

3 March 2021

Borough of Bogota
Planning Board
375 Larch Avenue
Bogota, NJ 07603

**Re: Traffic Assessment
30 Cross Street
Proposed Industrial Development
Borough of Bogota/Village of Ridgefield Park, Bergen County, NJ
Langan Project No.: 130148001**

Dear Board Members:

Langan Engineering & Environmental Services has prepared this traffic statement for the proposed redevelopment of 30 Cross Street located in the Borough of Bogota and the Village of Ridgefield Park, Bergen County, New Jersey. The overall site consists of Block 113, Lots 7, 7.01, 7.02, 7.03, 8, 8.01, and 8.02 in Bogota and Block 152.01, Lots 1, 1.01, and 2 in Ridgefield Park, most recently occupied as the Bogota Golf and Sports Center. The applicant currently proposes an industrial development consisting of two buildings, totaling 187,530 square feet (sf).

Specifically, we performed the following tasks:

- Reviewed the redevelopment proposal,
- Reviewed the projected operations and associated site trip generation,
- Assessed traffic impact, and
- Reviewed the site plan for access and circulation adequacy.

The proposed redevelopment will generate approximately 51 additional trips during the weekday morning peak hour and 65 less trips during the weekday evening peak hour when compared to the full operation of the Bogota Golf and Sports Center. The facility will generate less than 100 new trips and therefore does not generate a "significant increase in traffic" as defined by the New Jersey Department of Transportation.

We expect area traffic operations will not significantly change because of redevelopment to the proposed industrial development, particularly during commuting periods. The site design is consistent with current standards and provides adequate access, circulation and parking.

REDEVELOPMENT PROPOSAL

The Bogota Golf and Sports Center is located west of Industrial Avenue at the western terminus of Cross Street. The recreational facility includes a driving range, an indoor miniature golf course,

indoor batting cages, and basketball courts. Two driveways provide site access along Industrial Avenue. Figure 1 (attached) shows the site location.

The applicant proposes to redevelop the site and construct two industrial buildings, totaling 187,530 sf. Building 1, approximately 98,400 sf, will be located in the Village of Ridgefield Park. Building 2, approximately 89,130 sf, will be located in the Borough of Bogota.

The applicant proposes to close the existing driveways and construct five new driveways along Industrial Avenue. The proposed site driveways will be full-access and stop-controlled. Tractor-trailers to both industrial buildings will use one shared driveway located between the buildings. Passenger cars will use the remaining four driveways, one located south of Building 1 and three located north of Building 2.

SCOPE OF STUDY

Industrial Drive and Cross Street form a continuous undivided road that provides one lane for each travel direction near the site. Cross Street will accommodate all site-generated traffic. Accordingly, we focused this traffic evaluation on the River Road (County Route 41) and Cross Street intersection.

Cross Street and the QuickChek exit driveway intersect River Road (CR 41) to form a four-way intersection under stop-control. The eastbound Cross Street approach provides one shared left-turn/right-turn lane and is stop-controlled. The westbound QuickChek exit driveway provides one shared left-turn/thru/right-turn lane and is stop-controlled. The northbound River Road approach provides one shared left-turn/thru lane. The southbound River Road approach provides one shared thru/right-turn lane.

EXISTING TRAFFIC VOLUMES

Langan arranged for traffic counts to be conducted at the intersection of River Road (CR 41) and Cross Street on Wednesday, January 15, 2020, from 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. Based on the traffic counts, the weekday morning peak hour occurred from 7:45 AM to 8:45 AM and the weekday evening peak hour occurred from 5:00 PM to 6:00 PM.

Figure 2 shows the existing peak hour traffic volumes, and the traffic counts are included as an attachment.

FUTURE TRAFFIC VOLUMES

No-Build Condition

We assumed a 2023 build year for analysis purposes. We increased the existing traffic volumes by an annual 2.5% growth rate to account for background traffic growth to derive the 2023 base traffic volumes. The New Jersey Department of Transportation has published that growth rate

for minor arterial roads, such as River Road, in Bergen County. Figure 3 shows the 2023 Base traffic volumes.

We prepared trip generation for full operation of the existing Bogota Golf and Sports Center using data compiled for Land Use 432 (Golf Driving Range) and Land Use 435 (Multipurpose Recreational Facility) by the Institute of Transportation Engineers (ITE) as contained in the publication Trip Generation, 10th Edition. Figure 4 shows the estimated trip generation for the Bogota Golf and Sports Center at full operation.

We derived the 2023 No-Build traffic volumes by adding the site-generated trips for the full operation of the Bogota Golf and Sports Center to the 2023 Base traffic volumes. Figure 5 shows the 2023 No-Build traffic volumes.

Site-Generated Trips

We prepared trip generation for the proposed industrial development using data compiled for Land Use 130 (Industrial Park) by the ITE as contained in the publication Trip Generation, 10th Edition. An industrial park may include some combination of warehouse, light industrial, office, and manufacturing uses. For this land use, ITE indicates that 3% of morning peak hour trips and 2% of evening peak hour trips will be trucks.

Table 1 shows the estimated trip generation for the proposed industrial development.

Table 1 – Trip Generation Estimates

187,530 sf Industrial Park	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	In	Out	Total	In	Out	Total
Passenger Cars	59	14	73	16	57	73
Trucks	2	0	2	0	2	2
Total Trips	61	14	75	16	59	75

Table 2 compares the trip generation of the existing and proposed land uses. The industrial park is expected to generate 51 more trips during the weekday morning peak hour and 65 less trips during the weekday evening peak hour compared to the recreational facility at full operation.

Table 2 – Trip Generation Comparison

Land Use	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	In	Out	Total	In	Out	Total
Multipurpose Recreational Facility (LUC 432/435) (approx. 39,000 sf)	15	9	24	77	63	140
Industrial Park (LUC 130) (approx. 187,530 sf)	61	14	75	16	59	75
Difference	+ 46	+ 5	+ 51	- 61	- 4	- 65

Trip Distribution and Assignment

We used published journey-to-work census data to prepare trip distribution models for the industrial traffic. We assigned site-generated traffic based on the likely routes motorists would use to travel to and from the site.

We expect all site generated trips to access the site via Cross Street and River Road. The majority of passenger cars will arrive and depart the site from the south on River Road, which provides the most direct access to Interstate Highway 80 to and from the west and the New Jersey Turnpike to and from the south through the local roadway network.

We anticipate all trucks will arrive and depart the site from the north on River Road. A railroad bridge over River Road, located approximately 600 feet south of Cross Street, has a posted clearance of 13 feet, 3 inches, which significantly limits the type of trucks that can use this route.

Table 3 shows the trip distributions for each design vehicle.

Table 3 – Trip Distribution

Direction (To/From)	Arrival & Departure Distributions	
	Passenger Cars	Trucks
River Road (CR 41) (North)	30%	100%
River Road (CR 41) (South)	70%	-
Total	100%	100%

Figures 6 through 11 illustrate the trip distribution and site-generated trips.

Build Traffic Volumes

We derived the 2023 Build traffic volumes by adding the total site-generated trips to the 2023 No-Build traffic volumes. Figure 12 shows the 2023 Build traffic volumes.

CAPACITY ANALYSIS

We conducted a capacity analysis of the study intersections using HCS software. The HCS software uses methodologies contained in the Highway Capacity Manual published by the Transportation Research Board. Level of Service (LOS) is the term used to denote the operating condition of a road segment or intersection under prevailing conditions and reflects several factors such as number of travel lanes, traffic volume, speed, and motorist delay. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing poor operating conditions.

For unsignalized intersections, the analysis considers the operation of all movements that conflict with other movements, such as main-line left turns and traffic exiting a side street.

The HCM defines LOS for unsignalized intersections as follows:

LOS	Delay Range (sec/veh)
A	<10 sec
B	≥10 and ≤15 sec
C	≥15 and ≤25 sec
D	≥25 and ≤35 sec
E	≥35 and ≤50 sec
F	>50 sec

We conducted capacity analyses at the River Road and Cross Street intersection and found that the proposed industrial development will not significantly alter traffic operations during peak hours compared to a recreational facility at full operation. Cross Street has adequate space to accommodate the anticipated queues in the Build condition.

Table 4 summarizes the 2023 No-Build and Build levels of service (LOS) at the study intersection during the weekday morning and evening peak hours.

The capacity analysis printouts are included as an attachment.

Table 4 – Intersection Capacity Analysis Summary

Location	Movement		2023 No-Build Condition		2023 Build Condition	
			AM	PM	AM	PM
River Road (CR 41) and Cross Street	EB	L,R	C (16.7)	E (49.1)	C (17.9)	E (36.8)
	WB	L,T,R	C (21.3)	F (91.9)	C (24.1)	F (57.7)
	NB	L	A (8.3)	A (9.2)	A (8.4)	A (9.0)

Level of Service (Average vehicle delay [seconds per vehicle]), based on HCS7 Software

SITE PLAN REVIEW

We reviewed the site plan for the proposed redevelopment. In particular, we focused our review on access, circulation and parking, which the following items address:

- The applicant proposes to construct five access points along Industrial Avenue. One access point south of Building 1 will provide access for passenger cars to Building 1. Three access points to the north of Building 2 will provide access for passenger cars to Building 2. One driveway between the buildings will provide access for trucks to a shared truck court. All parking areas on the site are interconnected along the west side of the site along the Hackensack River. The provision of multiple driveways will facilitate individual building access and traffic operations at each of the driveways.

- The passenger car parking provides 9 feet wide and 20 feet long perpendicular parking spaces served by aisles that are 25 feet wide. These parking space dimensions are consistent with current parking design standards and the redevelopment plan.
- The truck court provides loading dock spaces that are 13.5 feet wide and 60 feet long. The circulation aisle serving the loading docks is 90 feet wide and provides adequate space to maneuver. These truck court dimensions are consistent with current design standards.
- The total car parking supply is 254 parking spaces. We anticipate the car parking supply will adequately accommodate the site parking demands based on peak parking demand data available from ITE.

Based on our review, we believe the site will provide convenient access and circulation throughout the site, with sufficient off-street parking.

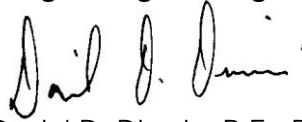
CONCLUSIONS

We expect area traffic operations will not significantly change because of redevelopment to the proposed industrial development, particularly during commuting periods. Moreover, the site design is consistent with current standards and provides adequate access, efficient circulation and sufficient parking.

Should you have any questions or comments concerning this traffic assessment, please do not hesitate to contact our office.

Sincerely,

Langan Engineering and Environmental Services, Inc.



Daniel D. Disario, P.E., PTOE
Principal



Alan W. Lothian, P.E.
Senior Project Manager

**SITE LOCATION MAP
&
TRAFFIC VOLUME FIGURES**



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NJ Certificate of Authorization No.24GA27996400

Project
30 CROSS STREET
 BLOCK 113, LOTS 7, 7.01, 7.02, 7.03,
 8, 8.01, & 8.02
 BOROUGH OF BOGOTA
 BLOCK 152.01, LOTS 1, 1.01, & 2
 VILLAGE OF RIDGEFIELD PARK
 BERGEN COUNTY NEW JERSEY

Drawing Title
**SITE
 LOCATION
 MAP**

Project No.
130148001
 Date
3/3/2021
 Drawn By
JEG
 Checked By
AWL

Drawing No.
**FIGURE
 1**
 Sheet 1 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

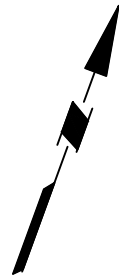
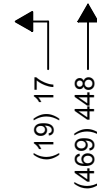
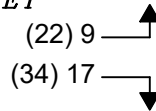
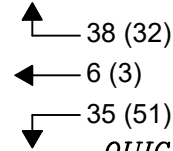
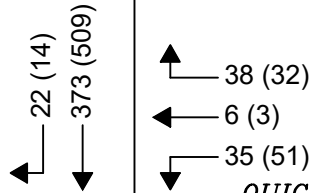
SITE

INDUSTRIAL AVENUE

CROSS STREET

RIVER ROAD (CR 41)

QUICKCHEK DRWY



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30 CROSS STREET

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BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

2020 EXISTING TRAFFIC VOLUMES

Project No.

130148001

Date

3/3/2021

Drawn By

JEG

Checked By

AWL

Drawing No.

FIGURE 2

Sheet 2 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

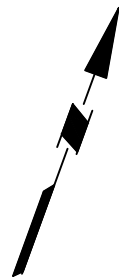
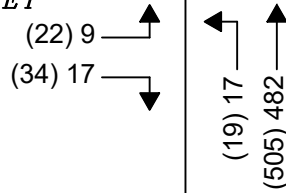
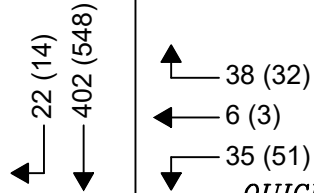
SITE

INDUSTRIAL AVENUE

CROSS STREET

RIVER ROAD (CR 41)

QUICKCHEK DRWY



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 8, 8.01, & 8.02
 BOROUGH OF BOGOTA
 BLOCK 152.01, LOTS 1, 1.01, & 2
 VILLAGE OF RIDGEFIELD PARK
 BERGEN COUNTY NEW JERSEY

Drawing Title
**2023 BASE
 TRAFFIC VOLUMES**

Project No.
 130148001
 Date
 3/3/2021
 Drawn By
 JEG
 Checked By
 AWL

Drawing No.
**FIGURE
 3**
 Sheet 3 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

SITE

INDUSTRIAL AVENUE

CROSS STREET

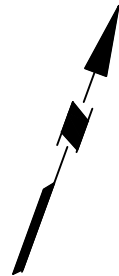
QUICKCHEK DRWY

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(19) 9 →
(44) 20 →

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RIVER ROAD (CR 41)



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BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

**SITE-GENERATED TRIPS
BOGOTA GOLF CENTER**

Project No.

130148001

Date

3/3/2021

Drawn By

JEG

Checked By

AWL

Drawing No.

FIGURE

4

Sheet 4 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

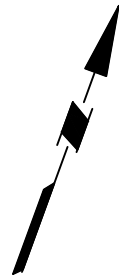
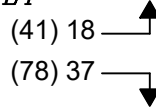
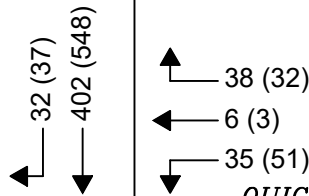
SITE

INDUSTRIAL AVENUE

CROSS STREET

RIVER ROAD (CR 41)

QUICKCHEK DRWY



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BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

**2023 NO-BUILD
TRAFFIC VOLUMES**

Project No.

130148001

Date

3/3/2021

Drawn By

JEG

Checked By

AWL

Drawing No.

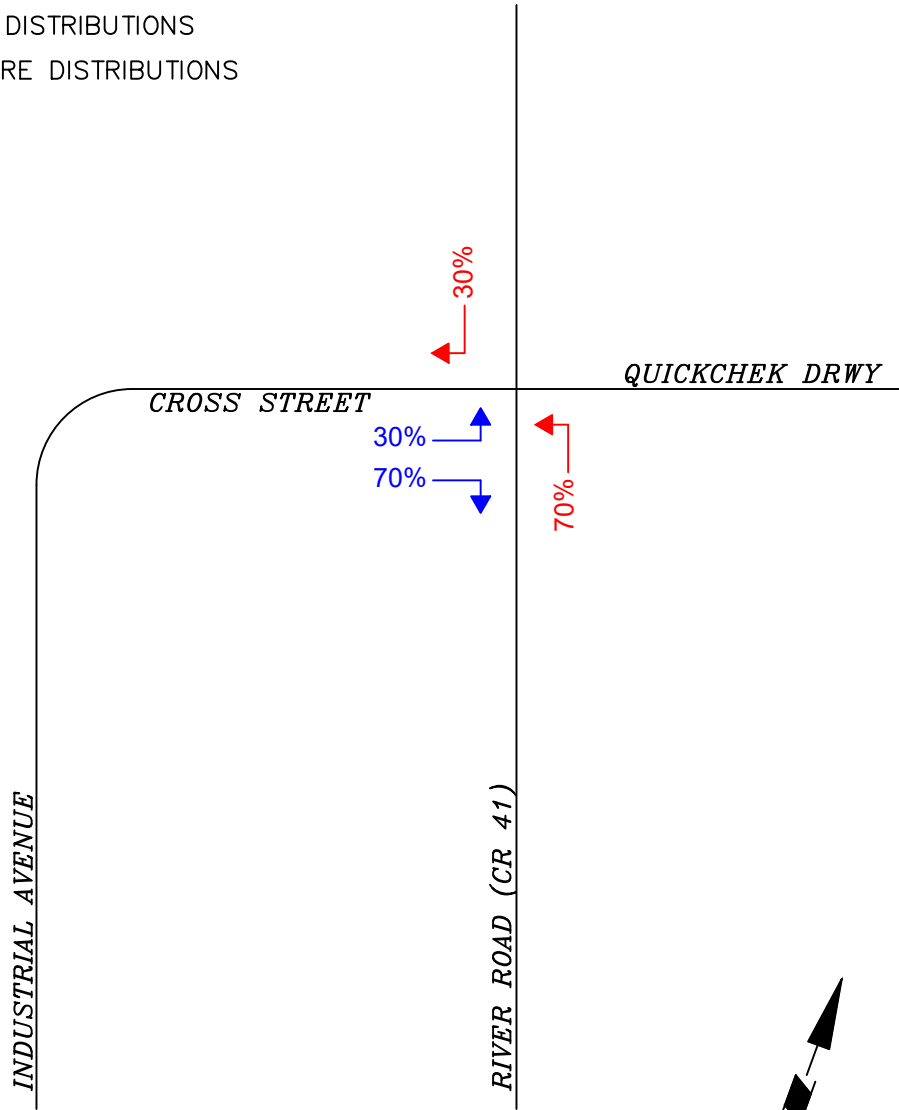
**FIGURE
5**

Sheet 5 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← ARRIVAL DISTRIBUTIONS
- ← DEPARTURE DISTRIBUTIONS

SITE



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Project
30 CROSS STREET
 BLOCK 113, LOTS 7, 7.01, 7.02, 7.03,
 8, 8.01, & 8.02
 BOROUGH OF BOGOTA
 BLOCK 152.01, LOTS 1, 1.01, & 2
 VILLAGE OF RIDGEFIELD PARK
 BERGEN COUNTY NEW JERSEY

Drawing Title
**ARRIVAL &
 DEPARTURE
 DISTRIBUTIONS
 PASSENGER CARS**

Project No.
 130148001
 Date
 3/3/2021
 Drawn By
 JEG
 Checked By
 AWL

Drawing No.
**FIGURE
 6**
 Sheet 6 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← ARRIVAL DISTRIBUTIONS
- ← DEPARTURE DISTRIBUTIONS

SITE

INDUSTRIAL AVENUE

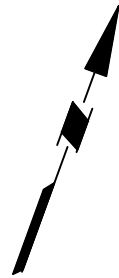
CROSS STREET

100% →

← 100%

QUICKCHEK DRWY

RIVER ROAD (CR 41)



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Project

30 CROSS STREET

BLOCK 113, LOTS 7, 7.01, 7.02, 7.03, 8, 8.01, & 8.02

BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

**ARRIVAL &
DEPARTURE
DISTRIBUTIONS
TRUCKS**

Project No.

130148001

Date

3/3/2021

Drawn By

JEG

Checked By

AWL

Drawing No.

FIGURE

7

Sheet 7 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

SITE

INDUSTRIAL AVENUE

CROSS STREET

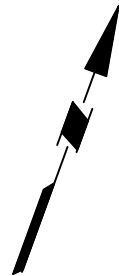
QUICKCHEK DRWY

← 18 (5)

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(40) 10 →

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RIVER ROAD (CR 41)



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BLOCK 113, LOTS 7, 7.01, 7.02, 7.03, 8, 8.01, & 8.02

BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

SITE-GENERATED TRIPS PASSENGER CARS

Project No.

130148001

Date

3/3/2021

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JEG

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AWL

Drawing No.

FIGURE 8

Sheet 8 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

SITE

INDUSTRIAL AVENUE

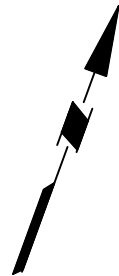
CROSS STREET

(2) 0 →

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QUICKCHEK DRWY

RIVER ROAD (CR 41)



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BOROUGH OF BOGOTA

BLOCK 152.01, LOTS 1, 1.01, & 2

VILLAGE OF RIDGEFIELD PARK

BERGEN COUNTY

NEW JERSEY

Drawing Title

SITE-GENERATED TRIPS TRUCKS

Project No.

130148001

Date

3/3/2021

Drawn By

JEG

Checked By

AWL

Drawing No.

FIGURE 9

Sheet 9 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

SITE

INDUSTRIAL AVENUE

CROSS STREET

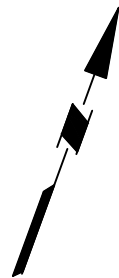
QUICKCHEK DRWY

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(40) 10 →

← (11) 41

RIVER ROAD (CR 41)



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Project
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8, 8.01, & 8.02
BOROUGH OF BOGOTA
BLOCK 152.01, LOTS 1, 1.01, & 2
VILLAGE OF RIDGEFIELD PARK
BERGEN COUNTY NEW JERSEY

Drawing Title
**TOTAL
SITE-GENERATED
TRIPS**

Project No.
130148001
Date
3/3/2021
Drawn By
JEG
Checked By
AWL

Drawing No.
**FIGURE
10**
Sheet 10 of 11

LEGEND

- UNDIVIDED ROADWAY
- ← AM (PM) PEAK HOUR

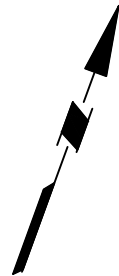
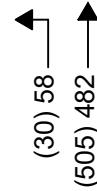
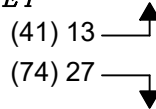
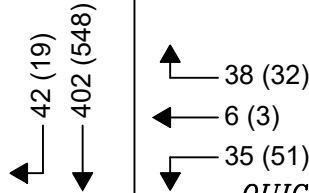
SITE

INDUSTRIAL AVENUE

CROSS STREET

RIVER ROAD (CR 41)

QUICKCHEK DRWY



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30 CROSS STREET
 BLOCK 113, LOTS 7, 7.01, 7.02, 7.03,
 8, 8.01, & 8.02
 BOROUGH OF BOGOTA
 BLOCK 152.01, LOTS 1, 1.01, & 2
 VILLAGE OF RIDGEFIELD PARK
 BERGEN COUNTY NEW JERSEY

Drawing Title
**2023 BUILD
 TRAFFIC VOLUMES**

Project No.
 130148001
 Date
 3/3/2021
 Drawn By
 JEG
 Checked By
 AWL

Drawing No.
**FIGURE
 11**
 Sheet 11 of 11

TRAFFIC COUNT DATA

River Road & Cross Street
 Turning Movement Count
 Weekday AM & PM Peak Hours
 Wednesday, 15 January 2020

File Name : River Road & Cross Street
 Site Code : 00000000
 Start Date : 1/15/2020
 Page No : 1

Groups Printed- Lights - Trucks - Buses

Start Time	RIVER ROAD Southbound			QUICKCHEK DRIVEWAY Westbound				RIVER ROAD Northbound			CROSS STREET Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
06:00 AM	15	1	16	1	1	5	7	2	14	16	0	2	2	41
06:15 AM	22	0	22	6	3	3	12	1	34	35	2	2	4	73
06:30 AM	33	1	34	8	1	2	11	2	28	30	1	2	3	78
06:45 AM	49	7	56	4	0	1	5	4	33	37	2	3	5	103
Total	119	9	128	19	5	11	35	9	109	118	5	9	14	295
07:00 AM	54	7	61	6	0	6	12	8	25	33	0	2	2	108
07:15 AM	58	5	63	5	2	11	18	6	61	67	1	1	2	150
07:30 AM	100	2	102	6	0	6	12	1	74	75	2	1	3	192
07:45 AM	84	6	90	13	0	5	18	6	130	136	2	2	4	248
Total	296	20	316	30	2	28	60	21	290	311	5	6	11	698
08:00 AM	96	5	101	8	2	16	26	5	102	107	4	5	9	243
08:15 AM	89	4	93	5	2	7	14	2	111	113	1	2	3	223
08:30 AM	104	7	111	9	2	10	21	4	105	109	2	8	10	251
08:45 AM	85	3	88	6	4	10	20	6	120	126	2	1	3	237
Total	374	19	393	28	10	43	81	17	438	455	9	16	25	954
*** BREAK ***														
03:00 PM	71	7	78	9	1	7	17	1	79	80	6	3	9	184
03:15 PM	107	5	112	5	0	9	14	4	83	87	3	5	8	221
03:30 PM	114	5	119	6	2	11	19	4	90	94	3	6	9	241
03:45 PM	102	6	108	10	0	10	20	2	75	77	3	4	7	212
Total	394	23	417	30	3	37	70	11	327	338	15	18	33	858
04:00 PM	117	5	122	8	0	11	19	5	105	110	6	6	12	263
04:15 PM	112	5	117	9	2	9	20	6	92	98	7	4	11	246
04:30 PM	95	4	99	8	3	11	22	5	107	112	4	6	10	243
04:45 PM	110	8	118	12	1	9	22	5	109	114	3	3	6	260
Total	434	22	456	37	6	40	83	21	413	434	20	19	39	1012

River Road & Cross Street
 Turning Movement Count
 Weekday AM & PM Peak Hours
 Wednesday, 15 January 2020

File Name : River Road & Cross Street
 Site Code : 00000000
 Start Date : 1/15/2020
 Page No : 2

Groups Printed- Lights - Trucks - Buses

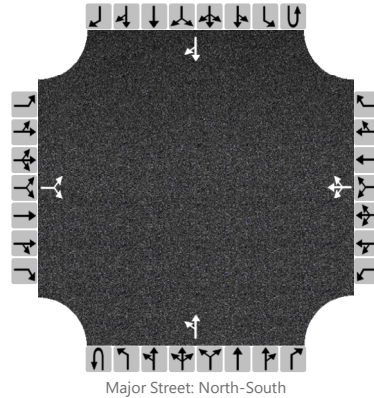
Start Time	RIVER ROAD Southbound			QUICKCHEK DRIVEWAY Westbound				RIVER ROAD Northbound			CROSS STREET Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
05:00 PM	116	2	118	14	0	8	22	3	102	105	8	13	21	266
05:15 PM	157	6	163	10	0	14	24	6	116	122	7	9	16	325
05:30 PM	117	3	120	13	2	5	20	5	124	129	5	5	10	279
05:45 PM	119	3	122	14	1	5	20	5	127	132	2	7	9	283
Total	509	14	523	51	3	32	86	19	469	488	22	34	56	1153
Grand Total	2126	107	2233	195	29	191	415	98	2046	2144	76	102	178	4970
Apprch %	95.2	4.8		47	7	46		4.6	95.4		42.7	57.3		
Total %	42.8	2.2	44.9	3.9	0.6	3.8	8.4	2	41.2	43.1	1.5	2.1	3.6	
Lights	2079	104	2183	194	25	184	403	90	1994	2084	73	96	169	4839
% Lights	97.8	97.2	97.8	99.5	86.2	96.3	97.1	91.8	97.5	97.2	96.1	94.1	94.9	97.4
Trucks	30	3	33	0	4	7	11	5	34	39	3	4	7	90
% Trucks	1.4	2.8	1.5	0	13.8	3.7	2.7	5.1	1.7	1.8	3.9	3.9	3.9	1.8
Buses	17	0	17	1	0	0	1	3	18	21	0	2	2	41
% Buses	0.8	0	0.8	0.5	0	0	0.2	3.1	0.9	1	0	2	1.1	0.8

CAPACITY ANALYSIS PRINTOUTS

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	JEG			Intersection	River Road & Cross Street		
Agency/Co.	Langan Engineering			Jurisdiction			
Date Performed	3/3/2021			East/West Street	Cross Street		
Analysis Year	2023			North/South Street	River Road (CR 41)		
Time Analyzed	No-Build AM Peak Hour			Peak Hour Factor	0.96		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	30 Cross Street						

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	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LR				LTR			LT						TR
Volume, V (veh/h)		12		23		35	6	38		28	482				402	27
Percent Heavy Vehicles (%)		8		4		0	0	3		0						
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No							
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

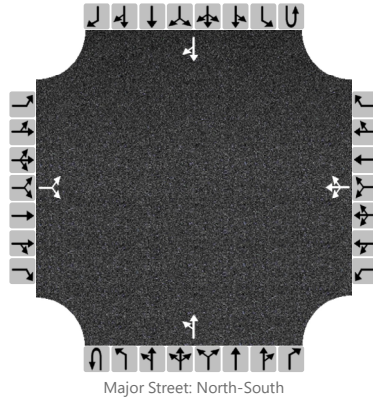
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			36				82				29					
Capacity, c (veh/h)			345				302				1124					
v/c Ratio			0.11				0.27				0.03					
95% Queue Length, Q ₉₅ (veh)			0.4				1.1				0.1					
Control Delay (s/veh)			16.7				21.3				8.3					
Level of Service, LOS			C				C				A					
Approach Delay (s/veh)	16.7				21.3				0.7							
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	JEG			Intersection	River Road & Cross Street		
Agency/Co.	Langan Engineering			Jurisdiction			
Date Performed	3/3/2021			East/West Street	Cross Street		
Analysis Year	2023			North/South Street	River Road (CR 41)		
Time Analyzed	No-Build PM Peak Hour			Peak Hour Factor	0.89		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	30 Cross Street						

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	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LR				LTR			LT						TR
Volume, V (veh/h)		41		78		51	3	32		73	505				548	37
Percent Heavy Vehicles (%)		0		0		0	0	3		1						
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

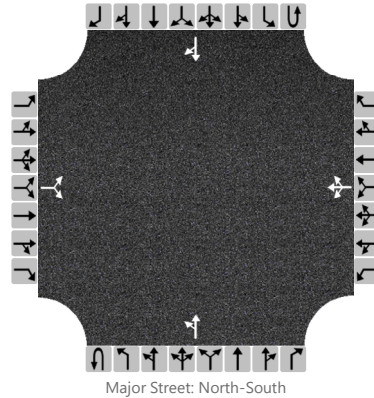
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			134				97				82					
Capacity, c (veh/h)			208				127				935					
v/c Ratio			0.64				0.76				0.09					
95% Queue Length, Q ₉₅ (veh)			3.8				4.4				0.3					
Control Delay (s/veh)			49.1				91.9				9.2					
Level of Service, LOS			E				F				A					
Approach Delay (s/veh)	49.1				91.9				2.2							
Approach LOS	E				F											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	JEG			Intersection	River Road & Cross Street		
Agency/Co.	Langan Engineering			Jurisdiction			
Date Performed	3/3/2021			East/West Street	Cross Street		
Analysis Year	2023			North/South Street	River Road (CR 41)		
Time Analyzed	Build AM Peak Hour			Peak Hour Factor	0.96		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	30 Cross Street						

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	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LR				LTR			LT						TR
Volume, V (veh/h)		13		27		35	6	38		58	482					402
Percent Heavy Vehicles (%)		8		4		0	0	3		0						
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

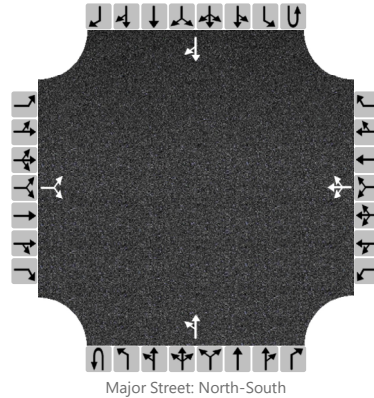
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			42				82				60					
Capacity, c (veh/h)			321				269				1110					
v/c Ratio			0.13				0.31				0.05					
95% Queue Length, Q ₉₅ (veh)			0.4				1.3				0.2					
Control Delay (s/veh)			17.9				24.1				8.4					
Level of Service, LOS			C				C				A					
Approach Delay (s/veh)	17.9				24.1				1.5							
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	JEG			Intersection	River Road & Cross Street		
Agency/Co.	Langan Engineering			Jurisdiction			
Date Performed	3/3/2021			East/West Street	Cross Street		
Analysis Year	2023			North/South Street	River Road (CR 41)		
Time Analyzed	Build PM Peak Hour			Peak Hour Factor	0.89		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	30 Cross Street						

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	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LR				LTR			LT						TR
Volume, V (veh/h)		41		74		51	3	32		30	505				548	19
Percent Heavy Vehicles (%)		5		0		0	0	3		3						
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			129				97				34					
Capacity, c (veh/h)			238				159				941					
v/c Ratio			0.54				0.61				0.04					
95% Queue Length, Q ₉₅ (veh)			2.9				3.3				0.1					
Control Delay (s/veh)			36.8				57.7				9.0					
Level of Service, LOS			E				F				A					
Approach Delay (s/veh)	36.8				57.7				0.9							
Approach LOS	E				F											