

# O'TOOLE SCRIVO

ATTORNEYS AT LAW

**THOMAS P. SCRIVO**  
tscrivo@oslaw.com

March 12, 2021

**BY E-MAIL AND OVERNIGHT MAIL**

Mr. Thomas Banker  
Borough Administrator  
Borough of Caldwell  
1 Provost Square  
Caldwell, New Jersey 07006

**Re:   Redevelopment Plan  
      S&S Caldwell Village, LLC  
      Block 41, Lot 2, 3, 3.01 & 4 (the "Properties")**

Dear Mr. Banker:

This firm represents S&S Caldwell Village, LLC, which was designated redeveloper of the Properties by Resolution dated March 9, 2021. As required by Section 6.11 of the Redevelopment Plan adopted December 15, 2020, enclosed is a Traffic Impact Study by Dynamic Traffic dated March 11, 2021.

Please feel free to communicate with me regarding this matter. Thank you.

Very truly yours,



Thomas P. Scrivo

Encl.

cc:   S&S Caldwell Village, LLC

# TRAFFIC IMPACT STUDY

*For*

## The Caldwell Village

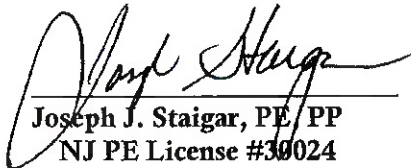
*Property Located at:*

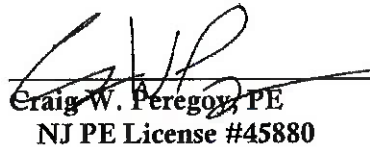
Lane Avenue  
Block 41 – Lots 2, 3.01, 3 & 4  
Borough of Caldwell, Essex County, NJ

Prepared by:



1904 Main Street | 245 Main Street, Suite #113  
Lake Como, NJ 07719 | Chester, NJ 07930  
(732) 681-0760

  
Joseph J. Staigar, PE / PP  
NJ PE License #39024

  
Craig W. Perego, PE  
NJ PE License #45880

March 11, 2021

1463-15-002TE

## INTRODUCTION

It is proposed to construct a 112 unit multi-family residential development on a parcel of land currently occupied by 18 existing dwelling units; so that there is an increase of 94 multi-family residential units. The site is located on the east side of Lane Avenue south of its intersection with Bloomfield Avenue in the Borough of Caldwell, Essex County, New Jersey. The site is designated as Block 41 – Lots 2 3.01, 3 and 4 on the Borough Tax Maps. Two (2) full movement driveways along Lane Avenue will provide access to the proposed site. Parking will be provided via 248 parking spaces.

Dynamic Traffic LLC has been retained to prepare this study to assess the potential traffic impact associated with the construction of The Project on the adjacent roadway network. This Traffic Impact Study was prepared in conformance with the applicable standards published by the Institute of Transportation Engineers with the purpose to determine if additional improvements to the infrastructure are necessary to mitigate any impacts created by the proposed redevelopment. This Study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday morning and weekday evening peak periods at the intersection of Lane Avenue and Bloomfield Avenue, and compared to historic data collected to normalize the counts from current Covid-19 pandemic conditions.
- Projections of traffic to be generated by The Project were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Build conditions at the site driveways.
- The proposed site driveway was inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.
- The site plan as designed was reviewed for sufficiency in accommodating large wheel base vehicles such as refuse trucks.
- The parking layout and supply was assessed based on accepted design standards and demand experienced at similar developments.

## EXISTING CONDITIONS

A review of the existing roadway conditions near the proposed site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

### Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Lane Avenue is an urban major collector roadway under the jurisdiction of Essex County. In the vicinity of the site the posted speed limit is 25 miles per hour and the roadway provides one travel lane in each direction. Curb is provided along both sides of the roadway, while sidewalk is provided along the west side of the roadway and along the east side of the roadway from the northerly boundary of the subject property to Bloomfield Avenue. Lane Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Lane Avenue in the vicinity of The Project are primarily residential.

Bloomfield Avenue is an urban principal arterial roadway under the jurisdiction of Essex County. In the vicinity of the site the posted speed limit is 35 miles per hour the roadway provides two travel lanes in each direction. Curb and sidewalk is provided along both sides of the roadway. Bloomfield Avenue provides a curved horizontal alignment and a vertical alignment that slopes from east to west at its intersection with Lane Avenue. The land uses along Bloomfield Avenue in the vicinity of The Project are a mix of residential and commercial.

Lane Avenue intersects Bloomfield Avenue to form a three-leg signalized intersection with a 120 second cycle length. The eastbound approach of Bloomfield Avenue provides a through lane and a shared through/right-turn lane. The westbound approach of Bloomfield Avenue provides a left-turn lane with a protected lead and two through lanes. The northbound approach of Lane Avenue provides a left turn lane and a right turn lane.

The intersection offers pedestrian facilities including crosswalks, ADA curb ramps, and pedestrian signal heads and buttons.

### Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Thursday, March 4, 2021. These counts were conducted for purposes of observing the current traffic conditions of the intersection and the proportional distribution of the turning movements. However, given the current Covid-19 pandemic conditions, we know that traffic volumes of this count do not reflect normal conditions. Thus, we relied upon traffic counts taken by this firm on Tuesday, April 7, 2015 between 7:00 and 9:00 AM and between 4:00 and 6:00 PM, at the intersection of Bloomfield Avenue and Lane Avenue. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) occurs from 7:45–8:45 AM, the weekday evening PSH occurs from 4:30–5:30 PM. Two-way volumes across the site frontage are as follows:

**Table I  
2015 Traffic Volumes of Lane Avenue**

AM PSH			PM PSH		
NB	SB	Total	NB	Out	Total
230	379	609	249	210	459

To adjust the 2015 traffic volumes to current 2021 traffic volumes an annual growth rate as determined by the New Jersey Department of Transportation from historical data based on a Collector Road in Essex County. That annual growth rate is 1% and applied for a six (6) year period to the volumes of Table I to develop Table II:

**Table II  
2021 Traffic Volumes of Lane Avenue**

AM PSH			PM PSH		
NB	SB	Total	NB	Out	Total
244	402	646	264	223	487

**FUTURE CONDITIONS**

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. The growth rate for the base volumes of Lane Avenue were further adjusted.

Future 2023 No Build traffic volumes were developed by applying the background growth rate of 1.0% for two (2) years to the 2021 traffic volumes and provided in Table III:

**Table III  
2023 Traffic Volumes of Lane Avenue**

AM PSH			PM PSH		
NB	SB	Total	NB	Out	Total
249	410	659	270	228	498

**Traffic Generation**

Projections of future traffic volumes were developed utilizing data as published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 10<sup>th</sup> Edition* for Land Use Code (LUC) 221 – Multi-Family Housing (Mid-Rise). Table IV summarizes the projected trips generated by the proposed development utilizing the ITE data.

**Table IV  
Trip Generation 112 Units – Proposed Total Driveway Volumes**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
112 Unit Multi-Family Housing	10	29	39	31	19	50

However, as previously mentioned, there are eighteen (18) units currently on the site and the actual net increase in the number of multi-family housing units is 94 units. Therefore, the net increase of trip generation to Lane Avenue is as provided in Table V:

**Table V  
Trip Generation 94 Units – Net Increase in Trip Generation**

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
94 Unit Multi-Family Housing	8	24	32	26	16	42

It is noted that the site is serviced by readily available and convenient mass transit. There are a total of two (2) NJ Transit Bus Routes within less than ¼ mile walking distance of the site. These public transit services will diminish the trip and parking generation of the site, yet no adjustment was taken to decrease the trip generation that would be offset by available bus transit service.

Based on the orientation of existing traffic volumes and the setting of the site within the surrounding arterial network, the following trip distribution of Table VI is projected:

**Table VI  
Trip Distribution**

AM PSH			PM PSH		
NB	SB	Total	NB	SB	Total
40%	60%	100%	55%	45%	100%

Based on the net increase in traffic of Table V and the projected distribution of Table VI, the intersection of Lane Avenue and Bloomfield Avenue will experience an increase of 13 trips (10 exits and 3 enters) during the morning peak hour and 21 trips (12 enters and 9 exits) during the evening peak hour.

Based on that same methodology, Lane Avenue, south of the site and to/from Westville Avenue would experience 19 trips (14 exits and 5 enters) during the morning peak hour and 21 trips (14 enters and 7 exits) during evening peak hour.

Furthermore, it should be noted that the number of new trips falls below the industry accepted standard of a significant increase in traffic of 100 trips. Based on *Transportation Impact Analysis for Site Development*, published by the ITE “it is suggested that a transportation impact study be conducted whenever a proposed development will generate 100 or more added (new) trips during the adjacent roadways’ peak hour or the development’s peak hour.” Additionally, NJDOT has determined that the same 100 vehicle threshold is considered a “significant increase in traffic,” hence, it is not anticipated that the proposed mixed-use development will have any perceptible impact on the traffic operation of the adjacent roadway network. As presented above, the subject development will generate a maximum of only 21% of this threshold.

Therefore, the intersections of Bloomfield Avenue with Lane Avenue to the north and the intersections along Lane Avenue to the south, and namely that of Westville Avenue, will not experience a significant increase in traffic and the proposed development will have no significant impact on those nearest intersections, to the north and south along Lane Avenue. Given the excellent dispersion capabilities beyond these aforementioned intersections, those intersections beyond these locations will experience even lesser traffic volumes and lesser potential impacts. In particular the following intersections were specifically assessed to determine what level of potential impacts may occur:

- Bloomfield Avenue and Academy Road
- Bloomfield Avenue and Central Avenue
- Bloomfield Avenue and Park Avenue
- Bloomfield Avenue and Smull Avenue
- Bloomfield Avenue and Forest Avenue
- Bloomfield Avenue and Roseland Avenue
- Bloomfield Avenue and Provost Square
- Bloomfield Avenue and Elm Road
- Bloomfield Avenue and Mountain Avenue
- Roseland Avenue and Westville Avenue

These intersections are located along the Bloomfield Avenue corridor to the east of the intersection of Bloomfield Avenue and Lane Avenue. The nearest intersection is Bloomfield Avenue and Central Avenue which is 0.42 miles to the east. The furthest intersection is Bloomfield Avenue and Elm Road which is 1.2 miles to the east. The other listed intersections are located varying distances in between these two (2) mentioned intersections. There are other intersections along Bloomfield Avenue in between Lane Avenue and the listed intersections that would divert traffic to and from Bloomfield Avenue that would cause for site-generated trips of the proposed development to never reach the listed intersections. Thus, of the 21 trips generated by the proposed development during the peak hour at Bloomfield Avenue and Lane Avenue, approximately one-half would destine to or originate from the west (toward or from the Township of West Caldwell), and never affect the listed intersections. Additionally, the approximate one-half of the 21 site-generated peak hour trips that destine to or originate from the east, some of those trips will be diverted to or from the intersections in between. In essence, the increase in traffic resulting from the proposed development to any of the listed intersections would be of the order of magnitude of less than ten (10) trips per hour.

No or negligible site-generated peak hour trips that would destine to and originate from the south would not traverse through the listed intersections and have no impact upon them.

No significant impacts to the capacity of the surrounding roadway network were identified that were required to be mitigated by improvements to the infrastructure, except for the implementation of a sidewalk along the entire site frontage. This provides pedestrian connectivity to the intersection of Lane Avenue and Bloomfield Avenue, where there is NJ Transit bus service stops for the #29 and #71 bus lines.

### **Future Capacity Analysis**

The methodology utilized in the capacity analyses is described in Special Report 209, *Highway Capacity Manual 2010*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table VII describes the level of service ranges for unsignalized (stop controlled) intersections.



**Table VII  
Level of Service Criteria  
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the 2010 Highway Capacity Manual assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles. In this case, a traffic signal as located approximately 250 feet to the north of the site, which will have a beneficial effect on the operational conditions of the site access driveways.

All capacity analyses were performed utilizing Highway Capacity Software. Table III summarizes the existing levels of service and delay.

Operational conditions at the study intersections were analyzed under the Build conditions and are summarized in Table V below.

**Table VIII  
Future Build Levels of Service**

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Lane Avenue & Site Driveways	WB	LR	-	b (13)	-	b (11)
	SB	LT	-	a (8)	-	a (8)

a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

### Lane Avenue and Site Driveways

With the addition of the site traffic the intersection movements will operate with favorable levels of service “B” or better during the AM and PM peak hours. See Table VIII for the individual movement levels of service and delays.

It is noted that there will be two (2) site driveways that will accommodate turning movements to and from the subject site, thus dispersing the site traffic over those driveways. The analyses were conservatively performed with all site traffic utilizing a single driveway.

## **SITE PLAN**

### **Site Access and Circulation**

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via two (2) full movement driveways along Lane Avenue.

The newly constructed parking lot will be serviced by parking aisles with widths between 22 feet and 24 feet, which will allow for two-way circulation and 90 degree parking. Design vehicles, replicating refuse vehicles and delivery vehicles (SU-30), as well as emergency vehicles were reviewed for circulation of the site, and were found to be able to adequately circulate the site within the paved areas.

### **Parking**

The Borough of Caldwell Redevelopment Plan sets forth a parking requirement of 2.0 parking spaces per residential unit. With 112 units proposed this equates to a parking requirement of 224 parking spaces. The site as proposed provides 248 parking spaces and the ordinance requirement is exceeded. This further exceeds the Residential Site Improvement Standards (RSIS) parking of 211 parking spaces.

It is proposed to provide parking stalls with dimensions of 9 feet x 18 feet which meet the Redevelopment Plan and RSIS standards.

## FINDINGS & CONCLUSIONS

### Findings

Based upon the detailed analyses as documented herein, the following findings are noted:

- When considering that there are eighteen (18) existing units, the proposed 112 multi-family residential units, will generate a net increase of 8 entering trips and 24 exiting trips during the morning peak hour and 26 entering trips and 16 exiting trips during the evening peak hour peak hour.
- Given the relatively low magnitude of peak hour trips and the distribution to and from the site, there will be no significant increase of traffic volume to surrounding roadways and intersections that will produce a significant detrimental traffic impact, and in particular, those intersections specifically identified and listed in the Borough of Caldwell Redevelopment Plan.
- Access to the site will be provided via two (2) full movement driveway along Lane Avenue.
- With the addition of the site generated traffic the intersection movements of Lane Avenue and the site driveways will operate with favorable levels of service “B” or better during the peak hours studied.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of all vehicles that will utilize the site layout.
- The proposed parking supply and design is sufficient to support the projected demand and meets the Borough requirements.

### Conclusions

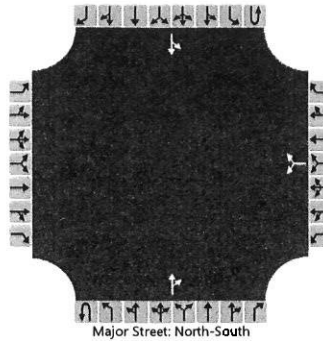
Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the Borough of Caldwell will not experience any significant degradation in operating conditions with the construction of The Project. The site driveway is located to provide safe and efficient access to the adjacent roadway system. The site plan as proposed provides for good circulation throughout the site and provides adequate parking to accommodate The Project’s needs.

## **Technical Appendix**

# HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	3/10/2021	East/West Street	Proposed Driveway
Analysis Year	2023	North/South Street	Lane Avenue
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	The Caldwell Village		

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						17		12			249	6		4	410	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type   Storage	Undivided															

## Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

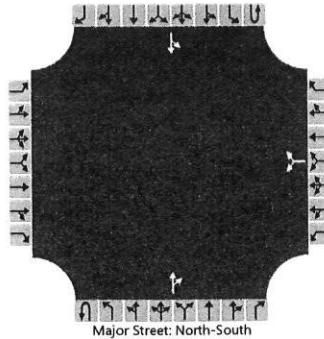
## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						32								4		
Capacity, c (veh/h)						486								1280		
v/c Ratio						0.06								0.00		
95% Queue Length, Q <sub>95</sub> (veh)						0.2								0.0		
Control Delay (s/veh)						12.9								7.8		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					12.9								0.1			
Approach LOS					B											

# HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst		Intersection	
Agency/Co.		Jurisdiction	
Date Performed	3/10/2021	East/West Street	Proposed Driveway
Analysis Year	2023	North/South Street	Lane Avenue
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	The Caldwell Village		

## Lanes



## Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration							LR					TR		LT			
Volume (veh/h)						8		11			270	17		16	228		
Percent Heavy Vehicles (%)						3		3						3			
Proportion Time Blocked																	
Percent Grade (%)						0											
Right Turn Channelized																	
Median Type   Storage						Undivided											

## Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2								4.1	
Critical Headway (sec)						6.43		6.23								4.13	
Base Follow-Up Headway (sec)						3.5		3.3								2.2	
Follow-Up Headway (sec)						3.53		3.33								2.23	

## Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						21										17	
Capacity, c (veh/h)						590										1243	
v/c Ratio						0.04										0.01	
95% Queue Length, Q <sub>95</sub> (veh)						0.1										0.0	
Control Delay (s/veh)						11.3										7.9	
Level of Service (LOS)						B										A	
Approach Delay (s/veh)						11.3									0.6		
Approach LOS						B									A		