Mit.
Elm Street & Union Street / Washington Street	EBL	C/25.7	C/26.0	C/26.0
	EBT	C/25.7	C/26.0	C/26.0
	EBR	C/25.7	C/26.0	C/26.0
	WBL	C/23.5	C/23.5	C/23.5
	WBT	C/23.5	C/23.5	C/23.5
	WBR	C/23.5	C/23.5	C/23.5
	NBL	B/10.6	B/11.0	B/11.0
	NBT	B/10.6	B/11.0	B/11.0
	NBR	B/10.6	B/11.0	B/11.0
	SBL	B/11.8	B/12.4	B/12.4
	SBT	B/11.8	B/12.4	B/12.4
	SBR	B/11.8	B/12.4	B/12.4
	Overall	***B/13.2***	***B/13.6***	***B/13.6***
Gates Avenue & Hawthorne Place	EB	B/10.9	B/11.2	B/11.2
	WB	B/11.5	B/11.8	B/11.8
	NB	A/0.4	A/0.3	A/0.3
	SB	A/2.8	A/2.3	A/2.3
Gates Avenue & Union Street	EB	A/9.0	A/9.5	A/9.5
	WB	A/9.6	B/10.1	B/10.1
	NB	A/8.6	A/8.9	A/8.9
	SB	A/8.8	A/9.3	A/9.3

Table 9 – 2026 Full Build – Proposed Site Driveway LOS/Delay

Intersection	Approach	AM	PM	SAT
Bloomfield Avenue & Bloomfield Avenue Site Egress	EB	A/0.0	A/0.0	A/0.0
	WB	A/0.0	A/0.0	A/0.0
	SB	B/11.3	B/12.6	B/12.6
Bloomfield Avenue & Building E Driveway	EB	A/0.0	/0.0	A/0.0
	WB	/0.0	/0.0	A/0.0
	SB	B/11.7	B/11.7	B/11.7
Grove Street & Grove Street Site Egress	WB	B/12.7	B/13.1	B/11.9
	NB	A/0.0	A/0.0	A/0.0
	SB	A/0.0	A/0.0	A/0.0
Glenridge Avenue & Building D Driveway	EB	A/0.0	A/0.0	A/0.0
	WB	A/0.1	A/0.2	A/0.2
	NB	B/14.3	C/17.0	B/14.7
Glenridge Avenue & Building B Driveway	EB	A/0.0	A/0.0	A/0.0
	WB	A/3.5	A/4.5	A/4.2
	NB	A/9.6	D/33.6	C/18.2
Lackawanna Plaza & Building A Driveway	WB	B/10.7	B/10.7	B/10.5
	NB	A/0.0	A/0.0	A/0.0
	SB	A/0.0	A/0.0	A/0.0
Lackawanna Plaza & Building A Driveway	WB	B/11.2	B/11.1	B/11.2
	NB	A/0.0	A/0.0	A/0.0
	SB	A/0.0	A/0.0	A/0.0

VII. SUMMARY AND CONCLUSIONS

The proposed redevelopment at Lackawanna Plaza consists of a west site and east site. The east site is proposed to include 12,078 sf of retail space and 284 multi-family residential units, and the west site is proposed to include 39,671 sf grocery space, 35,440 sf retail space, 98,427 sf office space, and 86 multi-family residential units. Access to the east site is proposed via a right-in/right-out driveway on Bloomfield Avenue, a full-movement driveway on Glenridge Avenue, and a small horseshoe driveway for a pick-up/drop-off and ride share parking area off Grove Street. Access to the west site is proposed via a full-movement driveway along Glenridge Avenue, two (2) full-movement driveways along Lackawanna Plaza, and a right in / right out pick-up/drop-off and ride share parking area with a horseshoe driveway off Bloomfield Avenue.

We believe based upon our analysis and firsthand knowledge of the existing traffic conditions within the study area, the proposed redevelopment at Lackawanna Plaza in Montclair Township, Essex County, NJ will operate similar levels of service as the compared to the No-Build Scenario, provided the following improvements are implemented in conjunction with the project:

- Modifying signal timings at **Bloomfield Avenue & Grove Street**, and **Grove Street & Claremont Avenue**, as well as modifying offsets at **Bloomfield Avenue & Willow Street**.

- Adding dedicated left turn lanes to the southbound, westbound, and northbound approaches at **Grove Street & Glenridge Avenue**, and modifying the signal timing to include a lead left turn phase for Glenridge Avenue.

- Adding dedicated left turn lanes to the northbound and southbound approaches at **Grove Street & Claremont Avenue**.

- We find that the access points for the proposed redevelopment will operate at acceptable levels of service with the improvements contemplated herewith.

- Based upon our analysis, it is our engineering judgement that the driveways associated with the development of the subject site will operate safely and efficiently as currently proposed.

Https://bvengr.sharepoint.com/sites/bvengr/proj/232411-Montclair-LackawannaTIS/7-Reports-Analysis/TIS-1-19-23-signed.docx