TRAFFIC ENGINEERING EVALUATION

15 GRAND AVENUE BOROUGH OF PALISADES PARK BERGEN COUNTY, NEW JERSEY

PREPARED FOR:

FAN ASSOCIATES, LLC P.O. Box 39 Livingston, New Jersey 07039

December 27, 2021 BCG File No. 081197-01-001



BOWMAN CONSULTING GROUP, LTD.

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TRAFFIC ENGINEERING EVALUATION 15 GRAND AVENUE BOROUGH OF PALISADES PARK BERGEN COUNTY, NEW JERSEY

TABLE OF CONTENTS

| INTRODUCTION | 1 |
|---------------------------------------|----|
| EXISTING CONDITIONS | 2 |
| Study Roadways | 2 |
| Studied Intersections | 3 |
| Traffic Volumes | 4 |
| Capacity Analyses | 5 |
| PROPOSED CONDITIONS | 6 |
| Year 2024 No-Build Conditions | |
| Site Trip Generation and Distribution | 7 |
| Year 2024 Build Conditions | 7 |
| SITE PLAN EVALUATION | 9 |
| CONCLUSIONS | 10 |

TRAFFIC ENGINEERING EVALUATION 15 GRAND AVENUE BOROUGH OF PALISADES PARK BERGEN COUNTY, NEW JERSEY

LIST OF FIGURES

Figure 1 – Location Map

Figure 2 – Existing 2021 Traffic Volumes

Figure 3 – 2024 No-Build Traffic Volumes

Figure 4 – Site Trip Distribution

Figure 5 – Site Generated Traffic Volumes

Figure 6 – 2024 Build Traffic Volumes

LIST OF TABLES

Table 1 – Level of Service / Average Delay Comparison – Existing vs. No Build

Table 2 – Trip Generation Summary

Table 3 - Level of Service / Average Delay Comparison - No Build vs. Build

APPENDICES

- I. Level of Service Definitions
- II. Capacity Analyses
- III. Traffic Counts
- IV. Signal Timing

INTRODUCTION

This Traffic Engineering Evaluation was prepared to assess any traffic impacts that may occur from the proposed redevelopment of the subject site located on the west side of State Route 93 (Grand Avenue) just north of U.S. Route 46, in the Borough of Palisades Park, Bergen County. The project is proposed to contain 122 multi-family residential units in a three-story structure over two levels of structured parking, containing a total of 306 parking spaces. The location of the site is illustrated in Figure 1.

The subject property is known on the Borough of Palisades Park tax maps as Block 505, Lots 3 and 4 and contains approximately 2.9 acres with approximately 285 feet of frontage along the west side of State Route 93 (Grand Avenue) and approximately 242 feet along the ramp to U.S. Route 46 (although no access is permitted along the ramp). The site currently contains a commercial building ranging in height from one-story to five-stories with surface parking around wrapping around all sides of the building. There are also outdoor fenced areas containing a towing business and a landscape contractor's business.

The building contains a mix of commercial uses, including a liquor store, fitness center, office, restaurant and a night club/karaoke bar. The restaurant and night club/karaoke bar are to be demolished for the proposed multi-family residential use with the health/fitness center, liquor store and office space remaining. Access to the site is provided by a shared driveway (with Lot 1) and a driveway on the south side of the building, both to State Route 93.

Primary aspects of this study include the investigation of existing conditions adjacent to the site, the establishment of background traffic volumes for the surrounding streets, estimation of the development related trip generation utilizing known published sources, assignment of the development related volumes to the key intersections serving the proposed development site, and the assessment of intersection performance using established traffic engineering methodologies. The base year for anticipated build-out of the redevelopment is 2024.

The ensuing report will detail the existing and proposed conditions, summarize the traffic operations at key locations, and include our findings as to the effects of the proposed redevelopment on the existing street network.



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1"=500'

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LOCATION MAP 15 GRAND AVENUE BLOCK 505, LOT 3 & 4

BOROUGH OF PALISADES, BERGEN COUNTY, N.J.

EXISTING CONDITIONS

The subject property currently contains a multi-use commercial building with an associated surface parking lot. The existing building on the subject site contains a health/fitness club, liquor store, restaurant and a night club/karaoke bar; there is also a towing company and landscape contractor using portions of the western parking area, adjacent to the railroad for their business operations. Access is currently provided from a shared driveway with the property to the north (21 Grand Avenue) and a driveway on the south side of the existing building. We note that the restaurant has been using a portion of the parking lot for outdoor seating. Adjacent land uses include a freight rail line, a hotel, golf driving range and other recreational facilities to the west, commercial/industrial buildings to the north and residential properties to the east (a mix of single family, duplexes and multi-family).

Our assessment of traffic conditions in this area included a study of the signalized intersections of Grand Avenue (State Route 93) with the off- and on-ramps to U.S. Route 46 and the unsignalized intersections of West Columbia Avenue/shared site driveway and West Ruby Avenue with Grand Avenue. Field observations were made of the existing traffic control devices at the studied intersections and the signal timings were obtained from the New Jersey Department of Transportation (NJDOT). The timing directive is contained in Appendix IV.

The following subsections include a brief description of key routes in the adjacent roadway system:

Study Roadways

U.S. Route 46

U.S. Route 46 (United Spanish War Veterans Memorial Highway) is categorized as an urban principal arterial extending in an east-west direction. It begins to the west at Interstate 80 in Warren County near the Delaware River and extends across northern New Jersey, terminating at Interstate 95 in Fort Lee just west of the George Washington Bridge. Access to the New Jersey Turnpike is available a short distance to the west.

In the vicinity of the subject property. Route 46 is elevated with three (3) westbound lanes and two (2) eastbound lanes with a concrete median barrier. There is a partial interchange with Grand Avenue (State Route 93) providing access to and from the west along Route 46. Access to and from the east along Route 46 is provided via West Columbia Avenue (westbound off-ramp); and via Maple Avenue and Prospect Avenue (eastbound on-ramp). The posted speed limit is 50 MPH.

Grand Avenue (State Route 93)

Grand Avenue (State Route 93) serves as an urban principal arterial extending in a north-south direction. It begins at Broad Avenue (U.S. Route 1/9) to the south and terminates at Van Nostrand Avenue to the north, just north of its interchange with State

Route 4. Grand Avenue continues further north as County Route 501, into Tenafly, terminating at Hudson Avenue. Grand Avenue conveys traffic oriented to and from the adjacent land uses and also serves as a connector with the collector and arterial roadway network.

In the vicinity of the site, Grand Avenue provides one travel lane in each direction, with no stopping or standing permitted along either side of the street. The posted speed limit is 35 MPH. Sidewalks are provided along both sides of the street. There is a bus stop just north of the shared site driveway. Additional bus service is provided along Broad Avenue, one block to the east.

West Columbia Avenue

West Columbia Avenue serves as an urban collector street extending in an east-west direction. It begins as an off-ramp from Route 46 westbound and terminates opposite the shared site driveway at Grand Avenue. West Columbia Avenue conveys local and regional traffic oriented to and from the adjacent land uses and provides a connection from U.S. Route 46 to Grand Avenue.

West Columbia Avenue operates as a one-way street in a westbound direction, providing a single travel lane. Parking is permitted along both sides of the street and sidewalk are provided along both sides of the street. The posted speed limit is 25 MPH.

West Ruby Avenue

West Ruby Avenue serves as an urban local street extending in an east-west direction, one block north of West Columbia Avenue. It begins on the west at an at-grade railroad crossing, one block west of Grand Avenue; and extends easterly to Broad Avenue. It extends east of Broad Avenue as East Ruby Avenue terminating at Veterans Plaza adjacent to the Palisades Park Junior/Senior High School. West Ruby Avenue conveys local traffic oriented between the adjacent land uses to the collector and arterial roadway network.

West Ruby Avenue provides one travel lane in each direction. Parking is permitted along both sides of the street east of Grand Avenue; with no parking permitted on either side of the street between Grand Avenue and the railroad. Sidewalks are provided along both sides of the street east of Grand Avenue; and there is only a short segment of sidewalk from Grand Avenue to the driveway for 21 Grand Avenue west of Grand Avenue. There is no posted speed limit so by statute the speed limit is 25 MPH.

Studied Intersections

Route 46 Off-/On-Ramps/Maple Avenue with Grand Avenue (State Route 93)

The intersections of Grand Avenue (State Route 93) with the Route 46 off- and onramps are controlled by a coordinated three-phase, semi-actuated traffic signal operating on a 90 second cycle length. This signal operation provides for a force-off operation which permits an extension of the green time for the Route 46 eastbound offramp. The signal timing and signal plan were obtained from the NJDOT Bureau of Traffic Engineering and the timing is included in Appendix IV.

The Route 46 eastbound off-ramp is provided with an exclusive left turn lane and a shared through/right turn lane; Grand Avenue has two lanes in each direction at the Route 46 off-ramp intersection; while Maple Avenue is provided with a single approach lane accommodating left and right turn movements. At the intersection of Grand Avenue with the westbound Route 46 on-ramp, northbound Grand Avenue has an exclusive left turn lane and an exclusive through lane. Southbound Grand Avenue has a shared through/right turn lane, with a channelized right turn onto the westbound on-ramp.

Grand Avenue (State Route 93) with West Columbia Avenue

The intersection of Grand Avenue with West Columbia Avenue is under 'STOP' controlled operations on the side street approaches. All approaches are provided with a single travel lane, accommodating all movements. A crosswalk is provided across the West Columbia Avenue approach.

Grand Avenue (State Route 93) with West Ruby Avenue

The intersection of Grand Avenue with West Ruby Avenue is under 'STOP' controlled operations on the side street approaches. The two side street approaches are slightly offset with the western leg approximately 40 feet further north. All approaches are provided with a single travel lane, accommodating all movements. A crosswalk is provided across both West Ruby Avenue approaches.

Traffic Volumes

Manual intersection traffic turning movement counts were performed at the following intersections on Tuesday, September 28, 2021:

- 1. Grand Avenue with U.S. Route 46 Eastbound Off-Ramp/Maple Avenue
- 2. Grand Avenue with U.S. Route 46 Westbound On-Ramp
- 3. Grand Avenue with West Columbia Avenue/Site Driveway
- 4. Grand Avenue with West Ruby Avenue

These counts were performed during the morning peak period from 6:30 AM to 9:00 AM and during the evening peak period from 4:00 PM to 6:30 PM.

Based on the manual traffic turning movement counts, the AM weekday peak hour established for analysis purposes was determined to be generally between 8:00 AM and 9:00 AM, although the Route 46 eastbound off-ramp's peak hour was between 7:15 and 8:15 AM. To be conservative, we used the peak hour volumes at each intersection. The PM weekday peak hour was slightly more varied with one intersection having a peak from 5:00 PM to 6:00 PM, two intersections from 5:15 PM to 6:15 PM and one

from 5:30 PM to 6:30 PM. Again, we used the observed traffic volumes during the respective peak hours at each location. All existing traffic volumes during both peak hours were balanced among the various intersections, taking into consideration intervening streets and driveways.

Existing balanced traffic volumes at the studied locations for the weekday AM peak hour and PM peak hour are illustrated in Figure 2. These existing traffic volume data were used as the basis for this traffic engineering evaluation. Appendix III contains the AM and PM peak period traffic turning movement counts at the studied intersections.

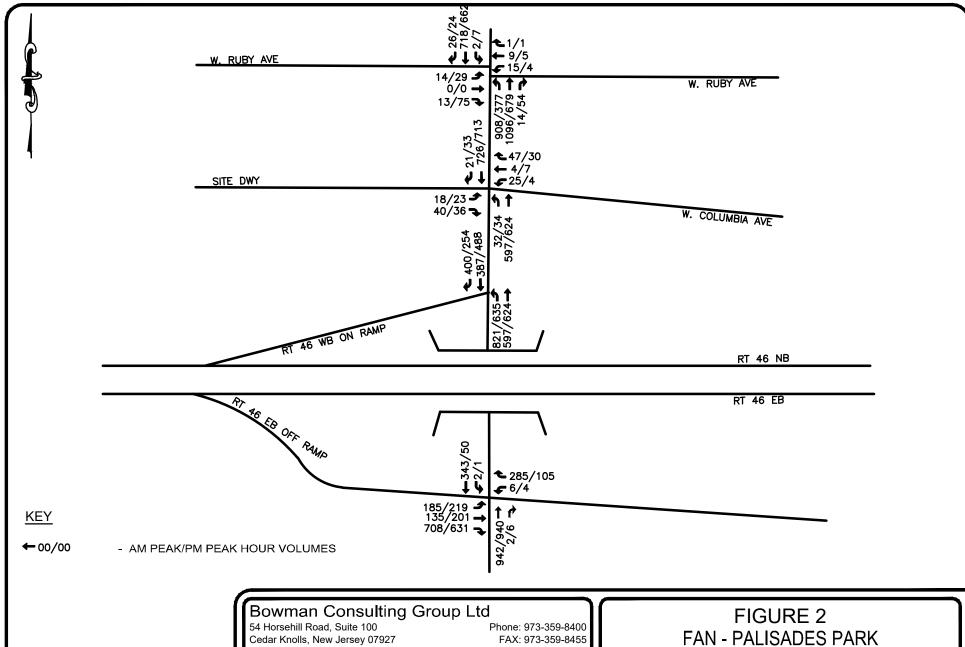
Capacity Analyses

The existing AM and PM peak hour intersection traffic volumes were analyzed to evaluate the quality of operation at the studied intersections. The methodology presented in 2010 Highway Capacity Manual, Chapter 18 entitled "Signalized Intersections" and Chapter 19 entitled "Unsignalized Intersections". Intersection capacity calculations were completed using the Highway Capacity Software, version 7.9.5. Definitions of Levels of Service for stop- and signal-controlled intersections are provided in Appendix I.

The methodology addresses two measurements of an intersection's effectiveness in accommodating conflicting traffic movements; capacity and level of service (LOS). Capacity is defined for each approach as a maximum number of vehicles that may pass through the intersection given the prevailing roadway and traffic control conditions. The capacity is evaluated in terms of the ratio of actual traffic flow to capacity (v/c ratio). The second measure of effectiveness is average stopped delay per vehicle (seconds/vehicle), which determines the Level of Service.

Table 1 presents the levels of service for the AM and PM peak hours at the studied intersections. As shown in Table 1, under 2021 Existing Conditions, all movements at the studied signalized intersections operate at acceptable LOS C or better during both peak hours.

At the unsignalized intersections, the side street approaches currently operate during the AM and PM peak hours at LOS E or better, which is an acceptable operating condition for minor street approaches to a principal arterial (Grand Avenue) in an urban environment. We note that these levels of service do not account for gaps that are created by the signalized intersections at the Route 46 ramps. Further we note that the volume to capacity ratios are quite low (less than 0.5) which indicates that there is more than sufficient capacity on these approaches, but that the higher volumes along Grand Avenue result in higher average delays.



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EXISTING (2021) BALANCED TRAFFIC VOLUMES

BOROUGH OF PALISADES PARK, BERGEN COUNTY, NEW JERSEY

PROPOSED CONDITIONS

The proposed development program will contain 122 multi-family residential units on three floors over two levels of parking. The restaurant and night club/karaoke bar portions of the existing building are to be demolished with the health/fitness club and liquor store remaining. No credit has been taken for the elimination of the traffic generated by the existing restaurant/night club/karaoke bar uses that currently exist.

A total of 306 parking spaces are provided in the two levels of garage parking and in surface parking areas of which 262 spaces are located in the garage and the remaining 44 spaces will be located in surface lots. Of the parking spaces provided, 16 spaces will be provided with electric vehicle charging and an additional 32 spaces will be "Make-Ready" electric vehicle charging spaces. This total provided parking exceeds the required parking per Borough ordinance of 296 spaces.

The Year 2024 has been selected as the future analysis year for full occupancy of the proposed development. We have analyzed conditions for the Year 2024 without the project (No-Build) and with the project (Build).

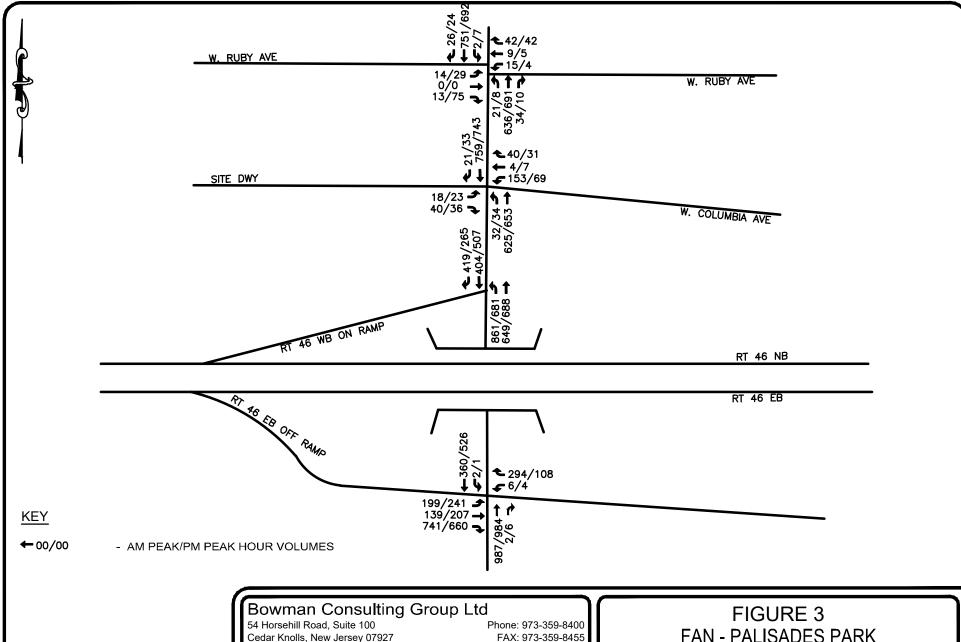
Year 2024 No-Build Conditions

The proposed development is planned for construction and full occupancy in 2024. This year will be used as a basis for estimating background traffic growth on the surrounding street system. The annual growth rate published by the NJDOT in the April 2019 – April 2021 NJDOT Access Permit Table on Annual Background Growth Rates for urban principal arterials in Bergen County is 1.5 percent; for urban collectors the growth rates is one percent (1%); and for local roads it is one percent (1%).

We have examined the surrounding area and determined the only significant project that has been approved but not constructed which would impact traffic within the study area is a high-cube fulfillment warehouse proposed along Route 46 Eastbound between Overpeck Creek and Grand Avenue. The size of this proposed development was confirmed by obtaining a copy of the NJDOT Driveway Access permit, which is to contain 372,049 square feet.

Year 2024 No-Build traffic volumes are presented in Figure 3 for the AM and PM peak hours. These traffic volumes were used to evaluate future operations without the addition of the proposed redevelopment at the studied intersections.

The resulting levels of service for 2024 No-Build conditions at the studied intersections are summarized in Table 1. The results of the capacity analyses indicate that under future Year 2024 No-Build conditions, the levels of service for the studied intersections would remain generally the same as the Existing 2021 levels of service during the AM and PM peak hours on each approach with generally nominal increases in the average delay of less than one (1) second. The levels of service on these approaches at the signalized intersections will remain at acceptable LOS D or better for both peak hours.



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FAN - PALISADES PARK 2024 NO BUILD TRAFFIC VOLUMES

BOROUGH OF PALISADES PARK, BERGEN COUNTY, NEW JERSEY

TABLE 1 - LEVEL OF SERVICE / AVERAGE VEHICLE DELAY COMPARISON - EXISTING & NO BUILD CONDITIONS 15 GRAND AVENUE, BOROUGH OF PALISADES PARK, BERGEN COUNTY

| | | | 2021 | I Existin | g Cond | lition | | | | 202 | 4 No Bui | ild Cond | dition | |
|----------------------------------|---------|---------|-------|-----------|--------|--------|---------|---------|-------|--------|----------|----------|---------|---------|
| ľ | | AM PEAK | | | | PM PEA | (| | | AM PEA | 〈 | | PM PEAK | (|
| | | | | Levels | | | Levels | | | | Levels | | | Levels |
| | LANE | V/C | Delay | of | V/C | Delay | of | LANE | V/C | Delay | of | V/C | Delay | of |
| Intersection | GROUP | Ratio | (sec) | Service | Ratio | (sec) | Service | GROUP | Ratio | (sec) | Service | Ratio | (sec) | Service |
| | EB-L | 0.81 | 35.6 | D | 0.30 | 8.2 | Α | EB-L | 0.85 | 40.9 | D | 0.80 | 46.9 | D |
| Grand Avenue & | EB TR | 0.96 | 27.7 | С | 0.86 | 19.6 | В | EB TR | 0.96 | 27.7 | С | 0.88 | 20.3 | С |
| Rt. 46 EB Ramp & Maple Avenue | WB-LR | 0.41 | 9.0 | Α | 0.13 | 6.2 | Α | WB-LR | 0.41 | 8.0 | Α | 0.13 | 5.7 | Α |
| (Signalized) | NR-1K | 0.74 | 26.3 | С | 0.79 | 32.2 | С | NB-TR | 0.82 | 32.6 | С | 0.86 | 38.4 | D |
| (0.9.1 | SB-LT | 0.28 | 16.6 | В | 0.45 | 21.7 | С | SB-LT | 0.31 | 18.3 | В | 0.48 | 23.2 | С |
| | OVERALL | | 24.2 | С | | 23.0 | С | OVERALL | | 27.0 | С | | 29.1 | С |
| | NB-L | 0.88 | 16.0 | В | 0.68 | 7.6 | Α | NB-L | 0.93 | 22.9 | С | 0.74 | 9.8 | Α |
| Grand Avenue & | NB-T | 0.38 | 0.6 | Α | 0.38 | 0.6 | Α | NB-T | 0.40 | 0.7 | Α | 0.40 | 0.7 | Α |
| Rt. 46 WB Ramp | SB-T | 0.37 | 10.2 | В | 0.44 | 11.0 | В | SB-T | 0.39 | 10.4 | В | 0.46 | 11.3 | В |
| (Signalized) | SB-R | 0.45 | 11.4 | В | 0.27 | 9.3 | Α | SB-R | 0.47 | 11.7 | В | 0.28 | 9.4 | Α |
| | OVERALL | | 9.9 | Α | | 6.4 | Α | OVERALL | | 12.5 | В | | 7.2 | Α |
| Grand Avenue & | EB-LR | 0.34 | 33.6 | D | 0.34 | 35.1 | Е | EB-LR | 0.37 | 38.0 | Е | 0.38 | 39.7 | Е |
| W. Columbia Avenue | WB-LTR | 0.44 | 38.0 | E | 0.17 | 22.2 | С | WB-LTR | 0.50 | 45.1 | Е | 0.19 | 23.7 | С |
| (Unsignalized) | NB-L | 0.04 | 9.6 | Α | 0.04 | 9.6 | Α | NB-L | 0.04 | 9.7 | Α | 0.05 | 9.7 | А |
| | EB-LTR | 0.25 | 45.4 | Е | 0.50 | 37.0 | Е | EB-LTR | 0.28 | 52.1 | F | 0.54 | 42.8 | Е |
| Grand Avenue & | WB-LTR | 0.39 | 36.8 | Е | 0.18 | 20.6 | С | WB-LTR | 0.43 | 41.7 | Е | 0.20 | 21.9 | С |
| W. Ruby Avenue (Unsignalized) | NB-L | 0.03 | 9.6 | Α | 0.01 | 9.1 | Α | NB-L | 0.03 | 9.8 | Α | 0.01 | 9.2 | А |
| | SB-L | 0.00 | 9.0 | А | 0.01 | 9.0 | А | SB-L | 0.00 | 9.1 | А | 0.01 | 9.1 | А |

At the unsignalized intersections, the side street approaches continue to operate during the AM and PM peak hours at LOS E or better, except for the eastbound approach of West Ruby Avenue during the AM peak hour which is calculated to operate at LOS F. The increase in average delay from existing conditions is a result of background traffic growth along Grand Avenue which will occur regardless of the redevelopment of the subject site. We again note that these levels of service do not account for gaps that are created by the signalized intersections at the Route 46 ramps. Further we note that the volume to capacity ratios are quite low (less than 0.54) which indicates that there is more than sufficient capacity on these approaches, but that the higher volumes along Grand Avenue result in higher average delays.

Site Trip Generation and Distribution

The trip generation for the proposed 122 multi-family, mid-rise residential apartments is based upon data published by the NJDOT in the <u>Highway Access Permit System</u> (HAPS) using Land Use Code (LUC) 221 for multi-family mid-rise residential. We have used the average rates instead of the equation as it yields higher trip generation values. Table 2 illustrates the trip generation calculations for the proposed redevelopment.

As shown in Table 2, the proposed residential use (without any credit for mass transit usage) will generate 44 AM peak hour trips (11 enter, 33 exit) and 54 PM peak hour trips (33 enter, 21 exit). These volumes represent a fairly low intensity of traffic with less than one (1) total trip per minute during the peak hours.

We note that our assessment of future build conditions did not remove the traffic generated by the existing restaurant and night club/karaoke bar uses. These uses will be eliminated as part of the redevelopment of the site and the traffic from these uses on the current roadway system will be replaced by the proposed residential traffic. As indicated in Table 2, when compared to the existing site generated traffic volumes for the two existing uses, there will be a net decrease in traffic during all peak hours and particularly during the PM peak hour resulting from the redevelopment of this site to include multi-family residential.

While we recognize that the health club is not a permitted use within the M-1 District, there is no anticipated change in the traffic generated by this use. Further, the traffic generated by all of the uses on this site with the proposed multi-family residential housing, will reduce the overall traffic generated by the site thereby having a positive traffic impact on the adjacent roadway system.

The peak hour trips from the proposed multi-family apartments are likely to coincide temporally with the peak hour commuter trips on the surrounding roadway system. The trip assignment for the proposed development is based on observed traffic patterns of the predominant traffic flows at the studied intersections. These travel patterns have been considered to be representative of the traffic distribution associated with the proposed redevelopment. The distribution also takes into consideration the accessibility to the regional highway network.

TABLE 2 - TRIP GENERATION SUMMARY

Multi-Family Housing - Mid-Rise (Average Rate)

221

TOTAL

NET CHANGE

15 GRAND AVENUE, BOROUGH OF PALISADES PARK, BERGEN COUNTY

12/27/2021

WEEKDAY

33

113

(104)

21

93

(65)

54

207

(169)

44

90

(36)

| | | | AM | PEAK H | OUR | PM | I PEAK HO | OUR |
|---------|--------------------------|-----------|----|--------|-------|-----|-----------|-------|
| CODE | LAND USE | AMOUNT | IN | OUT | TOTAL | IN | OUT | TOTAL |
| EXISTIN | IG CONDITIONS | | | | | | | |
| 492 | Health/Fitness Club | 15,000 SF | 9 | 12 | 21 | 34 | 25 | 59 |
| 899 | Liquor Store | 5,500 SF | 12 | 12 | 25 | 47 | 47 | 94 |
| 931 | Restaurant, Quality | 17,825 SF | 60 | 20 | 80 | 99 | 49 | 148 |
| 925 | Drinking Place (Karaoke) | 6,600 SF | 0 | 0 | 0 | 37 | 37 | 75 |
| | TOTAL | | 82 | 44 | 125 | 217 | 159 | 376 |
| | | | | | | | | |
| PROPOS | SED CONDITIONS | | | | | | | |
| 492 | Health/Fitness Club | 15,000 SF | 9 | 12 | 21 | 34 | 25 | 59 |
| 899 | Liquor Store | 5,500 SF | 12 | 12 | 25 | 47 | 47 | 94 |

122 units

11

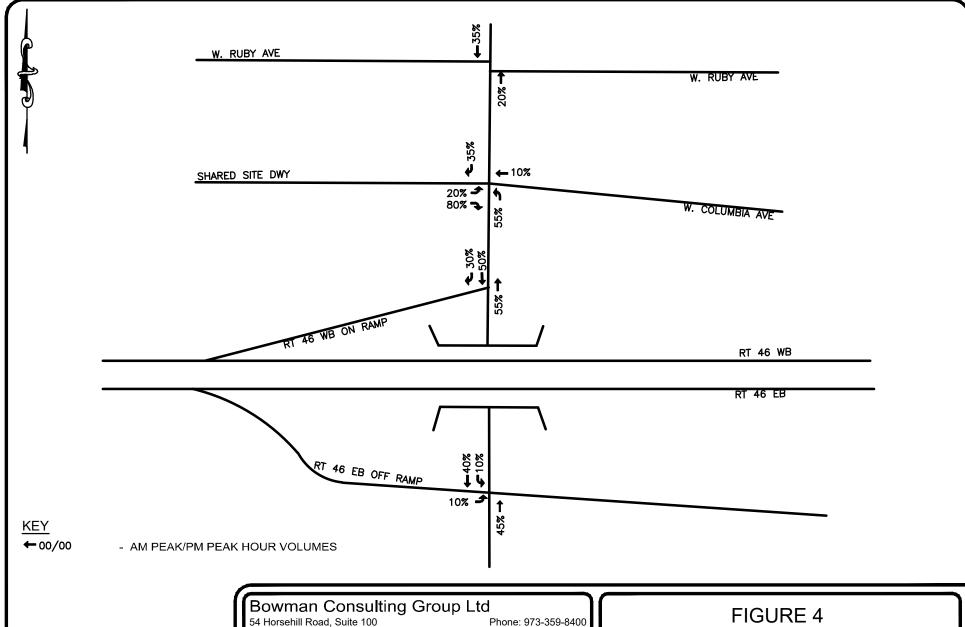
32

(49)

33

57

13



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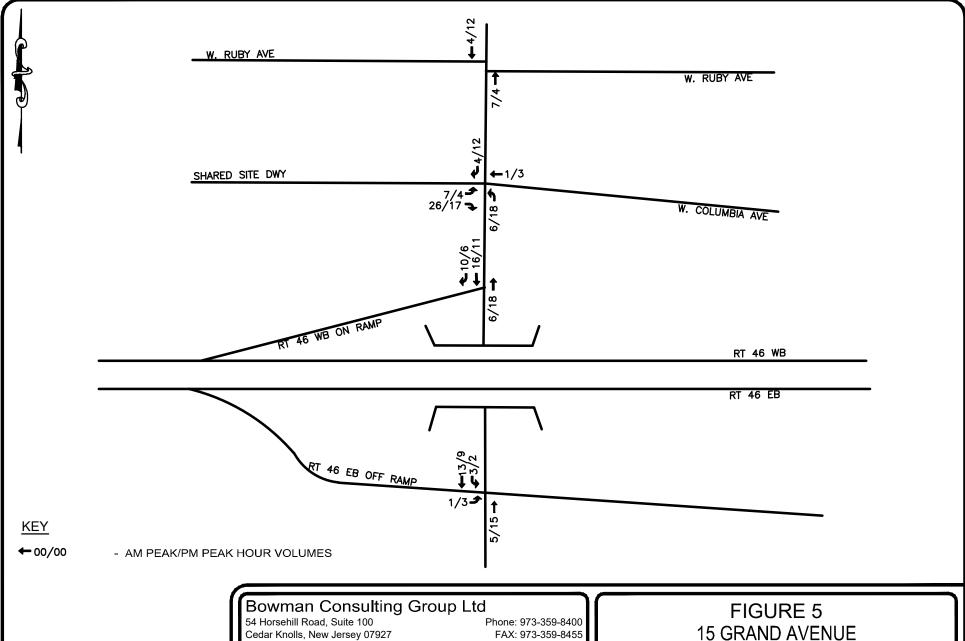
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15 GRAND AVENUE SITE TRIP DISTRIBUTION

BOROUGH OF PALISADES PARK, CAMDEN COUNTY, NEW JERSEY

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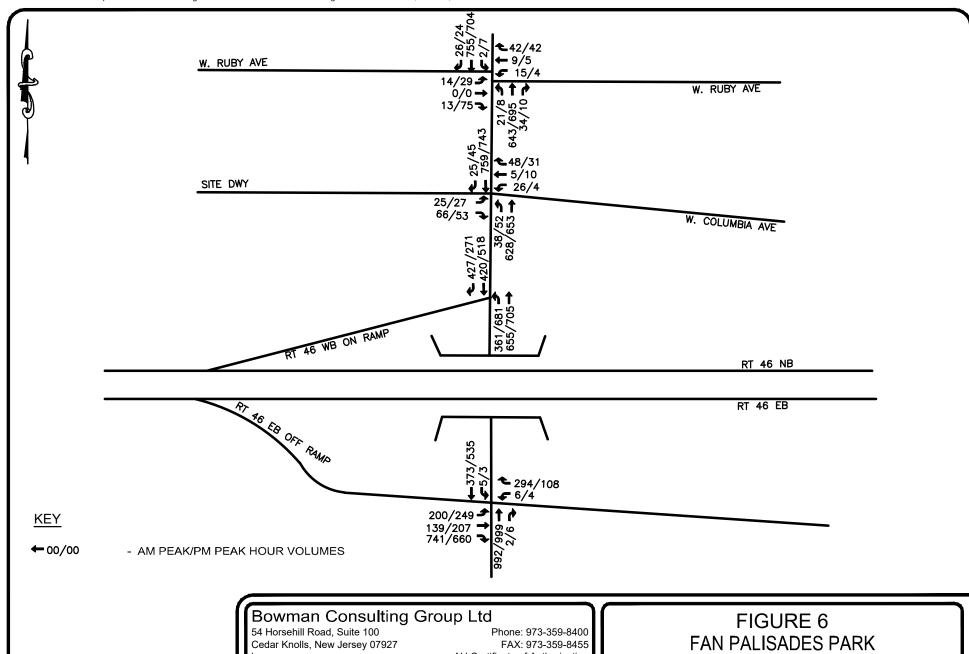
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SITE GENERATED TRAFFIC VOLUMES

BOROUGH OF PALISADES, BERGEN COUNTY, NEW JERSEY



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2024 BUILD TRAFFIC VOLUMES

BOROUGH OF PALISADES PARK, BERGEN COUNTY, NEW JERSEY

The site trip distribution is graphically presented in Figure 4. Applying the site trip distribution to the trip generation values presented in Table 2 resulted in the site trip assignment for the AM and PM peak hours shown in Figure 5.

Year 2024 Build Conditions

The site generated traffic volumes presented in Figure 5 were added to Year 2024 No-Build traffic volumes presented in Figure 3 to yield the AM and PM peak hour Year 2024 Build conditions, which are presented in Figure 6. These traffic volumes are used to analyze future operating conditions including the traffic from the proposed redevelopment.

The resulting levels of service for 2024 Build conditions at the studied intersections are summarized in Table 3. The results of the analyses indicate that under future Year 2024 Build conditions, the levels of service for the traffic movements at the studied signalized intersections would remain at LOS D or better during the AM and PM peak hours, with increases in average delay from 2024 No Build conditions of less than 1.3 seconds, a de minimis change.

At the unsignalized intersections, the side street approaches continue to operate during the AM and PM peak hours at the same levels of service as calculated for No Build conditions, except for the westbound West Columbia Avenue approach during the AM peak hour which is calculated to operate at LOS F. The increase in average delay from No Build conditions is a result of the site generated traffic from the proposed redevelopment. Again, this does not reflect the elimination of traffic currently being generated by the existing restaurant/night club/karaoke bar uses. We again note that these levels of service do not account for gaps that are created by the signalized intersections at the Route 46 ramps. Further we note that the volume to capacity ratios are quite low (less than 0.56) which indicates that there is more than sufficient capacity on these approaches, but that the higher volumes along Grand Avenue result in higher average delays.

In summary, the proposed redevelopment of the subject tract will have a negligible impact on the operations of the studied intersections and within the overall network during the weekday peak hours and other hours of the day. It is also likely that traffic volumes, as nominal as they are, will be less due to the availability of mass transit opportunities in the area.

TABLE 3 - LEVEL OF SERVICE / AVERAGE VEHICLE DELAY COMPARISON - NO BUILD & BUILD CONDITIONS 15 GRAND AVENUE, BOROUGH OF PALISADES PARK, BERGEN COUNTY

| | | | 2024 | No Bui | ld Cond | lition | | | | 20 | 24 Build | l Condi | tion | |
|----------------------------------|---------|---------|-------|---------|---------|--------|---------|---------|-------|--------|----------|---------|---------|---------|
| ľ | | AM PEAK | | | | PM PEA | (| | | AM PEA | 〈 | | PM PEAK | (|
| | | | | Levels | | | Levels | | | | Levels | | | Levels |
| | LANE | V/C | Delay | of | V/C | Delay | of | LANE | V/C | Delay | of | V/C | Delay | of |
| Intersection | GROUP | Ratio | (sec) | Service | Ratio | (sec) | Service | GROUP | Ratio | (sec) | Service | Ratio | (sec) | Service |
| | EB-L | 0.85 | 40.9 | D | 0.80 | 46.9 | D | EB-L | 0.86 | 41.3 | D | 0.81 | 47.9 | D |
| Grand Avenue & | EB TR | 0.96 | 27.7 | С | 0.88 | 20.3 | С | EB TR | 0.96 | 27.6 | С | 0.88 | 20.3 | С |
| Rt. 46 EB Ramp & Maple Avenue | WB-LR | 0.41 | 8.0 | Α | 0.13 | 5.7 | Α | WB-LR | 0.41 | 8.0 | Α | 0.13 | 5.7 | Α |
| (Signalized) | NR-1K | 0.82 | 32.6 | С | 0.86 | 38.4 | D | NB-TR | 0.82 | 32.9 | С | 0.87 | 39.7 | D |
| (0.9.1 | SB-LT | 0.31 | 18.3 | В | 0.48 | 23.2 | С | SB-LT | 0.32 | 18.5 | В | 0.49 | 23.3 | С |
| | OVERALL | | 27.0 | С | | 29.1 | С | OVERALL | | 27.1 | С | | 29.7 | С |
| | NB-L | 0.93 | 22.9 | С | 0.74 | 9.8 | Α | NB-L | 0.95 | 25.2 | С | 0.74 | 10.4 | В |
| Grand Avenue & | NB-T | 0.40 | 0.7 | Α | 0.40 | 0.7 | Α | NB-T | 0.40 | 0.7 | Α | 0.41 | 0.7 | Α |
| Rt. 46 WB Ramp | SB-T | 0.39 | 10.4 | В | 0.46 | 11.3 | В | SB-T | 0.40 | 10.6 | В | 0.47 | 11.4 | В |
| (Signalized) | SB-R | 0.47 | 11.7 | В | 0.28 | 9.4 | Α | SB-R | 0.48 | 11.9 | В | 0.29 | 9.5 | Α |
| | OVERALL | | 12.5 | В | | 7.2 | Α | OVERALL | | 13.4 | В | | 7.4 | Α |
| Grand Avenue & | EB-LR | 0.37 | 38.0 | Е | 0.38 | 39.7 | Е | EB-LR | 0.55 | 47.1 | Е | 0.52 | 49.0 | E |
| W. Columbia Avenue | WB-LTR | 0.50 | 45.1 | E | 0.19 | 23.7 | С | WB-LTR | 0.56 | 54.7 | F | 0.24 | 28.3 | D |
| (Unsignalized) | NB-L | 0.04 | 9.7 | Α | 0.05 | 9.7 | Α | NB-L | 0.05 | 9.8 | Α | 0.07 | 9.9 | Α |
| | EB-LTR | 0.28 | 52.1 | F | 0.54 | 42.8 | Е | EB-LTR | 0.29 | 53.4 | F | 0.56 | 44.6 | Е |
| Grand Avenue & | WB-LTR | 0.43 | 41.7 | Е | 0.20 | 21.9 | С | WB-LTR | 0.44 | 42.8 | Е | 0.20 | 22.2 | С |
| W. Ruby Avenue (Unsignalized) | NB-L | 0.03 | 9.8 | Α | 0.01 | 9.2 | Α | NB-L | 0.03 | 9.8 | Α | 0.01 | 9.2 | А |
| | SB-L | 0.00 | 9.1 | А | 0.01 | 9.1 | А | SB-L | 0.00 | 9.1 | А | 0.01 | 9.1 | А |

SITE PLAN EVALUATION

The existing curb cuts along Grand Avenue are being maintained, with both existing driveways providing for two-way traffic flows. The existing shared driveway will be striped for two exit lanes, an exclusive left turn lane and an exclusive right turn lane. This shared driveway will provide access to the lower level of the parking garage structure, 22 surface parking spaces and a loading area. The existing southern driveway will provide access to the upper level of the parking garage structure, 10 surface parking spaces and to the residential lobby. The seven (7) existing head-in spaces in front of the liquor store will remain, as will the five (5) angled spaces along the north side of the building. The internal sidewalk network provides connections among the residential building lobby, entries to the existing building to remain and the various surface parking spaces; which includes a stairway to the lower level of parking. There is also an exterior sidewalk westerly from the lower garage access; and a sidewalk at the southeasterly side of the residential building to the dog run at the western end of the subject site.

The site plan provides for safe and efficient traffic operations without affecting the quality of traffic flow along area roadways. The internal parking aisles are proposed at 24 feet wide with perpendicular parking. The proposed site plan conforms to applicable standards from a traffic engineering viewpoint. Circulation and access for all of the uses to and from the site, as well as within the property are adequate for residents, visitors, deliveries and emergency services.

The Borough code uses RSIS parking standards for the residential use, 1.8 spaces for a one-bedroom and 2.0 spaces for a two-bedroom. The proposed bedroom mix is 41 one-bedroom units and 81 two-bedroom units; a total of 122 dwelling units. In addition, the parking requirement for the existing health/fitness club is one space for every 3.5 occupants and the capacity is 194 occupants; and for the retail (liquor) and office uses it is one (1) space for every 200 square feet. The Borough code also permits up to a ten percent (10%) reduction for electric vehicle charging spaces or for this property, a reduction of 31 spaces. The parking requirement for the overall mixed-use redevelopment of the subject property is therefore 296 parking spaces and 306 parking spaces are proposed, thereby exceeding requirements. This also addresses the needs of visitors.

CONCLUSIONS

The proposed redevelopment of the subject property for 122 multi-family, mid-rise residential apartments while maintaining the existing health/fitness club, liquor store and office uses will have a negligible impact on traffic operations at the studied intersections during the weekday AM and PM peak commuting hours.

The incremental impact of the additional site-generated traffic results in an increase in the average delay on the affected approach movements, particularly at the shared site driveway, but would not be noticeable to motorists, particularly at the signalized intersections or for through traffic along Grand Avenue. These increases in average vehicle delay would not materially impact the operations of the study intersections or change the levels of service.

It is our professional opinion that, based upon our traffic engineering evaluation, the proposed redevelopment will provide for safe and efficient traffic operations without affecting the quality of traffic flow along area roadways.

The proposed site plan conforms to applicable standards from a traffic engineering viewpoint. Circulation and access to and from the site, as well as within the property are adequate. Sufficient parking is provided for all of the uses in accordance with Borough ordinance requirements for the multi-family residential use and the other existing uses.

In conclusion, this redevelopment project would have a negligible impact on the traffic operations of the existing roadway system and at the studied intersections. The design of the development will adequately serve the needs of this project's residents and guests, as well as the employees, customers and delivery needs of the other existing uses.

p:\081197 - fan - palisades park\081197-01-001 (eng)\admin\traffic\2021-11-29_tee__15 grand ave palisades park_081197-01-001.doc

APPENDIX I LEVEL OF SERVICE DEFINITIONS

TRAFFIC OPERATIONS

Capacity analysis, a procedure used to estimate the traffic-carrying ability of roadway facilities over a range of defined operating conditions, was performed using the 2010 Highway Capacity Manual (HCM) and 2010 Highway Capacity Software.

For a signalized intersection, Level of Service (LOS) A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 80 seconds per vehicle.

For an unsignalized intersection, LOS A indicates operations with delay less than 10 seconds per vehicle, while LOS F describes operations with delay in excess of 50 seconds per vehicle.

LEVEL OF SERVICE /AVERAGE DELAY CRITERIA*

| Level Of Service (LOS) | Signalized Delay Range (average delay, sec/veh) | Unsignalized Delay Range (average delay in sec/veh) |
|------------------------------|---|---|
| А | <=10 | <=10 |
| В | >10 and <=20 | >10 and <=15 |
| С | >20 and <=35 | >15 and <=25 |
| D | >35 and <=55 | >25 and <=35 |
| E | >55 and <=80 | >35 and <=50 |
| F | >80 | >50 |

^{*} Sources: Highway Capacity Manual (2010 Edition) & SimTraffic Version 5.0

APPENDIX II CAPACITY ANALYSES

IIA - 2021 EXISTING CONDITIONS IIB - 2024 NO-BUILD CONDITIONS IIC - 2024 BUILD CONDITIONS

APPENDIX IIA 2021 EXISTING CONDITIONS

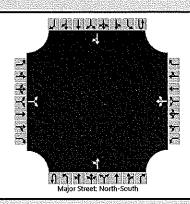
| | | HCS | 7 Sig | nalize | d Int | ersec | tion F | Resul | ts Sur | nmar | y | | | | |
|--|---|--|--|-----------------|--------------------|----------------|--|----------|-----------|------------------------|---|-------|----------|------------------|---|
| 006 | | CONTRACTOR CONTRACTOR | | | | | | | | | | | | | |
| General Inform | nation | | | | | | | I | ntersect | tion Inf | ormatio | on | | 4 7.45 [| MU. |
| Agency | | Bowman | | | | | | | Duration, | h | 0.250 |) | 5 | ** | |
| Analyst | | LDK | | Analys | is Date | e Nov | 28, 2021 | 1 | Area Typ | е | Other | • | | | |
| Jurisdiction | *************************************** | NJDOT | <u> </u> | Time F | Period | AM F | 'eak | | PHF | ********************** | 0.96 | | | w ∫ t | → 2 |
| Urban Street | | Rt. 93 (Grand Ave) | , | Analys | is Yea | r 2021 | *************************************** | 1 | Analysis | Period | 1> 7:0 | 00 | 喜 | | |
| Intersection | , | Rt. 093/Rt. 46/Mapl | e Av | File Na | ame | EX-A | M-93-46 | SEB-Ma | ple.xus | | *************************************** | | | † 🌬 | |
| Project Descrip | tion | 15 Grand Av, BCG | 081197- | -01-001 | | | | | | | ************ | | 3 | <u>ተ</u> ሰቀት | kas |
| | | | | | | | | | | | | | | | |
| Demand Inform | nation | | | | EB | Vijet e | | WE | | | NB | | | SB | Y. V. |
| Approach Move | ment | | | L | Т | R | L | Т | R | L | Т | R | L | Т | R |
| Demand (v), v | eh/h | | | 185 | 135 | 708 | 6 | 0 | 285 | | 942 | 2 | 2 | 343 | |
| | | | | | | | | | | | | 1 | | | |
| Signal Informa | | | | | Į. | 7 | | | | 1 | | | <u> </u> | | |
| Cycle, s | 90.0 | Reference Phase | 2 | | 1 | A ES | K., | | | | | 4 | | | -€ .∥ |
| Offset, s | 0 | Reference Point | End | Green | 31.2 | 47.8 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | Ŕ |
| Uncoordinated | No | Simult. Gap E/W | On | Yellow | 4.0 | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |) | | 7 |
| Force Mode | Fixed | Simult, Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | 6 | 7 | 8 |
| | | | | | | | | | | | | | | | |
| Timer Results | *************** | #00.00 PM | MANAGEMENT AND SERVICE AND SER | EBI | | EBT | WE | 3L | WBT | NBI | | NBT | SBI | | SBT |
| Assigned Phase | 9 | | | | | 4 | | | 8 | | | 2 | | | 6 |
| Case Number | | | | | | 6.0 | | JAME 16 | 8.0 | | | 8.0 | | | 8.0 |
| Phase Duration | , S | | | | | 52.8 | | | 52.8 | | | 37.2 | | | 37.2 |
| Change Period | (Y+R | c), S | | <u> Harrier</u> | | 5.0 | | ridik la | 5.0 | | | 6.0 | | | 6.0 |
| Max Allow Head | dway (/ | <i>ИАН</i>), s | | | | 3.3 | | | 3.3 | | | 0.0 | | | 0.0 |
| Queue Clearan | ce Time | (gs),s | | | | 47.3 | | | 42.7 | | | | | | |
| Green Extensio | n Time | (ge), s | | | | 3.0 | | | 3.4 | | | 0.0 | | | 0.0 |
| Phase Call Prol | bability | | | | | 1.00 | | | 1.00 | | | | | | 8,040,0 |
| Max Out Proba | bility | | | | | 0.30 | SCORE STATE OF THE | | 0.12 | | | | | | |
| | | | | | | | | | | | | | | | |
| Movement Gro | | sults | Alajyi. | | EB | | | WB | | | NB | | | SB | |
| Approach Move | | | | L | T | R | L | T | R | L | T | R | L | T | R |
| Assigned Move | | | | 7 | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 1.1 | 6 | |
| Adjusted Flow I | | | | 193 | 878 | | | 303 | | | 492 | 491 | 188 | 171 | |
| - | | ow Rate (<i>s</i>), veh/h/l | n. | 954 | 1824 | | | 1396 | | | 1781 | 1780 | 1819 | 1662 | |
| Queue Service | | | | 13.7 | 39.7 | | | 2.1 | | | 25.9 | 19.7 | 0.0 | 7.5 | *************************************** |
| ļ | , | e Time (<i>g ₀</i>), s | | 45.3 | 39.7 | | | 40.7 | | | 25.9 | 19.7 | 5.4 | 7.5 | |
| Green Ratio (g | | | | 0.53 | 0.53 | | | 0.53 | | | 0.35 | 0.35 | 0.35 | 0.35 | |
| Capacity (c), v | | | | 238 | 919 | | | 744 | | | 666 | 666 | 720 | 621 | |
| Volume-to-Cap | and the second second | Name of the Control o | | 0.809 | THE REAL PROPERTY. | | | 0.407 | | | 0.738 | 0.738 | 0.261 | 0.276 | |
| COLUMN TO THE PROPERTY OF THE | ela serre con escara | /In (95 th percentile) | DOGG STORY OF STORY | 218.4 | 491.6 | | | 97 | | | 331.6 | 311.5 | 100.5 | 96.7 | |
| | | eh/ln (95 th percenti | | 7.7 | 19.5 | | | 3.9 | | | 12.5 | 12.5 | 4.0 | 3.7 | |
| Description of the last of the | | RQ) (95 th percent | ile) | 0.00 | 0.00 | | | 0.00 | | | 0.00 | 0.00 | 0.00 | 0.00 | 1 2 2 2 2 2 |
| Uniform Delay (| *************************************** | | | 31.3 | 13.8 | | | 8.9 | | | 19.1 | 19.1 | 15.5 | 15.5 | |
| Incremental De | lay (d 2 |), s/veh | | 4.3 | 13.9 | | | 0.1 | | | 7.2 | 7.2 | 0.9 | 1.1 | |
| Initial Queue De | elay (d | з), s/v eh | | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Control Delay (| d), s/ve | eh | | 35.6 | 27.7 | | | 9.0 | | | 26.3 | 26.3 | 16.4 | 16,6 | |
| Level of Service | (LOS) | | | D | С | | | Α | | | С | С | В | В | |
| Approach Delay | , s/veh | /LOS | | 29.1 | | С | 9.0 |) | Α | 26.3 | 3 | С | 16.5 | 5 | В |
| Intersection De | lay, s/v∈ | eh / LOS | | | | . 2 | 4.2 | • | | | | | C | | |
| | | | | | 11/5 | | | | | | | | | | |
| Multimodal Re | sults | | | | EB | | | WB | | | NB | | | ŞB | |
| Pedestrian LOS | Score | /LOS | | 2.08 | | В | 2.0 | 8 | В | 1.69 |) | В | 1.92 | 2 | В |
| Bicycle LOS Sc | ore / LC | os | | 2.25 | 5 [| В | 0.9 | 9 | Α | 1.30 |) | Α | 0.78 | 3 | Α |
| | | | | | | | | | | | | | | | |

| | HCS7 | 7 Sigi | nalize | d Inte | rsect | tion R | lesu | ts Sur | nmar | y | | | | |
|--|--|------------------------|--------------------------------------|------------------|--------------------------------|---|--|--|--|--------|---|---|---------|--|
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| General Information | | | -modera in international constraints | | | | | Intersect | | | | | 49.44 F | |
| <u> </u> | owman | | | | | **************** | anasan mal im | Duration, | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 0.250 | | أكات | | |
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| | JDOT | | Time F | ***** | PM Pe | eak | | PHF | | 0.96 | | _ = = = = = = = = = = = = = = = = = = = | . 8 t | |
| <u> </u> | t. 93 (Grand Ave) | | | **************** | 2021 | | | Analysis | Period | 1> 5:0 | 00 | | | 7 |
| <u> </u> | t. 093/Rt. 46/Maple | | File Na | ame | EX-PN | 1-93-46 | EB-Ma | aple.xus | | | | | 11 | |
| Project Description 18 | 5 Grand Av, BCG 0 | 81197- | 01-001 | | | | | | | | ere av van an | | MHSM | HC) |
| Demand Information | | | | EB | | | VVE | 3 | | NB | | | SB | |
| Approach Movement | | | | T | R | | ΙT | R | L | T | R | L | Т | l R |
| Demand (v), veh/h | | anairea. | 218 | 201 | 631 | 4 | 0 | THE RESERVE THE PROPERTY OF THE PARTY OF THE | | 940 | 6 | 1 | 507 | 134,43 |
| Softialia (V), Talin | | | | | | | | | | | | | | |
| Signal Information | | | | | ĪŖ | | | | | | | T | | |
| THE RESERVE OF THE PROPERTY OF | Reference Phase | 2 | | | | | | | | | | 1 | | - |
| tarana a di kacamatan kaca | Reference Point | End | Croon | 1300 1000 | . 1 | 0.0 | 0.0 | 0.0 | 0.0 | _ | 1 | 2 | - 3 | - Xi 4 |
| | Simult. Gap E/W | On | Green Yellow | | 49.0 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | S | | -9 - |
| | Simult. Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | - 6 | 7 | 8 |
| | NOT THE RESIDENCE OF THE PARTY. | | | | | | | | | | | | | |
| Timer Results | | | EBL | | EBT | WB | L | WBT | NBI | | NBT | SBI | _ | SBT |
| Assigned Phase | | | | | 4 | | | 8 | | | 2 | | | 6 |
| Case Number | | | | | 6.0 | wang. | | 8.0 | | | 8.0 | | | 8.0 |
| Phase Duration, s | | | | <u> </u> | 54.0 | | | 54.0 | | | 36.0 | | | 36.0 |
| Change Period, (Y+Rc) | , s | | | | 5.0 | E AR | | 5.0 | ar şa | | 6.0 | | | 6.0 |
| Max Allow Headway (MA | AH), s | | | | 3.2 | | | 3.2 | | | 0.0 | | | 0.0 |
| Queue Clearance Time (| g s), S | | | | 33.0 | | encommo _{nto} | 3.9 | | | | | | |
| Green Extension Time (| | | | 1 | 2.8 | | | 3.0 | | | 0.0 | | | 0.0 |
| Phase Call Probability | | | | | .00 | | | 1,00 | | | | | | |
| Max Out Probability | | | | 1 (| 0.04 | | | 0.00 | | | | | | ************************************** |
| | | | | | | | | | | | | | | |
| Movement Group Resul | lts | | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | | OKEROMUPARIOMORIMATIKA | L | Т | R | L | Т | R | L | T | R | L | T | R |
| Assigned Movement | | | 7. | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 1 | 6 | |
| Adjusted Flow Rate (v), | veh/h | | 227 | 867 | *GRICOR**000#684042955##888000 | | 114 | | | 493 | 492 | 277 | 252 | |
| Adjusted Saturation Flow | | 1 | 1284 | 1844 | | | 1586 | | | 1870 | 1866 | 1868 | 1702 | - |
| Queue Service Time (g s | | | 6.0 | 31.0 | и киндинаки | | 0.0 | | | 21.5 | 20.3 | 0.0 | 9.9 | |
| Cycle Queue Clearance | Time (g_c), s | | 8.2 | 31.0 | t janisii | | 1,9 | | | 21.5 | 20.3 | 9.2 | 9.9 | |
| Green Ratio (g/C) | | | 0.54 | 0.54 | | | 0.54 | | | 0.33 | 0.33 | 0.33 | 0.33 | |
| Capacity (c), veh/h | | | 752 | 1004 | *********** | | 905 | <u></u> | | 623 | 622 | 663 | 567 | |
| Volume-to-Capacity Ratio | | | 0.302 | 0.863 | | | 0.12 | | | 0.791 | 0.791 | 0.418 | 0.445 | |
| Back of Queue (Q), ft/In | _ | ****** | 71.5 | 347.4 | | | 29.8 | | | 357.2 | 351 | 176.4 | 166.5 | |
| Back of Queue (Q), veh | | | 2.8 | 13.9 | | | 1.2 | | | 14.1 | 14.0 | 7.1 | 6.6 | |
| Queue Storage Ratio (R | to a second contract of the second | ile) | 0.00 | 0.00 | | | 0.00 | | | 0.00 | 0.00 | 0.00 | 0.00 | |
| Uniform Delay (d 1), s/ve | | | 7.1 | 9.9 | | | 5.9 | | | 22.3 | 22.3 | 19.2 | 19.2 | <u> </u> |
| Incremental Delay (d 2), | s/veh | | 1.0 | 9.8 | | | 0.3 | | - | 9.9 | 9.9 | 1.9 | 2.5 | |
| Initial Queue Delay (d ₃) |), s/veh | | 0.0 | 0.0 | | 200000000000000000000000000000000000000 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Control Delay (d), s/veh | | | 8.2 | 19,6 | | | 6.2 | | | 32.2 | 32.2 | 21.2 | 21.7 | |
| Level of Service (LOS) | | | Α | В | | | A | | | Ç | С | С | C | <u> </u> |
| Approach Delay, s/veh / l | and the second s | | 17.3 | 3 | В | 6.2 | | Α | 32.2 | 2 | С | 21.4 | 1 | С |
| Intersection Delay, s/veh | /LOS | | | | 23 | 3.0 | | | | | | С | | |
| | | | | | | | | | | | | | | |
| Multimodal Results | | | | EB | | | WB | | | NB | | <u> </u> | SB | |
| Pedestrian LOS Score / L | | | 2.08 | | В | 2.08 | | В | 1.69 | | В | 1.92 | | В |
| Bicycle LOS Score / LOS | September The Coloradia C | | 2.29 |) | В | 0.67 | <u>/ </u> | Α | 1.30 |) | Α | 0.92 | 2 | Α |

| | HCS | 7 Sig | nalize | d Inte | ersec | tion R | esu | ılts Su | nmary | y | | | | |
|--|---|--|----------------------|---|---|---|---|---|--|---------------|---|----------|-------------|--|
| | | | | | | | | | | | | | | |
| General Information | | | | | | | | Intersec | tion Info | ormatic | n | 1 | 40.41 | |
| Agency | Bowman | | | | | | | Duration | , h | 0.250 | | 7 | 2 J.J. | |
| Analyst | LDK | | Analys | is Date | Nov 2 | 8, 2021 | | Area Typ | e | Other | | | | 1 1 |
| Jurisdiction | NJDOT | district and a section of the | Time F | Austromowa zaczerok Sesuracien | AM P | | | PHF | | 0.95 | *************************************** | | ₹. | 2 |
| Urban Street | Rt. 93 (Grand Ave) | | Analys | is Year | 2021 | | | Analysis | Period | 1> 7:0 | 00 | 7 | | = |
| Intersection | Rt. 93/Rt. 46 WB Ra | amp | File Na | | | /i-93-46 | WB.x | | | | | | 5.4 | |
| Project Description | 15 Grand Ave BCG | THE RESERVE OF THE PERSON NAMED IN COLUMN 1 | | - CHARLES AND | | | | | ······································ | *** | | iñ | 1147 | e n |
| 1 70 Just 2 docupation | 10 0141141116 200 | | | | | | | | | | | | | |
| Demand Information | | | | EB | | | V | /B | | NB | | | SB | |
| Approach Movement | | ************ | L | Т | R | L | ٦ | r R | L | Т | R | L | Т | R |
| Demand (v), veh/h | | | - | ************************************** | 1 | | 1 -4 -3 | | 821 | 621 | | | 387 | 400 |
| | 5.00 | | | | , | | | | | | | | | |
| Signal Information | | | | | T.J. | | T | | | | | | T | |
| Cycle, s 90.0 | Reference Phase | 2 | steamik | R/P | 1 | | | | | | | 寸 | | |
| Offset, s 0 | Reference Point | End | <u> </u> | 1 11 | <u> </u> | | ٠, | | | _ | 1 | 2 | 3 | 4 |
| Uncoordinated No | Simult. Gap E/W | On | Green Yellow | | 54.0 4.0 | 0.0 | 0.0 | | 0.0 | | | | | |
| Force Mode Fixed | Simult, Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | | 0.0 | | 5 | 6 | 7 | a |
| | | | 1 | | | | | | | | - 1 | 1 | | 1000 |
| Timer Results | | | EBL | | EBT | WBI | | WBT | NBI | | NBT | SBL | | SBT |
| Assigned Phase | | | | | *************************************** | *************************************** | | CONTROL DE | 5 | | 2 | | | 6 |
| Case Number | | | | 68.0 FAS | | | aliki d | | 1.0 | | 4.0 | | Tyrk Ta. | 7.3 |
| Phase Duration, s | | | | | | | - | | 30.0 | | 90.0 | | _ | 60.0 |
| Change Period, (Y+R | | | | valer Tarit | ari wuran | | | | 6.0 | ···· | 6.0 | | | 6.0 |
| The second secon | | | | | | | | | 3.1 | . 1971 1971 | 0.0 | | | 0.0 |
| Max Allow Headway (| | walka 11 (12 (12 (12 (12 (12 (12 (12 (12 (12 | | | 2 - No. 15 | | | | 3. i | | U.U | | | U.U |
| Queue Clearance Time | | 68 20 5 1 500 | | | | | 1000 | | | | | | | ~ ~ |
| Green Extension Time | (<i>g</i> e), S | | | | a sa aka ak | | | | 1.6 | | 0.0 | | | 0.0 |
| Phase Call Probability | | | | | | j Kremenii | 2.742.47 | | 1.00 | | | | | POST CONTRACTOR OF THE PARTY OF |
| Max Out Probability | | | l grant and | | | | | | 0.18 | 3 | | | | |
| Movement Group Res | -14- | | | EB | | | WE | 5 | | NB | | | SB | |
| Approach Movement | suits | 1 10,711 1151 | 1 | Т | R | 1 | T | R | | Т | R | | T | R |
| | ************************************* | e s lighters as | <u> </u> | i Sansadi | I. | <u> </u> | | | | <u> </u> | | L- | 6 | 16 |
| Assigned Movement | | i danada) | | r ekrejni | partition (| | | di kiji i kalabah b | 5 | 2 | 0.004.440 | | | |
| Adjusted Flow Rate (v | | ************ | V.2.74. 22. 1. 1. 1. | ing ing | | | - 1: 1: - | | 864 | 654 | *************************************** | | 407 | 421 |
| Adjusted Saturation Fl | | 1 | | | | | 3335 | | 1697 | 1841 | | | 1826 | 1560 |
| Queue Service Time (| NAMES AND ASSESSMENT OF THE PROPERTY OF THE PERSON OF THE | | | TENENE E | 1 | | | anamata karabanda barabatak | 14.0 | 0.0 | - | | 10.3 | 13.3 |
| Cycle Queue Clearanc | e lime (g_c), s | | | My Mill | | | 1996 | | 14.0 | 0.0 | | | 10.3 | 13.3 |
| Green Ratio (g/C) | | | | | | | | N 100 PT 100 PT | 0.89 | 0.93 | 2. 0. 0. 0. 0. | | 0.60 | 0.60 |
| Capacity (c), veh/h | | | | W145 | | | | | 984 | 1718 | | | 1096 | 936 |
| Volume-to-Capacity Ra | | *************************************** | | | | | AND DESCRIPTION OF THE PERSON | incia reisonaina mina | 0.878 | 0.380 | *************************************** | | 0.372 | 0.450 |
| Back of Queue (Q), ft | | ***** | | | | | - | | 206.6 | 14,2 | | | 182.7 | 201.2 |
| Back of Queue (Q), v | | and the second second | | | | | | | 7.8 | 0.6 | | | 7.0 | 7.8 |
| Queue Storage Ratio (| | ile) | | | | | | | 0.00 | 0.00 | | | 0.00 | 0.00 |
| Uniform Delay (d 1), s | /veh | | | | | | | | 5.1 | 0.0 | | | 9.3 | 9.9 |
| Incremental Delay (d : | ₂), s/veh | | | | | | | | 11.0 | 0.6 | | | 1.0 | 1.6 |
| Initial Queue Delay (d | з), s/veh | | | | | | | | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Control Delay (d), s/v | eh | | | | | | | | 16.0 | 0.6 | | | 10.2 | 11.4 |
| Level of Service (LOS) | | | | | | | | | В | Α | | | В | В |
| Approach Delay, s/veh | | de Maria | 0.0 | | | 0.0 | | | 9.4 | | Α | 10,8 | 3 | В |
| Intersection Delay, s/ve | | | | | 9 | .9 | | ************************************** | | | | A | | <u></u> |
| F. 10. | | | | | | | | | | | | | | |
| Multimodal Results | | | ľ | ЕB | | | WI | В | | NB | | | SB | |
| Pedestrian LOS Score | /LOS | *************************************** | 1.95 | | В | 1.95 | | В | 0.54 | - | Α | 1.36 | | Α |
| Bicycle LOS Score / Lo | | Çirin i | | | | | | | 2.99 | | С | 1.85 | - | В |
| | | · | 超 | | · · | | 1: | <u> </u> | B | 1 | | M | | |

| | | HCS | 7 Sig | nalize | d Inte | rsec | tion R | Resu | lts Su | nmary | / | | | | |
|--|--|--------------------------|--|--|------------------|---|--------------|---|----------------------|---|----------------|--|-----------|-----------|----------|
| Committee | 4: | | | | | | | | Intersec | 41 | 4 | | Į į | | PRI N |
| General Inform | ation | D | | ······································ | | <u></u> | | | | *************************************** | 0.250 | | | ĴŢ | |
| Agency | | Bowman | CONTRACTOR AND | I A 1 | !- M - 4 - | I | 0.0004 | anne and a | Duration | | | (Industrial Industrial Industrial Industrial Industrial Industrial Industrial Industrial Industrial Industrial | -3 | | 基 |
| Analyst | terment to the second s | LDK | | · 8: | | | 8, 2021 | | Area Typ |)e | Other | | _ \$ | 9 | |
| Jurisdiction | | NJDOT | *************************************** | Time F | | PM P | eak | | PHF | | 0.98 | | | *10 | * |
| Urban Street | | Rt. 93 (Grand Ave) | | | | 2021 | | | Analysis | Period | 1> 5:0 | 00 | | | <u>*</u> |
| Intersection | 11100000000000000000000000000000000000 | Rt. 93/Rt. 46 WB Ra | MARKATION AND AND AND AND AND AND AND AND AND AN | File Na | - | EX-PI | И-93-46 | WB.xu | IS | | | | | ን ተ | |
| Project Descrip | tion | 15 Grand Ave BCG | 081197 | 7-01-001 | | ###################################### | | ****************************** | | *** | | 00000000100100000000000000000000000000 | 1 | 4147 | e e |
| | | 10 Tab. 11 Tab. | | | | | | | | | | | | | |
| Demand Inform | | | | | EB | | | WE | | | NB | | | SB | |
| Approach Move | ********** | | | L | T | R | L | T | R | L | T | R | L | T | R |
| Demand (v), v | eh/h | | | | | | | | | 635 | 659 | | | 488 | 254 |
| | | | | | | | | | | | | | | | |
| Signal Informa | | | · | |] | 171 | 1 | | | 1 | | | -4 | | |
| Cycle, s | 90.0 | Reference Phase | 2 | No. | 67 | P 1 | | | | ĺ | and the second | 4 | Ч, | | 4 |
| Offset, s | 0 | Reference Point | End | Green | 1 11 | 54.0 | 0.0 | 0.0 | 0.0 | 0.0 | | i i | | | |
| Uncoordinated | No | Simult. Gap E/W | On | Yellow | | 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | ı | 、 2 | ļ | | |
| Force Mode | Fixed | Simult. Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 6 | - 6 | 7 | |
| | | | | | | | | | | | | | | | |
| Timer Results | | | | EBL | AR AR | EBT | WB | L | WBT | NBI | | NBT | SBI | | SBT |
| Assigned Phase | е | | | | | 000 (200 (100 (100 (100 (100 (100 (100 (| | | | 5 | | 2 | | | 6 |
| Case Number | | | | | | | | | | 1.0 | | 4.0 | | | 7.3 |
| Phase Duration | 1. S | | | | | | | | | 30.0 |) | 90.0 | | <u> </u> | 60.0 |
| Change Period | | c). s | | | | A. E. L. | | | | 6.0 | | 6.0 | | | 6.0 |
| Max Allow Head | ********** | | | | | | | | | 3,1 | | 0.0 | | | 0.0 |
| Queue Clearan | MEASURE RESIDENCE FOR THE PROPERTY OF THE PERSON OF THE PE | | | | | la elik | | | | 8.3 | | | A SECTION | Naid Hill | |
| Green Extension | فيستعمن فيستخدون | | | | | | | | | 1.3 | | 0.0 | | | 0.0 |
| Phase Call Pro | | (g e), o | | | | | | | | 1.00 | 188 AFR | | | | |
| Max Out Proba | | | | | | | | | 14,74 | 0.00 | | | | | |
| IMAX Out Floba | Dinty | | | I | | | | | | 1 0.00 | | | H | | |
| Movement Gro | un Res | ults | ka di kacamatan | | EB | | Á | WB | | | NB | | | SB | |
| Approach Move | | | | l | тТ | R | L | Т | R | | T | R | | T | R |
| Assigned Move | | | | | | | | | | 5 | 2 | | | 6 | 16 |
| Adjusted Flow | | \ voh/h | <u> </u> | | | ************************************** | | 19819 | ve Thouse | 648 | 672 | | | 498 | 259 |
| | | | | | | | 111111111111 | | | 1767 | 1885 | | | 1885 | 1585 |
| | | ow Rate (s), veh/h/l | N. Artigora | | (* (* * A) * 1 | in in a si | | | | ğ | | 10.1010.3 | | <u> </u> | |
| Queue Service | | | **** | | ation of the top | . 75. 122 | | | | 6.3 | 0.0 | | | 12.9 | 7.0 |
| THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW | | e Time (<i>g</i> ₀), s | HI NXD | | | 1 (11 (11) | | | | 6.3 | 0.0 | | | 12.9 | 7.0 |
| Green Ratio (g | | | | | | | | 12 0 0 0 0 | 1.11 or 12-re or 1-e | 0,89 | 0.93 | | | 0.60 | 0.60 |
| Capacity (c), v | | | | | | | | | | 959 | 1760 | | | 1131 | 951 |
| Volume-to-Cap | A contrasting the formation | | | | | есентенти и постава | | | | 0.676 | 0.382 | | | 0.440 | 0.273 |
| Subsemment with the subsemble of the sub | ······································ | /In (95 th percentile) | ********* | | | Waterated and down | | | | 122.6 | 14 | | | 220.2 | 106 |
| | | eh/ln (95 th percenti | | | | | <u></u> | | <u> </u> | 4.8 | 0.6 | | | 8.7 | 4.2 |
| Queue Storage | Ratio (| RQ) (95 th percent | ile) | | | | | | | 0.00 | 0.00 | | | 0.00 | 0.00 |
| Uniform Delay | (d1), s | /veh | | | | | | | | 3.8 | 0.0 | | | 9.8 | 8.6 |
| Incremental De | lay (d 2 |), s/veh | ESTRA | | i jegiski | | | 174 174 | | 3.8 | 0.6 | | | 1.2 | 0.7 |
| Initial Queue De | elay (d | з), s/veh | | | | | | | | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Control Delay (| d), s/v | eh | | | | | | | | 7.6 | 0.6 | | | 11.0 | 9.3 |
| Level of Service | | | | | ***** | | | 1 | | Α | A | · | | В | Α |
| Approach Dela | | /Los | | 0.0 | | | 0.0 | r grad d | | 4.1 | | A | 10.4 | | В |
| Intersection De | · · · · · · · · · · · · · · · · · · · | | | | | ก | .4 | | · | | | o zasalni a ozasa o o o o o o o o o o o o o o o o o o | A | | |
| | _,, 3,,, | | | P. | | | | | | | | | - | | |
| Multimodal Re | sults | | | | EB | | | WB | | | NB | | | SB | |
| Pedestrian LOS | | /LOS | | 1.95 | 3 | В | 1.9 | | В | 0.54 | | Α | 1.36 | | Α |
| Bicycle LOS So | | | nji tari As | 1 | | | | - (,, ,, ,, ,, , , , , , , , , , , , , , | | 2.67 | | C | 1.74 | | В |
| | | u of Florida, All Diabto | | B | | | Ctroote \ | | | <u>R</u> | | | и | | EC.27 AN |

| | HCS7 Two-Way Stop-Control Report | | | | | | | | | | |
|--------------------------|----------------------------------|----------------------------|--------------------------|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Columbia/Dwy | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NJDOT | | | | | | | | |
| Date Performed | 11/28/2021 | East/West Street | W. Columbia Ave/Site Dwy | | | | | | | | |
| Analysis Year | 2021 | North/South Street | Rt, 93 (Grand Ave) | | | | | | | | |
| Time Analyzed | Existing - AM Peak | Peak Hour Factor | 0.92 | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | | | | | | | | | |



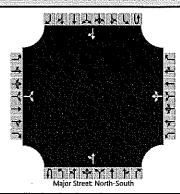
| Vehicle Volumes and Adju | ıstme | nts | | | | | | | | | | | | | | |
|---|----------------------------|-----------|--------|---------|----------|----------|-------|-----------|---------------------------------------|-----------------|--------------------------|--------|----------|---------------------------------------|---------|--------|
| Approach | | Eastb | ound | | | Westl | oound | | | North | bound | | | South | bound | |
| Movement | U | FL | Т | R | U | L. | Т | R | U | i L | T | R | U | L | Т | R |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 1U | 1 | 2 | 3 | 4U | 4 | 5 | 6 |
| Number of Lanes | | 0 | 11. | 0 | i kari | 0 | 1 | 0 | 0 | 0 | 1. | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | LR | | | | LTR | | | LT | | | | · | | TR |
| Volume (veh/h) | | 18 | | 40 | | 25 | 4 | 47 | | 32 | 597 | | | | 726 | 21 |
| Percent Heavy Vehicles (%) | | 6 | | 5 | | 0 | 0 | 4 | | 0 | | | | | | |
| Proportion Time Blocked | | | #WK | ija jud | | | | | aliana. | Krie | | | <u>P</u> | | | |
| Percent Grade (%) | | ı | 0 | | | (| 0 | | | | | | | · | | |
| Right Turn Channelized | 0: 1000 to 1000 to 1000 | | | | | | | | | | Nengari. Virgi, Pi Vi | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | 150 mm (150 mm) | | | | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | |
| Base Critical Headway (sec) | | 6.9 | | 6.0 | | 6.9 | 6.3 | 6.0 | | 4.1 | | | | | | |
| Critical Headway (sec) | | 6.96 | | 6.05 | | 6.90 | 6.30 | 6.04 | | 4.10 | | | R.A. | | | |
| Base Follow-Up Headway (sec) | | 3.3 | | 3,1 | | 3.3 | 3.8 | 3.1 | | 2.2 | | | | | | |
| Follow-Up Headway (sec) | | 3.35 | | 3.15 | | 3,30 | 3,80 | 3.14 | V. Th | 2.20 | | | FÜÄÄ | | | |
| Delay, Queue Length, and | l Leve | l of S | ervice | | | | | | | | | | | | | |
| Flow Rate, v (veh/h) | | | 63 | | | <u> </u> | 83 | | | 35 | | | | I | T | |
| Capacity, c (veh/h) | | ÇHY. | 188 | | \$ 12 Kg | | 189 | 1,144 | | 823 | H | | i pai | | y jiyin | - 1100 |
| v/c Ratio | | | 0.34 | | | | 0.44 | | | 0.04 | | | | | | |
| 95% Queue Length, Q ₉₅ (veh) | | | 1.4 | | | | 2.0 | | | 0.1 | | in it | | | | 10.00 |
| Control Delay (s/veh) | | | 33.6 | | | | 38.0 | | | 9,6 | 1 | | | | | |
| Level of Service (LOS) | T. S. | | D | FALL | . A40 | A Charle | Е | | i i i i i i i i i i i i i i i i i i i | Α | | | | | | 77.59 |
| Approach Delay (s/veh) | | 3. | 3.6 | | | 38 | 8.0 | | | 1 | .1 | | | | | |
| Approach LOS | | | D S | | | | E | at Nati v | | | | a alaa | | k (y) | | |

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HCSTM TWSC Version 7.9.5 EX-AM-93-W Col.xtw

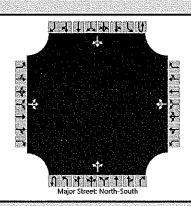
Generated: 12/30/2021 10:59:34 AM

| | HCS7 Two-Way Stop-Control Report | | | | | | | | | | | |
|--------------------------|----------------------------------|----------------------------|--------------------------|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W, Columbia/Dwy | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NJOOT | | | | | | | | | |
| Date Performed | 11/28/2021 | East/West Street | W. Columbia Ave/Site Dwy | | | | | | | | | |
| Analysis Year | 2021 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | Existing - PM Peak | Peak Hour Factor | 0.95 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | -3 | | | | | | | | | | |



| Approach | Eastbound | | | | Westbound | | | | | North | bound | | Southbound | | | | |
|---|-----------|------------|--------|------|-----------|--------|-------------|------|-----|--------------------|---------------|-------------|-------------|---------|-----|------------------|--|
| Movement | U | L | T | R | U | L | Ť | R | Ü | L | T | R | U | L | T | R | |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 1U | 1 | 2 | 3 | 4U | 4 | 5 | 6 | |
| Number of Lanes | | 0 | 11 | 0 | | 0 | 1 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 1. | 0 | |
| Configuration | | | LR | | | | LTR | | | LT | | | | | | TR | |
| Volume (veh/h) | | 23 | | 36 | | 4 | 7. | 30 | | 34 | 624 | | | V.E. | 713 | 33 | |
| Percent Heavy Vehicles (%) | | 0 | | 3 | | 25 | 0 | 0 | | 6 | | | | | | | |
| Proportion Time Blocked | New Y | | | | | | :Out | | W. | WAR. | | | | 4365 | | \$\$\$\$. | |
| Percent Grade (%) | | | 0 | | | |) | | | | | | | | | | |
| Right Turn Channelized | | | | | | | | | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | ************* | | *********** | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 6.9 | | 6.0 | | 6.9 | 6.3 | 6.0 | | 4,1 | | | , | | | | |
| Critical Headway (sec) | | 6.90 | | 6,03 | | 7.15 | 6.30 | 6.00 | | 4.16 | | | | | | | |
| Base Follow-Up Headway (sec) | | 3.3 | | 3.1 | | 3.3 | 3.8 | 3.1 | | 2.2 | | | | | | l | |
| Follow-Up Headway (sec) | | 3.30 | | 3.13 | | 3.53 | 3.80 | 3.10 | | 2.25 | | | | W. Kasi | NN | | |
| Delay, Queue Length, and | Leve | of S | ervice | | | | | | | vereini va aa e | | | | | | | |
| Flow Rate, v (veh/h) | | | 62 | | | , | 43 | | | 36 | | | | | | | |
| Capacity, c (veh/h) | | Special de | 180 | | | | 252 | | 440 | 816 | 40 | | | | | | |
| v/c Ratio | | | 0.34 | | | | 0.17 | | | 0.04 | | | | | | | |
| 95% Queue Length, Q ₉₅ (veh) | | WH. | 1.4 | AUS | | -11:43 | 0,6 | 145 | | 0.1 | | | | | 454 | 30 17 1 Yinin | |
| Control Delay (s/veh) | | | 35.1 | | | | 22.2 | | | 9.6 | | | | | | | |
| Level of Service (LOS) | | 4.50 | E | Ņ. | viji. Vij | - 1,12 | С | 100 | | Α | 1, 1, 1, 1, 2 | | | | | | |
| Approach Delay (s/veh) | 35.1 | | | 22.2 | | | | 1 | | .1 | 3 | | | | | | |

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | |
|----------------------------------|--------------------------------|----------------------------|--------------------|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | TODUN | | | | | | | | |
| Date Performed | 11/28/2021 | East/West Street | W. Ruby | | | | | | | | |
| Analysis Year | 2021 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | |
| Time Analyzed | Existing - AM Peak | Peak Hour Factor | 0.91 | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | | | | | | | | | |



| Approach | Eastbound | | | | | Westbound | | | | North | bound | | Southbound | | | | |
|----------------------------|-------------|---------------|-------------|---------------|------------------------|-----------|----------|--------------|----------------------|----------------|-----------|----|-------------|--------------|----------|----|--|
| Movement | Ü | L | Ţ | R | U | \L | ा | R | Ü | L | Ť | R | U | : L | Т | R | |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 1U | 1 | 2 | 3 | 4U | 4 | 5 | 6 | |
| Number of Lanes | | 0 | 1 | 0 | NEW | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | |
| Configuration | | | LTR | | | | LTR | | | | LTR | | | | LTR | | |
| Volume (veh/h) | | 14 | 0 | 13 | COLUMN TO PARTICION | 15 | 9 | 41 | rijele he Hjelene | 21 | 608 | 33 | | 2 | 718 | 26 | |
| Percent Heavy Vehicles (%) | | 0 | 0 | 23 | | 7 | 0 | 5 | | 5 | | | | 0 | | | |
| Proportion Time Blocked | Strike | | Nov: | | | . Nik | | | | K. | | | | | | | |
| Percent Grade (%) | 0 | | | 0 | | | | <u> </u> | | | | | · | * | | | |
| | Contraction | a Naras sa Na | un in Assis | . His VII Har | 1909-196 | a Prairie | 14. 13.4 | 1,193,3311.1 | 10.101000 | i në ve së dis | 17.01.196 | | -Kumini 144 | : Eller mass | 0.000000 | | |

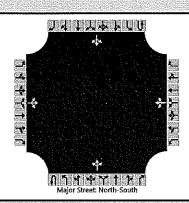
| Proportion Time Blocked | Strike | | WOW. | | reige | Ų ŠAŠĖ. | | | | New | \$1.500 | | | | | |
|---|----------------|------------------|--------|------------|-------|---------------|------|------|--------------------------|------|---------|-------|------|-------|---------------------|--|
| Percent Grade (%) | | (|) | | | 1 | 0 | | | | | | | | | |
| Right Turn Channelized | | | | | | | | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | <i>i</i> ided | | | | | | | e . | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6.2 | | 7.1 | 6.5 | 6.2 | | 4.1 | | | | 4.1 | | |
| Critical Headway (sec) | | 7.10 | 6.50 | 6.43 | | 7.17 | 6.50 | 6.25 | | 4.15 | | | | 4.10 | WAR. | |
| Base Follow-Up Headway (sec) | | 3.5 | 4.0 | 3.3 | | 3.5 | 4.0 | 3.3 | | 2,2 | | | | 2.2 | | |
| Follow-Up Headway (sec) | | 3.50 | 4.00 | 3.51 | | 3.56 | 4.00 | 3,35 | | 2.25 | | V. V. | | 2,20 | | |
| Delay, Queue Length, and | Leve | l of Se | ervice | | | | | | 165 (brail 165 (brail | | | | | 30.30 | And the American Co | |
| Flow Rate, v (veh/h) | | | 30 | | | | 71 | | | 23 | | | | 2 | | |
| Capacity, c (veh/h) | - Bartin | | 118 | - Property | AY PY | nang si | 183 | | HARW | 798 | MA U | | | 903 | THE PART | |
| v/c Ratio | : | | 0.25 | | | | 0.39 | | | 0.03 | | | | 0.00 | | |
| 95% Queue Length, Q ₉₅ (veh) | | | 0.9 | | | | 1.7 | | | 0.1 | | | | 0.0 | | |
| Control Delay (s/veh) | | | 45.4 | | | | 36.8 | | | 9.6 | | | | 9.0 | | |
| Level of Service (LOS) | Jin | A ARTS V Star | Ε | | | | E | | | Α | | | 4774 | Α | | |
| Approach Delay (s/veh) | | 45 | 5.4 | | 36.8 | | | | 0 | .8 | | 0.1 | | | | |
| Approach LOS | BANGE NEW YORK | | | | E | | | | | | | | | | | |

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Vehicle Volumes and Adjustments

HCSTM TWSC Version 7.9.5 EX-AM-93-Ruby.xtw Generated: 12/30/2021 11:00:05 AM

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | | |
|----------------------------------|--------------------------------|----------------------------|--------------------|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NJDOT | | | | | | | | | |
| Date Performed | 11/28/2021 | East/West Street | W. Ruby | | | | | | | | | |
| Analysis Year | 2021 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | Existing - PM Peak | Peak Hour Factor | 0.96 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | | | | | | | | | | |



| Vehicle Volumes and Adju | ıstme | nts | | | | | | | Color | | | | | Neglecture of the second secon | | | |
|---|----------------------|--------|--------|------|----------------|--------|--------|----------|---|---------|------------|----------------------------|------------|--|--------------|--------------------|--|
| Approach | | Eastb | ound | | | West | oound | | | North | bound | | Southbound | | | | |
| Movement | Ü | L | Т | R | Ü | ji L ∰ | Ţ | R | Ü | j L | Т | R | U | L | Т | R | |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 1U | 1 | 2 | 3 | 4U | 4 | 5 | 6 | |
| Number of Lanes | dith | 0 | | 0 | | 0 | 111 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | |
| Configuration | | | LTR | | | | LTR | | | | LTR | | | | LTR | | |
| Volume (veh/h) | | 29 | 0 | 75 | | 4 | 5 | 41 | | 8 | 661 | 10 | | 7 | 662 | 24 | |
| Percent Heavy Vehicles (%) | | 0 | 0 | 1 | | 0 | 0 | 0 | | 0 | | | | 0 | | | |
| Proportion Time Blocked | | | | | | | | | | | VIV | HAR. | A SEA | | | | |
| Percent Grade (%) | | (| 0 | | | (| 0 | | | | | | | | | | |
| Right Turn Channelized | | | | | | |), Nij | | | | | | | | | | |
| Median Type Storage | | | | Undi | ivided | ded | | | | | | | | | · | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6.2 | | 7.1 | 6.5 | 6.2 | | 4.1 | | | | 4.1 | | | |
| Critical Headway (sec) | | 7.10 | 6.50 | 6.21 | 1870 - 18 8.00 | 7.10 | 6.50 | 6.20 | | 4.10 | | | | 4.10 | | | |
| Base Follow-Up Headway (sec) | | 3.5 | 4,0 | 3,3 | | 3.5 | 4.0 | 3.3 | | 2.2 | | | | 2.2 | | | |
| Follow-Up Headway (sec) | | 3.50 | 4.00 | 3.31 | | 3,50 | 4.00 | 3,30 | | 2.20 | in terit | | | 2,20 | Varit. | | |
| Delay, Queue Length, and | l Leve | l of S | ervice | | | | | | | | | | | | | | |
| Flow Rate, v (veh/h) | | | 108 | I | | | 52 | | | 8 | | | | 7 | | | |
| Capacity, c (veh/h) | ija, desja | 140041 | 217 | Aŝw | . Hijko | | 283 | | | 895 | | | | 907 | <u> Prij</u> | | |
| v/c Ratio | | | 0.50 | | | | 0,18 | <u> </u> | | 0.01 | | | | 0.01 | | | |
| 95% Queue Length, Q ₉₅ (veh) | 11 H- 23 K 25 C N | ajan) | 2.5 | | | | 0.7 | | | 0.0 | | 3 m 43 m 24 14 L 18 m 2 | TENE | 0.0 | | 186 - 201 54655 | |
| Control Delay (s/veh) | | | 37.0 | | | | 20,6 | | | 9.1 | | | | 9.0 | | | |
| Level of Service (LOS) | 1444 | 表質的 | : E : | 我找 | | Satte | · C | 점류 | | Α | | | | Α | | | |
| Approach Delay (s/veh) | | 37 | 7.0 | • | | 20 | 0.6 | | | 0 | .2 | | 0.2 | | | | |
| Approach LOS | | | | | | | | n wilite | | NK-1974 | | | | | | | |

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HCS TM TWSC Version 7.9.5 EX-PM-93-Ruby.xtw

Generated: 12/30/2021 11:43:57 AM

APPENDIX IIB 2024 NO-BUILD CONDITIONS

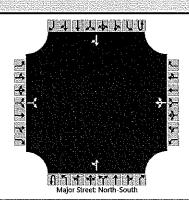
| | HCS7 Si | gnalize | d Inte | ersec | tion F | Resul | ts Sur | nmar | y | | | | |
|--|---|--|------------|--------------------|---|----------------------------|----------|---|----------|--------------|------------|---------------|--|
| | menta | | | | | | | | | | | | |
| General Information | 1 | | | | | l | ntersec | tion Inf | ormatio | on | 1 | MP/MM | NO. |
| Agency | Bowman | ······································ | | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | Duration | . h | 0.250 | | | 11 | |
| Analyst | LDK | Analv | sis Date | Dec 2 | 0, 2021 | areas areal ane | \rea Typ | *************************************** | Other | ************ | Ā | | à. |
| Jurisdiction | NJDOT | Time | | AM P | ************* | menorum mendunya | PHF | , , , , , , , , , , , , , , , , , , , | 0.96 | | - | n. er∯e | → -[|
| Urban Street | Rt. 93 (Grand Ave) | | sis Year | | No Build | | \nalysis | Period | 1> 7:0 | 20 | - <u>-</u> | | |
| Intersection | Rt. 093/Rt. 46/Maple Av | File N | | | M-93-46 | جربية حسست | | | | | | | والعري |
| Project Description | 15 Grand Av. BCG 08119 | R | | 110 /1 | IVI OO TE | /LD 1410 | pio.xuo | | | ********* | | i j Mateka | H- Y |
| 1 Tojest Description | TO Challe AV, BOO 00110 | 71-01-001 | | | | | | | | | | | |
| Demand Informatio | n | | EB | | | WB | | 1 | NB | | | SB | |
| Approach Movement | | | Т | R | 1 | T | R | 1 | Т | R | | Т | R |
| Demand (v), veh/h | | 199 | 139 | 741 | | 0 | 294 | | 987 | 2 | 2 | 360 | lagain. |
| Demana (17), venn | | 1,00 | 1 100 | , , , , , | | |) 204 | | 007 | _1 | 1 - 2 | 1 300 | |
| Signal Information | | | | Ī | J | | | | | | | | |
| Cycle, s 90.0 | Reference Phase 2 | | V | 7 | 9.5 | | | | | | 17 | | <u> </u> |
| Offset, s 0 | Reference Point En | - I | Tr | | | | | | | 1 | [2] | 3 | Z 4 |
| Uncoordinated No | | | | 49.6 | 0,0 | 0.0 | 0.0 | 0.0 | | | | | 5 _ |
| Force Mode Fixe | | | 4.0 2.0 | 3.0 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | ן ע | , | Y , |
| TOTOG MOUG | a Joiniait. Gap (4/G) Of | INCU | 12.0 | 12.0 | 10.0 | 10.0 | į U.U | 10.0 | <u> </u> | - 1 | - 1 | | • |
| Timer Results | | EB | | EBT | WB | | WBT | NBI | | NBT | SBI | | SBT |
| Assigned Phase | | | | 4 | N AAD | | 8 | NO INDI | | 2 | GDI | | 6 |
| Case Number | | | | 6.0 | | | 8.0 | de colonia | | 8.0 | | | ······································ |
| | | real application | | _ | | 74, 81. gr | | | | | | | 8.0 |
| Phase Duration, s | | | | 54.6 | | | 54.6 | | | 35.4 | | | 35.4 |
| | Change Period, (Y+R c), s Max Allow Headway (<i>MAH</i>), s | | | 5.0 | | | 5.0 | g 2 Mai | | 6.0 | ng garag | | 6.0 |
| | | | 3.3 | | | 3.3 | | | 0.0 | | | 0.0 | |
| Queue Clearance Tir | | | | 49.2 | | 44.7 | | 9.30 | | | | | |
| Green Extension Tim | | | | 2.8 | | | 3.5 | | | 0.0 | | | 0.0 |
| Phase Call Probabili | l y | | | 1.00 | | | 1.00 | | | | | | |
| Max Out Probability | | 100 | | 0.45 | | | 0.20 | | | | | | |
| | | | | | | | | | | | | | |
| Movement Group R | | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | ************************************** | L | Т | R | L | Т | R | L_ | T | R | L | <u> </u> | R |
| Assigned Movement | | 7 | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 11 | 6 | |
| Adjusted Flow Rate | | 207 | 917 | | | 313 | | | 515 | 515 | 196 | 181 | |
| Adjusted Saturation | Flow Rate (s), veh/h/ln | 946 | 1824 | | | 1393 | | | 1781 | 1780 | 1754 | 1662 | |
| Queue Service Time | | 14.6 | 41.3 | | | 2.3 | | | 27.7 | 22.4 | 0.2 | 7.9 | |
| Cycle Queue Cleara | nce Time ($g c$), s | 47.2 | 41.3 | | | 42.7 | | | 27.7 | 22.4 | 28.0 | 7.9 | |
| Green Ratio (g/C) | | 0.55 | 0.55 | | | 0.55 | | | 0.33 | 0.33 | 0.33 | 0.33 | |
| Capacity (c), veh/h | | 243 | 956 | | | 771 | | | 630 | 629 | 660 | 587 | |
| Volume-to-Capacity | Ratio (X) | 0.854 | 0.959 | | | 0.405 | | | 0.818 | 0.818 | 0.297 | 0.308 | |
| Back of Queue (Q), | ft/ln (95 th percentile) | 245.3 | 489.2 | | | 90.4 | | | 389.6 | 366 | 112.6 | 109.5 | |
| Back of Queue (Q), | veh/ln (95 th percentile) | 8.6 | 19.4 | Anna tanàna Andria | | 3.6 | T | | 14.6 | 14.6 | 4.5 | 4.2 | |
| | (RQ) (95 th percentile) | 0.00 | 0.00 | | | 0.00 | | Yain a | 0.00 | 0.00 | 0.00 | 0.00 | 112 |
| Uniform Delay (d 1) | | 31.1 | 12.7 | ************ | | 7.9 | | | 21.3 | 21.3 | 17.0 | 17.0 | |
| Incremental Delay (| | 9.9 | 15.0 | e que la | | 0.1 | | Jagan Person | 11.3 | 11.3 | 1.1 | 1.4 | |
| \$ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | nitial Queue Delay (d ɜ), s/veh | | 0.0 | · | | 0.0 | | | 0.0 | 0,0 | 0.0 | 0.0 | <u> </u> |
| | control Delay (d 3), s/veh | | | | | 8.0 | | | 32.6 | 32.6 | 18.1 | 18,3 | 32.73 |
| | evel of Service (LOS) | | | *********** | | A | | | C | C | B | B | |
| Approach Delay, s/ve | | D 30.1 | C | С | 8.0 | | A | 32.6 | <u> </u> | С | 18.2 | Lament | В |
| Intersection Delay, save | ······ | | 1 | Omen mile | 7.0 | 8.45 | Λ . | ا الایک | <u> </u> | 10.2 C | - 1 | LJ . | |
| intersection Delay, Si | VOIL / LOO | | | 2 | U | | | | | | | | |
| Multimodal Results | | en deras | EB | | | WB | | 3.8.900 | NB | | | SB | |
| Pedestrian LOS Sco | | 2.08 | | В | 2.08 | | В | 1.69 | | В | 4.00 | | В |
| | | | | | 2 | | | | | | 1.92 | | |
| Bicycle LOS Score / | EOO gran Tribungs And Bir | 2.34 | 7 | В | 1.00 | , 11 N | Α | 1.34 | <u> </u> | Α | 0.80 | , , | Α |

| HCS7 Sig | nalize | d Inte | ersect | tion R | esul | ts Sun | nmar | / | | | | |
|---|---|----------|--|-----------|---------------|---------------|---|-------------|---|------------------------|-------------|---|
| General Information | | | | | 11 | ntersect | ion Inf | ormatic | | 1 10 | | TE P |
| | | | | | | | | 0.250 | | - 1 | | |
| | I Δ l | :- 17-4- | D 0 | 0 0004 | | Duration, | **** | | | - 3 | | 琧 |
| Analyst LDK | - Daniel Company | is Date | | ******* | | Area Typ | е | Other | *************************************** | - # - | * | 、漫 |
| Jurisdiction NJDOT | Time F | | PM Pe | | | PHF | | 0.96 | | _≦_→ | 9 | |
| Urban Street Rt. 93 (Grand Ave) | *************************************** | is Year | <u> </u> | No Build | | Analysis | Period | 1> 5:0 | JU | - <u> </u> * = | | ä |
| Intersection Rt. 093/Rt. 46/Maple Av | File Na | ame | NR-FV | /1-93-46 | FR-Ma | ple.xus | | | | - | 11 | |
| Project Description 15 Grand Av, BCG 081197 | -01-001 | | | | | | | | *************************************** | (2) | 4144 | \$49.81 |
| Demand Information | | EB | | | WB | | | NB | | 1 | SB | |
| Approach Movement | L | T | ΙR | | T | R | | T | R | 1 | Т | R |
| | 246 | 207 | 660 | 4 | 0 | 108 | <u> </u> | 984 | 6 | 1 1 | 526 | |
| Demand (v), veh/h | 240 | 207 | 1 000 | 4 |] 0 | 100 | 1 | 804 | 1 0 | | 520 | |
| Signal Information | 1 | l II | l R | | | | 1 | | T | 1 | | |
| Cycle, s 90.0 Reference Phase 2 | | +34 | | | | | | | | t ≽ | | A |
| Offset, s 0 Reference Point End | | 17 | Ϊú | | | | | | 1 | [[2] | 3 | 7 4 |
| Uncoordinated No Simult. Gap E/W On | Green | 29.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | | & _ |
| Force Mode Fixed Simult. Gap N/S On | Yellow Red | 2.0 | 3.0 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | D | 7 | * |
| Cook mode. Transact Political Cap (90%) (SOII) | 1.100 | 1 0 | 10 | 10.0 | 10.0 | 10.0 | , 0.0 | | | | | |
| Timer Results | EBI | | EBT | WB | | WBT | NBI | | NBT | SBI | | SBT |
| Assigned Phase | | | 4 | | | 8 | | | 2 | | | 6 |
| Case Number | | | 6.0 | | | 8.0 | | | 8.0 | | | 8.0 |
| Phase Duration, s | | | 55.0 | | | 55.0 | | | 35.0 | | | 35.0 |
| Change Period, (Y+R c), s | | | 5.0 | | Sais S | 5.0 | | | 6.0 | | | 6.0 |
| Max Allow Headway (MAH), s | | | 3.2 | | | 3,2 | | | 0.0 | | | 0.0 |
| Queue Clearance Time (g s), s | | | 52.0 | | | 35.0 | i kali da sadi: | | 0.0 | | | 0.0 |
| Green Extension Time $(g \circ)$, s | | | 0.0 | | | 3.0 | (10000000000000000000000000000000000000 | | 0.0 | | | 0.0 |
| Phase Call Probability | | | 1.00 | | A. 1944 - 181 | 1.00 | | | U.U | | | U.U |
| Max Out Probability | | | 1.00 | | 20100 1000 | 0.07 | i i de la composition | | | | | |
| Max Out Probability | i . | | 1.00 | | | 0.07 | | | | | | Y |
| Movement Group Results | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | | Т | R | | Т | R | L | Т | R | 1 | Т | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 337 33 | 6 | |
| Adjusted Flow Rate (v), veh/h | 256 | 903 | | | 117 | 1 | | 516 | 515 | 287 | 262 | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1280 | 1844 | | | 1564 | | | 1870 | 1866 | 1868 | 1702 | *************************************** |
| Queue Service Time (g_s), s | 11.6 | 32.9 | | | 0.1 | | | 23.3 | 22.4 | 0.0 | 10.5 | |
| Cycle Queue Clearance Time (g o), s | 50.0 | 32.9 | - | | 33.0 | | | 23.3 | 22.4 | 9.9 | 10.5 | |
| Green Ratio (g/C) | 0.56 | 0.56 | 18 28 3750 | | 0.56 | | | 0.32 | 0.32 | 0.32 | 0.32 | <u> </u> |
| Capacity (c), veh/h | 322 | 1024 | | | 910 | | | 603 | 601 | 642 | 548 | |
| Volume-to-Capacity Ratio (X) | 0.797 | 0.882 | 1.1 11 113. | | 0.128 | | | 0.856 | 0.856 | 0.447 | 0.477 | |
| Back of Queue (Q), ft/ln (95 th percentile) | 279 | 352.7 | | | 28.8 | | | 407.3 | 400.3 | 190.3 | 180.3 | |
| Back of Queue (Q), veh/ln (95 th percentile) | 11.0 | 14.1 | | | 1.2 | | | 16.0 | 16.0 | 7.6 | 7.1 | |
| Queue Storage Ratio (RQ) (95 th percentile) | 0.00 | 0.00 | , joslani | | 0.00 | 1 e. t.á ságá | | 0.00 | 0.00 | 0.00 | 0.00 | \$2.5a |
| Uniform Delay (d 1), s/veh | 28.7 | 9.5 | | | 5.4 | | | 23.8 | 23.8 | 20.2 | 20.2 | |
| Incremental Delay (d 2), s/veh | 18.3 | 10.9 | | | 0.3 | 1 170 7 12 1 | | 14.5 | 14.6 | 2.2 | 3.0 | , Marada |
| Initial Queue Delay (d 2), s/veh | 0.0 | 0.0 | | | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Control Delay (d), s/veh | 46.9 | 20.3 | 4.11 9 | | 5.7 | | | 38.3 | 38.4 | 22.5 | 23.2 | 11 (11) |
| Š. | 1 40.9 D | C C | | | A A | 12.11.11.11 | | D | 30.4 D | 22.5 C | 23.2 C | |
| Level of Service (LOS) | <u> </u> | | С | 5.7 | <u> </u> | Α | 20 | | ם | | | C |
| Approach Delay, s/veh / LOS | 26.2 | | | <u></u> | | А | 38.4 | • 44 S | | 22,8 C | 2 | U 1000 |
| Intersection Delay, s/veh / LOS | I | | 29 | 9.1 | | | | | | | | |
| Multimodal Results | i i da litera | EB | | | WB | | | NB | | | SB | |
| Pedestrian LOS Score / LOS | 2,08 | | В | 2.08 | | В | 1.69 | | В | 1.92 | | В |
| Bicycle LOS Score / LOS | 2.40 | | В | 0.68 | | А | 1.08 | | A | 0.94 | | A i |
| Consider to 2024 University of Florida All Bights Boson | | | ······································ | etranta l | | ····· | 1.34 | | | od: 12/20 | | ······ |

| | | HCS | 7 Sig | nalize | d Inte | ersec | tion R | Resul | ts Sur | nmar | У | | | | |
|--|--|--|---|-----------------|---|--|-----------|------------------------|---|----------|--------------------------|-------------|-----------|--------------|------------------|
| | | en e | | | | | | | | | | | | | |
| General Inform | nation | | halikonnak Wanatabalik Compet | | | ************* | | 1 | ntersec | tion Inf | | | | | 想到 |
| Agency | *************************************** | Bowman | *************************************** | | | | A |] | Duration | , h | 0.250 | | | ** | |
| Analyst | | LDK | | Analys | is Date | Dec 2 | 0, 2021 | / | Area Typ | e | Other | • | | | 1 |
| Jurisdiction | | NJDOT | | Time F | eriod | AM P | eak | F | PHF | | 0.95 | | 1 | » † € | 王 |
| Urban Street | | Rt. 93 (Grand Ave) | | Analys | is Year | 2024 | No Build | 1 / | Analysis | Period | 1> 7:0 | 00 | * | | |
| Intersection | | Rt. 93/Rt. 46 WB R | amp | File Na | ame | NB-A | VI-93-46 | | | | | | | 5 f | *** |
| Project Descrip | tion | 15 Grand Ave BCG | | '-01-001 | *************************************** | 3 | | | | | | | ı. | ቀተት | MIS . |
| | | | | | | | | | | | | North Stall | | | |
| Demand Inform | nation | | | | EB | | | WB | | | NB | | | SB | |
| Approach Move | ement | | ····· | L | Т | R | L | Т | R | L | Т | R | L | Т | R |
| Demand (v), v | | | | | | | | | | 861 | 649 | | | 404 | 417 |
| | | | | | | | | | | | | 1 | | | |
| Signal Informa | ition | | | | | | | | | | | | | | |
| Cycle, s | 90.0 | Reference Phase | 2 | | R/A | | | | | | | | 지 | | |
| Offset, s | 0 | Reference Point | End | | 1 11 | | 1 | 1 | | | | - 1 | 2 | 3 | 4 |
| Uncoordinated | No | Simult. Gap E/W | On | Green Yellow | | 54.0 4.0 | 0.0 | 0.0 | 0.0 | 0.0 | | () | | | |
| Force Mode | Fixed | Simult. Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | |] 5 | 6 | 7 | 8 |
| | , , , Cu | Cilian Cup IVO | - Jii | 1.00 | | , =.0 | 0.0 | 10.0 | 10.0 | 10.0 | | | 1 | | |
| Timer Results | | | | EBI | | EBT | WB | | WBT | NBI | | NBT | SBI | | SBT |
| Assigned Phase | Δ | | - | hald | | mental services | VVD | | VVL) I | 5 | THE OWNER OF THE PERSONS | 2 | CDI | | 6 |
| Case Number | | | a kerin an A | | | Padek Tulie o | | | Service en la | 1.0 | Ballar Desi | 4.0 | | | 7.3 |
| (A) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1 | . 19 10 . 10 . 19 | | g i digentini | | | | | | | | | | | | |
| Phase Duration | | e 🛊 i la majaries la Germania. De | ari da karin | . na iai sa | | | | | | 30.0 | | 90.0 | | | 60.0 |
| Change Period | **** | | | | | | | | | 6.0 | -884 TE | 6.0 | | | 6.0 |
| Max Allow Head | SNOWNOODS OUR STREET | NAMES OF THE OWNER OWNER OF THE OWNER OWN | ************************************** | - | | | | | | 3.1 | | 0.0 | | | 0.0 |
| Queue Clearan | | and the second s | | | | | | | | 18.3 | | | | | |
| Green Extension | | (ge), s | | | | | | | *************************************** | 1.4 | | 0.0 | | | 0.0 |
| Phase Call Pro | bability | | | | | | | | | 1.00 |) | | | | |
| Max Out Proba | bility | | | | | D-1001001001001000000000000000000000000 | | | | 0.43 | 3 | | | | |
| ales acceptantes de la companya della companya de la companya della companya dell | | and the second second second second second | | | | | | | | | | | | | |
| Movement Gro | and the same of the same | ults | | | EB | | | WB | | | NB | | egit vere | SB | |
| Approach Move | ement | | | L | Т | R | L | L T | R | L | Т | R | L | <u> </u> | R |
| Assigned Move | ment | | | | | i de de la composition della c | | | | 5 | 2 | | | 6 | 16 |
| Adjusted Flow I | Rate (v |), veh/h | | | | | | | | 906 | 683 | | | 425 | 439 |
| Adjusted Satura | ation Flo | ow Rate (s), veh/h/l | n | | | | | | | 1697 | 1841 | | | 1826 | 1560 |
| Queue Service | Time (| gs), S | | | | 1 | | | | 16.3 | 0.0 | | | 10.9 | 14.1 |
| Cycle Queue C | learanc | e Time (<i>g 。</i>), s | | | | | | | | 16.3 | 0.0 | | | 10.9 | 14.1 |
| Green Ratio (g | 1/C) | | | | | <u> </u> | | | | 0.89 | 0.93 | | | 0.60 | 0.60 |
| Capacity (c), v | | | | | | | | O-Ordenski Armitomotok | | 971 | 1718 | | | 1096 | 936 |
| Volume-to-Cap | | itio (X) | | | <u> </u> | | | | | 0.933 | 0.398 | 1 | | 0.388 | 0.469 |
| Control of the Contro | mana di mana d | In (95 th percentile) | | | | | | | | 320.1 | 15.3 | | | 193.4 | 211 |
| | THE PROPERTY OF THE PARTY OF | eh/ln (95 th percenti | ************ | | - | 1 | | | | 12.0 | 0.6 | | Ĭ | 7.4 | 8.2 |
| ************************************** | | RQ) (95 th percent | | 11222 | | 1000 | | | | 0.00 | 0.00 | | | 0.00 | 0.00 |
| Uniform Delay | | | c) | | | | | | 118(1) | 6.2 | 0.00 | | | 9.4 | 10.0 |
| Incremental De | | | jeraje je | 11111111111 | 104 h | - Magines | | 34 ² 54 1 | | 16.7 | 0.0 | 4000000 | | 1.0 | der more managed |
| CONTRACTOR OF THE PARTY OF THE | uurainneimeene | | | 10,000 | | | | | | <u></u> | | 1 | | <u> </u> | 1.7 |
| Initial Queue De | | | 15,000,00 | | 40. 975.1 | 1,000,000 | | <u> </u> | Top white the | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Control Delay (| ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | | | 22.9 | 0.7 | | | 10.4 | 11.7 |
| Level of Service | | <u> </u> | | | <u> </u> | <u>L</u> | | <u> </u> | | <u>C</u> | Α | <u> </u> | | В | В |
| Approach Delay | AVAILA I III I III I I I I I I I I I I I I | The state of the s | | 0.0 | | REN | 0,0 | | | 13.3 | 3111 12 | В | 11 1 | | В |
| Intersection De | lay, s/ve | h/LOS | | | | 12 | 2.5 | | | | | | В | | |
| | | | | | | | | | | | | | | | |
| Multimodal Re | | | | | EB | | | WB | | | NB | | | SB | |
| Pedestrian LOS | | | | 1.95 |) | В | 1.95 | 5 | В | 0.54 | | Α | 1.36 | | Α |
| Bicycle LOS Sc | ore / LC | os | | diam. | | | | | | 3.11 | l Ya Ia | С | 1.91 | | В |
| | | v of Elorida All Dights | | | | | Ctroote 1 | | | | | _ | ad. 12120 | | |

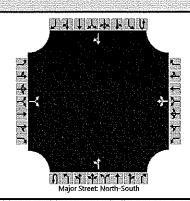
| | | HCS7 S | ign | alize | d Int | ersec | tion F | Resu | Its Sur | nmar | / | | | | |
|---------------------|--|--|--|---------------------------------------|---|--|---|------------------|--|---|--------|----------|---------------|------------|----------|
| | | | | | | | | | | | | | | | |
| General Informat | | | emerkanen ette | and the second second | .,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | | Intersec | tion Infe | | , | | 42.45 I | 月 |
| Agency | Į. | Bowman | | | | | W. dada | | Duration | , h | 0.250 | | | | |
| Analyst | 1 | LDK | / | Analys | is Date | Dec 2 | 20, 2021 | | Area Typ | е | Other | | | 2.3 | A L |
| Jurisdiction | | NJDOT | - | Time P | eriod | PM P | *************************************** | | PHF | | 0.98 | | - 7 | ά∫€ | 蓋 |
| Urban Street | | Rt. 93 (Grand Ave) | nama na katalan i katalan katal | Analys | is Year | 2024 | No Build | d | Analysis | Period | 1> 5:0 | 00 | <u> </u> | | |
| Intersection | I | Rt. 93/Rt. 46 WB Ramp | F | File Na | me | NB-P | M-93-46 | 3WB.x | us | | | | | ጎ ተ | |
| Project Description | n i | 15 Grand Ave BCG 081 | 197-0 | 01-001 | 2224224224224242 | 2011212 407702 20741 2074 | | STORY CONTRACTOR | V90-20-20-20-20-20-20-20-20-20-20-20-20-20 | | | | 12 | (Matishan) | rari |
| Demand Informa | tion | | | | EB | | | W | B | | NB | | | SB | |
| Approach Moveme | | ************************************** | | L | Т | R | | Т | l R | 1. | ΤT | R | L | Т | R |
| Demand (v), veh | والمناسف والمساعد | | | AWKA | | | | | | 681 | 688 | | | 507 | 265 |
| (// | | | | | | | | | | | | | | | |
| Signal Information | on | | | | | | | | | T | | | | | |
| Cycle, s 9 | 0.0 | Reference Phase 2 | | | 取 介 | M ₁ | . | - | | | | | 저 📗 | | |
| Offset, s | 0 | Reference Point Er | ıd 🕌 | Green | 3 11 | 54.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | 1 | 12 | 3 | 4 |
| Uncoordinated | No | Simult. Gap E/W O | | Yellow | | 4.0 | 0.0 | 0.0 | | 0.0 | | | | | |
| Force Mode F | ixed | Simult. Gap N/S O | | Red | 2.0 | 2.0 | 0.0 | 0.0 | managa Basasanan | 0.0 | | 5 | 6 | 7 | 8 |
| | | | | | | | | | | | | | | | |
| Timer Results | | | | EBL | . 4 10 | EBT | WB | L | WBT | NBI | _ | NBT | SBI | | SBT |
| Assigned Phase | | | | 10(4 111) | | | Į. | | | 5 | | 2 | | | 6 |
| Case Number | | | | | | | | | | 1.0 | | 4.0 | | | 7.3 |
| Phase Duration, s | 3 | 2-5- | | · · · · · · · · · · · · · · · · · · · | T | <u> </u> | Ì | | Material de cons | 30.0 |) | 90.0 | | | 60.0 |
| Change Period, (| Y+R c |), s | | | | | | | | 6.0 | | 6.0 | | | 6.0 |
| Max Allow Headw | | | | ************ | | *************************************** | Ī | | | 3,1 | | 0.0 | | | 0.0 |
| Queue Clearance | UKOMBIN UKONI DI KAN | | | | | | | | | 9.3 | | | | | |
| Green Extension | | | | - | | iou nnees maine | | | *************************************** | 1.4 | | 0.0 | | | 0.0 |
| Phase Call Probat | | | | | | | | | | 1.00 | | | | | |
| Max Out Probabili | ity | | | Stampisa Pericantina | · · | Several Constitution of the Constitution of th | | | | 0.01 | | | | Ì | |
| | | A STATE OF THE STA | , | | | | | | | | | | | | |
| Movement Group | p Resi | ults | | | EB | | | WB | | | NB | | | SB | |
| Approach Moveme | ent | | Sicher Sicher | L | T | R | L | T | R | L | Т | R | L | Т | R |
| Assigned Moveme | ent | | | | | | | | | 5 | 2 | | | 6 | 16 |
| Adjusted Flow Rat | te (v) | , veh/h | io estado | | | | | | | 695 | 702 | | | 517 | 270 |
| Adjusted Saturation | on Flo | w Rate (s), veh/h/ln | | | | | | | | 1767 | 1885 | | | 1885 | 1585 |
| Queue Service Tir | me (<i>g</i> | s), S | | | | | | | | 7.3 | 0.0 | | | 13.6 | 7.4 |
| Cycle Queue Clea | arance | Time (g_c) , s | | | Y | | | | | 7.3 | 0.0 | | | 13.6 | 7.4 |
| Green Ratio (g/C | :) | | 1 | | | | | | | 0.89 | 0.93 | | | 0.60 | 0.60 |
| Capacity (c), veh | า/h | | | | | | | | | 945 | 1760 | | | 1131 | 951 |
| Volume-to-Capaci | ity Rat | io (<i>X</i>) | - Andrews | | | | | | | 0.736 | 0.399 | | | 0.457 | 0.284 |
| Back of Queue (C | Q), ft/I | n (95 th percentile) | | | dan. | | | | s viin | 177.2 | 15 | | | 229.4 | 111.7 |
| Back of Queue (| Q), ve | h/ln (95 th percentile) | | ĺ | | | | | | 6,9 | 0.6 | | | 9.1 | 4.4 |
| Queue Storage Ra | atio (/ | RQ) (95 th percentile) | | | | | | 4454 | | 0.00 | 0.00 | :34 :155 | | 0.00 | 0.00 |
| Uniform Delay (d | 1), s/\ | /eh | Contract | | AT | | | | | 4.8 | 0.0 | | | 9.9 | 8.7 |
| Incremental Delay | ************** | | | | et palet | | Territoria | | | 5.1 | 0.7 | | | 1.3 | 0.8 |
| Initial Queue Dela | NAME OF THE OWNER, WHEN PARTY OF | TETTTO TO THE PROPERTY OF THE PARTY OF THE P | | | *************************************** | | | <u> </u> | | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Control Delay (d) | | | | | 761 | | | in a | | 9.8 | 0.7 | | i i i je mali | 11.3 | 9.4 |
| Level of Service (I | | | | | | (| | | | Α | A | | | В | Α |
| Approach Delay, s | MANAGEMENT CONTROL OF THE PARTY | Los | | 0.0 | | | 0.0 | 12.5 | | 5.2 | | Α | 10.6 | 3 | В |
| Intersection Delay | annun di Saltan adalesta di masi | Anniquestra 1, 2, 2, 1, 1, 2, 2, 1, 1, 2, 2, 1, 1, 2, 2, 1, 1, 1, 1, 2, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, | | | | 7 | 7.2 | | | | | | A | | |
| | | | | | | | | | | | | | | | |
| Multimodal Resu | ılts | | | | EΒ | | | WB | | | NB | | | SB | |
| Pedestrian LOS S | Score / | LOS | | 1.95 | T | В | 1,9 | 5 | В | 0.54 | | Α | 1.36 | 3 | Α |
| Bicycle LOS Score | e/LO | S | | | | | | | | 2.79 | | С | 1.79 | | В |
| | | | | | | | ·#\$ | | | *************************************** | | | | | |

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | | |
|----------------------------------|--------------------------------|---------------------------------------|--------------------------|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Columbia/Dwy | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NJDOT | | | | | | | | | |
| Date Performed | 12/20/21 | East/West Street | W. Columbia Ave/Site Dwy | | | | | | | | | |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | No Build - AM Peak | Peak Hour Factor | 0.92 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | · · · · · · · · · · · · · · · · · · · | | | | | | | | | | |



| Vehicle Volumes and Adju | sune | | | | | | | | | | | | | | | |
|---|--|-------------|--------|--------------------|-------|-------|--------|--|--------|--------|---------|--|-------------|--------|---------|----|
| Approach | | Eastb | ound | | | Westh | ound | | | North | bound | | | South | bound | |
| Movement | U | L | T | R | U | L | T | R | U | L | Т | R | U | 1 L | Т | R |
| 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 (veh/h) | | 18 | | 40 | | 26 | 4 | 48 | | 32 | 625 | | | | 759 | 21 |
| Percent Heavy Vehicles (%) | | 6 | | 5 | | 0 | 0 | 4 | | 0 | | | | | | |
| Proportion Time Blocked | | kana i | N. S. | | | | n jag | | | 10,834 | | | | | N. S. | |
| Percent Grade (%) | | + |) | | | (|) | | | • | | | | | • | |
| Right Turn Channelized | | | | | | | | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | 6.2.2 | | |
| Base Critical Headway (sec) | | 6.9 | | 6,0 | | 6.9 | 6.3 | 6.0 | | 4.1 | | | | | | |
| Critical Headway (sec) | | 6.96 | HWAR | 6.05 | | 6.90 | 6.30 | 6.04 | | 4,10 | | | | | | |
| Base Follow-Up Headway (sec) | | 3.3 | | 3.1 | | 3.3 | 3.8 | 3.1 | | 2,2 | | | | | | |
| Follow-Up Headway (sec) | | 3.35 | 4141 | 3.15 | | 3,30 | 3.80 | 3,14 | | 2.20 | | VALUE OF | | wal. | | |
| Delay, Queue Length, and | Leve | of Se | ervice | | | | | The state of the s | | | | The second secon | | | | |
| Flow Rate, v (veh/h) | | | 63 | | | | 85 | | | 35 | | | | | | |
| Capacity, c (veh/h) | | | 171 | FPA. | N. C. | | 171 | 115 | | 798 | | 4.000 | | wile | | |
| v/c Ratio | | | 0.37 | | | | 0.50 | | | 0.04 | | | | | | |
| 95% Queue Length, Q ₉₅ (veh) | ¥ijĬ. | | 1.6 | | | | 2,4 | | | 0.1 | 4448 | itali | | | | |
| Control Delay (s/veh) | | | 38.0 | | | | 45.1 | | | 9.7 | | | | | | |
| Level of Service (LOS) | ANTE | | Ē | Tildesid Vacati | 4) M | | Ε | 155 | | Α | | JAK | BASH | N. | i de si | |
| Approach Delay (s/veh) | 38.0 | | | | | 45 | .1 | <u> </u> | 1.1 | | | | | | | |
| Approach LOS | A STATE OF THE STA | | | i Nas | | | n al N | | i kisa | | . NEW H | | . William | atakit | | |

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | | |
|----------------------------------|--------------------------------|----------------------------|--------------------------|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Columbia/Dwy | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NJDOT | | | | | | | | | |
| Date Performed | 12/20/21 | East/West Street | W. Columbia Ave/Site Dwy | | | | | | | | | |
| Analysis Year | 2024 | North/South Street | Rt, 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | No Build - PM Peak | Peak Hour Factor | 0.95 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | | | | | | | | | | |

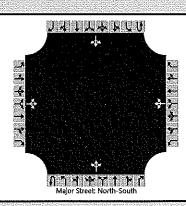


| Vehicle Volumes and Adj | ustme | nts | | | | . 19 19 19 19 19 19 | | | | | | | | | | |
|---|-----------|--------|--------|------|--------|------------------------|-----------------|--------|-----|---------|------------|---|----------|-------|---|-------------|
| Approach | | Eastb | ound | | | Westl | oound | | | North | bound | | | South | bound | |
| Movement | U | L | T | R | U | L | T | R | U | L | Т | R | U | L | T | R |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4U | 4 | 5 | 6 |
| Number of Lanes | | 0 | 11 | 0 | | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 11 | 0 |
| Configuration | | | LR | | | | LTR | | | LT | | | | | | TR |
| Volume (veh/h) | | 23 | | 36 | | 4 | 7 | ्र31 े | | 34 | 653 | | | | 743 | 33 |
| Percent Heavy Vehicles (%) | | 0 | | 3 | | 25 | 0 | 0 | | 6 | | | | | | |
| Proportion Time Blocked | | N. S. | | | | | | K@Xi | | .5333.5 | | | Mills | | | |
| Percent Grade (%) | | | 0 | | | (| 0 | • | | | | | | | | |
| Right Turn Channelized | | | | | | | | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | eadwa | ys | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 6.9 | | 6.0 | | 6.9 | 6.3 | 6.0 | | 4,1 | | | | | | Ī |
| Critical Headway (sec) | | 6.90 | | 6,03 | | 7.15 | 6.30 | 6.00 | | 4.16 | | | | | William Village | |
| Base Follow-Up Headway (sec) | 1 | 3.3 | | 3.1 | | 3.3 | 3.8 | 3.1 | | 2,2 | | | | | | |
| Follow-Up Headway (sec) | | 3.30 | | 3.13 | | 3.53 | 3.80 | 3.10 | | 2.25 | | | | | | |
| Delay, Queue Length, and | l Leve | l of S | ervice | | | | | | | | | | | | | |
| Flow Rate, v (veh/h) | | | 62 | | | | 44 | | | 36 | | | | | | |
| Capacity, c (veh/h) | | | 164 | | | | 236 | | New | 794 | | | in a N | | | 104 |
| v/c Ratio | | | 0.38 | | | | 0.19 | | | 0.05 | | | | | | |
| 95% Queue Length, Q ₉₅ (veh) | | | 1.6 | | | 18000 | 0,7 | | | 0.1 | | | | | | |
| Control Delay (s/veh) | | | 39.7 | | | | 23.7 | | | 9.7 | <u> </u> | | | | | 1 |
| Level of Service (LOS) | i i Villi | | E | | | | С | | | Α | | | A\$15. | | | 18. 1 (0.0) |
| Approach Delay (s/veh) | | 39 | 9.7 | | | 23 | 3.7 | | 1.1 | | | | | | | |
| Approach LOS | | | E | | Hillen | | C in the second | | | | 2 F8(2) (Q | | 19 2 4 8 | | de la | |

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HCSTMS TWSC Version 7.9.5 NB-PM-93-W Col.xtw Generated: 12/30/2021 11:44:29 AM

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | | |
|----------------------------------|--------------------------------|----------------------------|--|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | TODUN | | | | | | | | | |
| Date Performed | 12/20/2021 | East/West Street | W. Ruby | | | | | | | | | |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | No Build - AM Peak | Peak Hour Factor | 0.91 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | Management of the Control of the Con | | | | | | | | | |

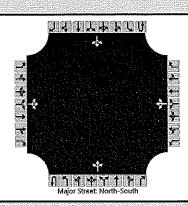


| Vehicle Volumes and Adju | ısıme | IILS | | | | | | | | | | | | | | |
|---|-----------|---------|--------|---|----------|----------|----------|--|-----|-------|----------|------|-------|-------|--------------|----|
| Approach | | Eastb | ound | | | Westl | oound | | | North | bound | | | South | bound | |
| Movement | U | Ļ | T | R | U | Ü | Ť | R | U | L | T | R | U |) L | T.T. | R |
| 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 | | | LTR | | | | LTR | | | | LTR | | | | LTR | |
| Volume (veh/h) | | 14 | 0 | 13 | | 15 | 9 | 42 | | 21 | 636 | 34 | | 2 | 751 | 26 |
| Percent Heavy Vehicles (%) | | 0 | 0 | 23 | | 7 | 0 | 5 | | 5 | | | | 0 | | |
| Proportion Time Blocked | | | | 1.00 A. 1.00 1.00 A. 1.00 1.00 A. 1.00 A. | A to big | High | | tytė; | | | | | | | | |
| Percent Grade (%) | | (| 0 | | | (| D | | | | | | | | | |
| Right Turn Channelized | | | | | | | | H. P. S. | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6,2 | | 7.1 | 6.5 | 6.2 | | 4.1 | | | | 4.1 | | |
| Critical Headway (sec) | | 7.10 | 6,50 | 6.43 | SHIP. | 7.17 | 6.50 | 6.25 | | 4.15 | | SKŞ | | 4.10 | | |
| Base Follow-Up Headway (sec) | | 3.5 | 4.0 | 3.3 | | 3.5 | 4.0 | 3,3 | | 2.2 | | | | 2.2 | | |
| Follow-Up Headway (sec) | | 3.50 | 4.00 | 3.51 | | 3,56 | 4.00 | 3,35 | | 2.25 | | | | 2.20 | | |
| Delay, Queue Length, and | l Leve | l of S | ervice | | | | | | | | | | | | | |
| Flow Rate, v (veh/h) | | | 30 | | <u> </u> | | 73 | | | 23 | | | | 2 | | |
| Capacity, c (veh/h) | | njiani, | 105 | | | | 168 | | | 773 | iji isti | 4444 | | 879 | diga | |
| v/c Ratio | | | 0.28 | | | | 0.43 | | | 0.03 | | | | 0.00 | | |
| 95% Queue Length, Q ₉₅ (veh) | 1444 | | 1,1 | | | | 2.0 | | | 0.1 | ŲŲ. | | | 0.0 | | |
| Control Delay (s/veh) | | | 52.1 | | | | 41.7 | | | 9.8 | | | | 9.1 | 1 | |
| Level of Service (LOS) | | | F | | | | E. | | | Α | | | ja di | Α | -kaisii | |
| Approach Delay (s/veh) | | 57 | 2.1 | | | 4 | 1.7 | • | 0.8 | | | | | 0.1 | | |
| Approach LOS | . Valsais | | | | | ri jerni | E :: [4] | | | | | | | | | |

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HCS 11M2 TWSC Version 7.9.5 NB-AM-93-Ruby.xtw

| HCS7 Two-Way Stop-Control Report | | | | | | | | | | | | |
|----------------------------------|--------------------------------|----------------------------|--------------------|--|--|--|--|--|--|--|--|--|
| General Information | | Site Information | | | | | | | | | | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby | | | | | | | | | |
| Agency/Co. | Bowman | Jurisdiction | NDOT | | | | | | | | | |
| Date Performed | 12/20/2021 | East/West Street | W. Ruby | | | | | | | | | |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) | | | | | | | | | |
| Time Analyzed | No Build ~ PM Peak | Peak Hour Factor | 0.96 | | | | | | | | | |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 | | | | | | | | | |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | | | | | | | | | | |



| Approach | | Eastb | ound | | | West | oound | | | North | bound | | | South | bound | |
|---|--------|--------|--------|-------|---|-------------------------|-------|---------|---|-------|-------|-----|--------|-------|---|-----|
| Movement | υ | (L) | Т | R | U | L | Τ | R | Ü | L | T | R | U | L | Т | R |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4U | 4 | 5 | 6 |
| Number of Lanes | | 0 | 1 | 0 | NAM. | 0 | 1 | 0 | 0 | 0 | [1] | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | LTR | | | | LTR | | | | LTR | | | | LTR | |
| Volume (veh/h) | | 29 | 0 | 75 | | 4 | 5 | 42 | | 8 | 691 | 10 | | 7 | 692 | 24 |
| Percent Heavy Vehicles (%) | | 0 | 0 | 1 | | 0 | 0 | 0 | | 0 | | | | 0 | | |
| Proportion Time Blocked | | | | HAN | | | | 10,4400 | | | | | | | | |
| Percent Grade (%) | | | 0 | | | (|) | | | | | | | | | |
| Right Turn Channelized | | | | | | | | i jak | | | | | | | Y W | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | · | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | 586 | | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6.2 | | 7.1 | 6.5 | 6,2 | | 4.1 | | | | 4.1 | | |
| Critical Headway (sec) | | 7.10 | 6,50 | 6,21 | | 7.10 | 6.50 | 6.20 | 32.0%.9 53.5%.5 | 4,10 | | | 74.213 | 4,10 | | Www |
| Base Follow-Up Headway (sec) | | 3.5 | 4.0 | 3,3 | | 3.5 | 4.0 | 3.3 | | 2,2 | | | | 2.2 | | |
| Follow-Up Headway (sec) | | 3.50 | 4.00 | 3.31 | | 3.50 | 4.00 | 3.30 | | 2,20 | | | | 2.20 | | |
| Delay, Queue Length, and | l Leve | l of S | ervice | | | | | | | | | | | | Comments of the second | |
| Flow Rate, v (veh/h) | | | 108 | | *************************************** | | 53 | | | 8 | | | | 7 | | |
| Capacity, c (veh/h) | | | 199 | | | | 266 | | | 871 | | | | 883 | | |
| v/c Ratio | | | 0.54 | | | | 0.20 | | | 0.01 | | | | 0.01 | | |
| 95% Queue Length, Q ₉₅ (veh) | NA. | | 2.9 | | | Variation of the second | 0.7 | | | 0.0 | | | | 0,0 | rvini Pari | |
| Control Delay (s/veh) | | | 42.8 | | | | 21.9 | | | 9,2 | | | | 9.1 | | |
| Level of Service (LOS) | | | Ε | | V I | | C | |) 1 i i i i i i i i i i i i i i i i i i | Α | 31 13 | | | Α | Bal | |
| Approach Delay (s/veh) | 42.8 | | | | | 2 | 1.9 | | 0,2 | | | | 0.2 | | | |
| Approach LOS | | | | 44.60 | c - Path | i kin | | | | | | | | | | |

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HCS TM TWSC Version 7.9.5 NB-PM-93-Ruby.xtw Generated: 12/30/2021 11:44:53 AM

APPENDIX IIC 2024 BUILD CONDITIONS

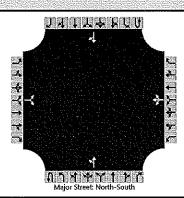
| HCS | 7 Sign | nalize | d Inte | ersec | tion F | Resul | ts Sur | nmar | у | | | | |
|---|--|---|------------------------------|---|-------------|------------------------------|---------------|---|-------|----------------------|-----------|-------------|-------------------|
| General Information | | | | | | <u> </u> | 4 | dan Ind | 41 | | 1 | 47.41 | Pag B |
| | | *************************************** | | (1,100111011111111111111111111111111111 | | | ntersec | administration and an artist of the secondary | · | | | 1 } | |
| | 7 | Λ Ι | :- D-4- | ID0 | 0 0004 | | Ouration, | _ | 0.250 | | - 2 | | |
| Analyst LDK Jurisdiction NJDOT | - Summersument | | | <u></u> | 0, 2021 | | \rea Typ | е | Other | | | | |
| | | Time F | | AM P | | | PHF | | 0.96 | ~~ | _₫~ | W.1.C | |
| Urban Street Rt. 93 (Grand Ave) | | *** | is Year | - | | | \nalysis | Period | 1> 7: | 00 | | | 蘆 |
| Intersection Rt. 093/Rt. 46/Maple | aan aa | File Na | ame | B-AM | -93-46E | :B-Map | le.xus | · · · · · · · · · · · · · · · · · · · | | | _ | 1 1 | |
| Project Description 15 Grand Av, BCG (| J81197-C | J1-001 | | | | | | | | | Į U | H 197 | MAN . |
| Demand Information | | | EB | | | WB | | 1 | NB | | | SB | |
| Approach Movement | N. C. | Ļ | Т | R | L | Т | R | L | Т | R | L | Т | R |
| Demand (v), veh/h | | 200 | 139 | 741 | 6 | 0 | 294 | | 992 | | 2 | 373 | |
| | | | | | | | | | | | | | |
| Signal Information | | | T. | . 5 | ***** | | | | | | | | |
| Cycle, s 90.0 Reference Phase | 2 | | 48 | <i>7</i> | 2 E | | | | | | ₽ | | -8 |
| Offset, s 0 Reference Point | End | Green | 29.4 | 49.6 | 0.0 | 0.0 | 0.0 | 0.0 | | 1 | 12 | 3 | <u>¥</u> 4 |
| Uncoordinated No Simult. Gap E/W | On | Yellow | | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | - | | | | - 0 - |
| Force Mode Fixed Simult. Gap N/S | 184 | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | 6 | 7 | 8 |
| | | | | | | | | | | | | | |
| Timer Results | | EBL | | EBT | WB | L | WBT | NBI | | NBT | SBI | _ | SBT |
| Assigned Phase | | *************************************** | | 4 | | | 8 | | | 2 | | | 6 |
| Case Number | | | | 6.0 | | | 8.0 | | | 8.0 | | | 8.0 |
| Phase Duration, s | *************************************** | | | 54.6 | | | 54.6 | | | 35.4 | | | 35.4 |
| Change Period, (Y+R c), s | | | amman damman a | 5.0 | | ANG N | 5.0 | | | 6.0 | | | 6.0 |
| Max Allow Headway (<i>MAH</i>), s | | | account framewood | 3.3 | | | 3.3 | | | 0.0 | | | 0.0 |
| Queue Clearance Time (g s), s | | | | 19.2 | | | 44.7 | | | | | gatas la ej | |
| Green Extension Time (g e), s | | | errienen Zuerraum | 2.8 | | | 3.5 | | | 0.0 | - | | 0.0 |
| Phase Call Probability | | | | 1.00 | | | 1,00 | | | | | | |
| Max Out Probability | | ****** | misus (marie | 0.45 | | | 0.20 | | | TAN PARAMETER STREET | | | |
| | , and the second | | | | II. | | 0.20 | | | | | | |
| Movement Group Results | | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | | L | Т | R | L | Т | R | L | T | R | L | Т | R |
| Assigned Movement | | 7 | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 1 | 6 | |
| Adjusted Flow Rate (v), veh/h | | 208 | 917 | | | 313 | | | 518 | 518 | 203 | 188 | |
| Adjusted Saturation Flow Rate (s), veh/h/li | n | 946 | 1824 | Aris | | 1393 | | | 1781 | 1780 | 1743 | 1662 | |
| Queue Service Time (g s), s | | 14.7 | 41.3 | | | 2.3 | | | 27.9 | 22.6 | 0.2 | 8.3 | |
| Cycle Queue Clearance Time (g c), s | *************************************** | 47.2 | 41.3 | | | 42.7 | | | 27,9 | 22.6 | 28.2 | 8.3 | |
| Green Ratio (g/C) | | 0.55 | 0.55 | | | 0.55 | | | 0.33 | 0.33 | 0.33 | 0.33 | |
| Capacity (c), veh/h | | 243 | 956 | | | 771 | | | 630 | 629 | 657 | 587 | |
| Volume-to-Capacity Ratio (X) | | 0.857 | 0.959 | LOCKETT TAKETO | | 0.405 | | Ì | 0.822 | 0.822 | 0.309 | 0.320 | |
| Back of Queue (Q), ft/ln (95 th percentile) | | 247.1 | 489.1 | | | 90.4 | | | 393.7 | 369.9 | 117 | 114.1 | |
| Back of Queue (Q), veh/ln (95 th percentil | interestante de la companya de la c | 8.7 | 19.4 | | | 3.6 | | | 14.8 | 14.8 | 4.7 | 4.4 | |
| Queue Storage Ratio (RQ) (95 th percent | | 0.00 | 0.00 | V: 10.5 | N. A. A. T. | 0.00 | raina y ligit | , 2 . 1 . <u>2</u> . | 0.00 | 0.00 | 0.00 | 0.00 | |
| Uniform Delay (d 1), s/veh | | 31.1 | 12.7 | | | 7.9 | | | 21.4 | 21.4 | 17.0 | 17.1 | |
| Incremental Delay (d 2), s/veh | | 10.2 | 15.0 | | | 0.1 | | | 11.6 | 11.6 | 1.2 | 1.4 | |
| Initial Queue Delay (d 3), s/veh | | 0.0 | 0.0 | x tman/rktm* rtms cours t | | 0.0 | _ | | 0.0 | 0.0 | 0.0 | 0.0 | |
| Control Delay (d), s/veh | | 41.3 | 27,6 | 8,48,484 | 144.13 | 8.0 | | | 32.9 | 32.9 | 18.3 | 18.5 | Tgall Stage State |
| Level of Service (LOS) | | 41.3 D | .27.0 C | | | A | | | C C | C C | 10.3 B | 10.3 B | 1 2 2 2 |
| Approach Delay, s/veh / LOS | | 30.2 | | С | 8,0 | gionisian la cons | Α | 32,9 | | C | 18.4 | · | В |
| | | 30.2 | | | 7.1 | | Λ | 32.5 | 7 (1) | | 4 | | <u> </u> |
| Intersection Delay, s/veh / LOS | II. | | | 2 | .1 | | | | | | С | | |
| Multimodal Results | | | EB | | | WB | | | NB | | | SB | |
| Pedestrian LOS Score / LOS | | 2.08 | *********** | В | 2.08 | | В | 1.69 | | В | 1.92 | | В |
| Bicycle LOS Score / LOS | | 2.34 | | В | 1.00 | | A | 1.08 | | | | | |
| Didyole LOO Goole / LOO | 1 | 40.2 | | ט | 1,00 | , 1 | <i>∴™</i> | 1.34 | | Α | 0.81 | | Α |

| HCS7 Sig | nalize | d Inte | ersec | tion F | Resul | ts Sur | nmar | у | | | | |
|---|---------------|--|--|--|----------|-----------------|-------------------|-----------|---|-------------|---|-------------|
| General Information | | | | | L | ntersec | San Ins | ana di | | T I | aj Jiak I | FR F |
| | | | | | | Duration, | ***************** | 0.250 | describe and a second age of the second | - | - J J. | |
| Agency Bowman Analyst LDK | LAngles | ia Data | IDag 2 | A 2021 | | | | Other | **** | - 3 | | <u> </u> |
| Jurisdiction NJDOT | Time F | is Date | Dec 2 | ********** | **** | ∖rea Typ PHF | | 0.96 | <u> </u> | | 1 | |
| <u> </u> | · - | COMPANY DESCRIPTION | | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | | D!! | | ^^ | <u>-</u> ₫~ | č | |
| | Name and Park | is Year | | | | \nalysis | Perioa | 1> 5:0 | UU | - 36 | | |
| Intersection Rt. 093/Rt. 46/Maple Av | File Na | ame | B-LM | -93-46E | в-iviap | ie.xus | ····· | | | | 11 | (1)(V) |
| Project Description 15 Grand Av, BCG 081197 | -01-001 | 700 | | | | | | 7 7 | | | ተተ ተ | FEER |
| Demand Information | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | L | Т | R | L | T | l R | L | T | R | L | Т | R |
| Demand (v), veh/h | 249 | 207 | 660 | 4 | 0 | 108 | | 999 | 6 | 1 | 535 | |
| | , | | | | <u></u> | 60 | | | | | | |
| Signal Information | | Ji. | | COLUMN TO THE PARTY OF THE PART | | | | | | | | |
| Cycle, s 90.0 Reference Phase 2 | | 17 | | 200 | | | | | | · K | , - | - ⇔』 |
| Offset, s 0 Reference Point End | Green | 29.0 | 50.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | - 1 | K |
| Uncoordinated No Simult. Gap E/W On | Yellow | | 3.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | > | | 7 |
| Force Mode Fixed Simult. Gap N/S On | Red | 2.0 | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 5 | - 6 | 7 | 8 |
| | | | | | 4.7-4 | | | | | | | |
| Timer Results | EBI | | EBT | WB | L | WBT | NB | L | NBT | SBL | | SBT |
| Assigned Phase | | | 4 | | | 8 | | | 2 | | | 6 |
| Case Number | | | 6.0 | | | 8.0 | | | 8.0 | | | 8.0 |
| Phase Duration, s | | | 55.0 | | | 55.0 | | | 35.0 | | | 35.0 |
| Change Period, (Y+R c), s | | | 5.0 | | | 5.0 | | Mika njil | 6.0 | | | 6.0 |
| Max Allow Headway (<i>MAH</i>), s | | | 3.2 | | | 3.2 | | | 0.0 | | | 0.0 |
| Queue Clearance Time (g s), s | | | 52.0 | | | 35.0 | | | | | | |
| Green Extension Time ($g 	ext{ e}$), s | Ĭ | | 0.0 | | | 3.0 | | | 0.0 | | | 0.0 |
| Phase Call Probability | | | 1.00 | | | 1.00 | | | | | | |
| Max Out Probability | | | 1.00 | | | 0.07 | | | | | | |
| | | | | | | | | | | | | |
| Movement Group Results | | EB | | | WB | | | NB | | | SB | |
| Approach Movement | L | Т | R | L | Т | R | L. | Т | R | L | T | R |
| Assigned Movement | 7 | 4 | 14 | 3 | 8 | 18 | | 2 | 12 | 1 | 6 | |
| Adjusted Flow Rate (v), veh/h | 259 | 903 | | | 117 | | | 524 | 523 | 292 | 266 | |
| Adjusted Saturation Flow Rate (s), veh/h/ln | 1280 | 1844 | | | 1564 | | | 1870 | 1866 | 1868 | 1702 | |
| Queue Service Time (g s), s | 11.8 | 32.9 | Alexandrian Company | | 0.1 | | | 23.7 | 23.0 | 0.0 | 10.8 | |
| Cycle Queue Clearance Time (g c), s | 50.0 | 32.9 | | | 33.0 | | | 23.7 | 23.0 | 10.1 | 10.8 | |
| Green Ratio (g/C) | 0.56 | 0.56 | ************************************** | | 0.56 | | | 0.32 | 0.32 | 0.32 | 0.32 | |
| Capacity (c), veh/h | 322 | 1024 | | | 910 | | | 603 | 601 | 642 | 548 | |
| Volume-to-Capacity Ratio (X) | 0.806 | 0.882 | | | 0.128 | | | 0.869 | - | 0.455 | 0.485 | |
| Back of Queue (Q), ft/ln (95 th percentile) | 284.2 | 352.7 | | | 28.8 | | | 419.8 | | 193.5 | 184.2 | |
| Back of Queue (Q), veh/ln (95 th percentile) | 11.2 | 14.1 | | | 1.2 | - | | 16.5 | 16.5 | 7.7 | 7.3 | |
| Queue Storage Ratio (RQ) (95 th percentile) | 0.00 | 0.00 | 4,273,5 | | 0.00 | 10200 | | 0.00 | 0.00 | 0.00 | 0.00 | Tall Spain |
| Uniform Delay (d 1), s/veh | 28.8 | 9.5 | | | 5.4 | | | 23.9 | 23.9 | 20.3 | 20.3 | |
| Incremental Delay (d 2), s/veh | 19.1 | 10.9 | | F 1: V. | 0.3 | 1,0449.75. | 2 (18.1 | 15.7 | 15.7 | 2.3 | 3.1 | |
| Initial Queue Delay (d 3), s/veh | 0.0 | 0.0 | | | 0.0 | | - | 0.0 | 0.0 | 0.0 | 0.0 | |
| Control Delay (d), s/veh | 47.9 | 20,3 | g Filesia | | 5.7 | All y to | v, 1 (18 ti | 39.6 | 39.7 | 22.6 | 23.3 | 24 82 |
| Level of Service (LOS) | D D | 20.3 C | | | 3.7 A | | | D | D D | C C | 23.3 C | |
| Approach Delay, s/veh / LOS | 26.5 | | С | 5.7 | | Α | 39. | | D D | 23.0 | THE RESERVE OF THE PERSON NAMED IN STREET | c |
| Intersection Delay, s/veh / LOS | 20.0 | | |).7 | | ^ | . J | | £ | C 23.0 | 1 1 1 1 1 1 1 1 | <u> </u> |
| microsolion Delay, S/Ven / LOG | | | 23 | 7.1 | | | | | (| | | |
| Multimodal Results | | EB | | | WB | | 24 C C C | NB | | | SB | |
| Pedestrian LOS Score / LOS | 2.08 | Historian | В | 2.08 | بسبيرست | В | 1.69 | ···· | В | 1.92 | | В |
| Bicycle LOS Score / LOS | 2.41 | ************************************** | В | 0.68 | | А | 1.3 | | А | 0.95 | | A |
| projeto mede determinante de la | <u> </u> | | יב | 0.00 | <u> </u> | 71 | 1.00 | | | 0.80 | | |

| | HCS7 Si | gnalize | d Inte | ersec | tion F | Resu | lts Sur | nmar | y | | | | |
|--|--|---------|-------------|--|--|---|--|-----------|-----------|---|---|---|-------|
| | | | | | | | | | | | | | |
| General Information | | | | | | | Intersec | tion Infe | ormatio | on | | 47.41 | TAN |
| Agency | Bowman | | | .,., | ······································ | | Duration | , h | 0.250 |) | | 11 | |
| Analyst | LDK | Analys | sis Date | Dec 2 | 0, 2021 | | Area Typ | | Other | • | | | Ä |
| Jurisdiction | NJDOT | Time I | | AM P | | | PHF | | 0.95 | | - | or ± c | Ž. |
| Urban Street | Rt. 93 (Grand Ave) | Analys | sis Year | 2024 | Build | | Analysis | Period | 1> 7: | 00 | 7 | | |
| Intersection | Rt. 93/Rt. 46 WB Ramp | File N | | | -93-46V | | | | | | | K. 4 | |
| Project Description | 15 Grand Ave BCG 0811 | | | | | | | | | | | 4 1 4-72 | HM |
| , | | | | | | | | | | | | | |
| Demand Information | 1 | | EB | | | W | 3 | | NB | | | SB | |
| Approach Movement | | L | Т | R | L | Т | R | L | Т | R | L. | T | R |
| Demand (v), veh/h | | | | | | | | 861 | 655 | | | 420 | 427 |
| He was the state of | | | | | | | | | | | | | |
| Signal Information | | | | 111 | | | | | | | | | |
| Cycle, s 90.0 | Reference Phase 2 | | W | M T | | | | | | | प । | | |
| Offset, s 0 | Reference Point End | Green | | 54.0 | 0.0 | 0.0 | 0.0 | 0.0 | | 1U | 14 | 3 | 4 |
| Uncoordinated No | Simult. Gap E/W On | Yellow | | 4.0 | 0.0 | 0.0 | as annesia esta esta esta esta esta esta esta est | 0.0 | | | | | |
| Force Mode Fixed | l Simult. Gap N/S On | | 2.0 | 2.0 | 0.0 | 0.0 | | 0.0 | | 6 | 6 | 7 | ð |
| | | | | | | | | | | | | | |
| Timer Results | | EBI | | EBT | WB | L | WBT | NBI | | NBT | SBI | L in the | SBT |
| Assigned Phase | | | | | | | | 5 | | 2 | | - | 6 |
| Case Number | | | | | | | | 1.0 | | 4.0 | | | 7.3 |
| Phase Duration, s | <u>, , , , , , , , , , , , , , , , , , , </u> | | | | | | | 30.0 |) | 90.0 | | | 60.0 |
| Change Period, (Y+F | ₹¢), s | | | | Î | | | 6,0 | | 6.0 | | | 6.0 |
| Max Allow Headway (| | | | *************************************** | | | ************** | 3.1 | | 0.0 | | | 0.0 |
| Queue Clearance Tim | | | | *************************************** | | | | 18.3 | | | | | |
| Green Extension Time | | | | *********** | | | | 1.4 | | 0.0 | | | 0.0 |
| Phase Call Probability | | | | | | | | 1.00 | | | | | |
| Max Out Probability | , | | | ********** | | _ | | 0.43 | | | | | |
| | | , p | | | F | | | 0.10 | | | | | |
| Movement Group Re | esults | | ЕВ | | | WB | MARION. | | NB | | | SB | |
| Approach Movement | | L | Т | R | L | Т | R | L | Т | R | L | Т | R |
| Assigned Movement | | | | | | | | 5 | 2 | *************************************** | | 6 | 16 |
| Adjusted Flow Rate (| ν), veh/h | | | | | | | 906 | 689 | | | 442 | 449 |
| Adjusted Saturation F | low Rate (s), veh/h/ln | | | *************************************** | | *************************************** | *************************************** | 1697 | 1841 | | | 1826 | 1560 |
| Queue Service Time | | | | ACTION DESCRIPTION OF THE PERSON OF THE PERS | | | | 16.3 | 0.0 | | | 11.5 | 14.6 |
| Cycle Queue Clearan | ce Time (g c), s | | | | | | | 16.3 | 0.0 | *************************************** | | 11.5 | 14.6 |
| Green Ratio (g/C) | | | | | | <u> </u> | | 0.89 | 0.93 | | | 0.60 | 0.60 |
| Capacity (c), veh/h | | | | | | | | 958 | 1718 | YUK | | 1096 | 936 |
| Volume-to-Capacity F | Ratio (X) | | | | | ├ | | 0.946 | 0.401 | | | 0.404 | 0.480 |
| | ft/In (95 th percentile) | | | | | | | 385.6 | 15.5 | | | 202.1 | 216.7 |
| Santagaraparapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganapaganap | veh/ln (95 th percentile) | | ļ | *************************************** | | | | 14.5 | 0.6 | | | 7.8 | 8.4 |
| | (RQ) (95 th percentile) | | | 4,000,000 | | jejeva i | | 0.00 | 0.00 | | | 0.00 | 0.00 |
| Uniform Delay (d 1), | | | | | | | | 6.6 | 0.0 | | | 9.5 | 10.1 |
| Incremental Delay (d | | | 18) 8 Por 1 | A STATE OF THE | | |) | 18.6 | 0.7 | | | 1.1 | 1.8 |
| Initial Queue Delay (| elegan elegan arang di bini bini mang mang mang mang mang mang mang mang | | | *************************************** | | | | 0.0 | 0.0 | | | 0.0 | 0.0 |
| Control Delay (d), s/ | | | A B A | -045g14. | | 122.24 | - Cest 13 | 25.2 | 0.7 | 7,883,171-8 | | 10.6 | 11.9 |
| Level of Service (LOS | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | *************************************** | | | | C C | -0.7 A | | | 10.6 B | В |
| Approach Delay, s/ve | | 0.0 | | , i, Air, s | 0.0 | <u> </u> | | 14.6 | | B . | 11.2 | | В |
| ************************************** | Name of the same o | 0.0 | | | <u> </u> | | | 14.0 | , | | · | <u>- 1 </u> | O |
| Intersection Delay, s/ | ven / LOS | | | I. | 3.4 | | | | | | В | | |
| Multimodal Results | | | EB | | | WB | | | NB | | | SB | |
| Pedestrian LOS Score | - / I OS | 1.9 | | В | 1.95 | | В | 0.54 | | Α | 1.36 | | Α |
| Bicycle LOS Score / L | | 1.98 | | D | 1.90 | | D | 3.12 | | C | *************************************** | | В |
| PROVING LOS SCORT L | | *** | 1 | | | 1 | | 3, 12 | | : U 15,5 | 1.96 | 7 KU [20 | . D. |

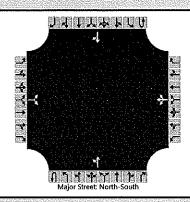
| | | HCS | 7 Sig | nalize | d Inte | ersec | tion R | Resul | lts Sur | nmar | / | | | | |
|---|--|--|--|--|--|---|--|---|---|----------|---|--|----------------|---|-----------|
| General Inform | ation | | | | | | | | Intersec | tion Inf | ormatic | nn | <u> </u> | | LI |
| Agency | A land to the land to the land of | Bowman | annidamentanini da | | | ************* | MINOR OF THE PARTY | | Duration | ****** | 0.250 | | | 11 | |
| Analyst | | LDK | *************************************** | Analys | is Date | Dec 2 | 0 2021 | | Area Typ | | Other | *************************************** | - 3 | | 2 |
| Jurisdiction | THE PROPERTY AND ADDRESS OF THE PARTY AND ADDR | NJDOT | | Time F | MANAGEMENT AND PARTY. | PM Pe | | dan market data de la companya de la | PHF | | 0.98 | | | w. | |
| | | | | | | <u> </u> | | | | D: | 1> 5:0 | 20 | -3 | | |
| Urban Street | | Rt. 93 (Grand Ave) | | ~ | | | · | *********** | Analysis | Репоа | 112 5:0 | טט | | | |
| Intersection | | Rt. 93/Rt. 46 WB R | | File Na | | B-PIVI- | ·93-46V | vB.xus | | | *************************************** | ***************** | _ [|) | 19921 |
| Project Descripti | ion | 15 Grand Ave BCG | 081197 | /-01-001 | | | | | | | | | 1.0 | DAN RELIGION NESS MA | (APR 12) |
| Demand Inform | nation | | | | EB | | t alle | WE | 3 | | NB | | | SB | |
| Approach Move | ment | | | L | Т | R | L | Т | R | L | Т | R | L | Т | R |
| Demand (v), ve | eh/h | | a Banga | | | | | | | 681 | 706 | | | 518 | 271 |
| 100 | | | | | | | | | | | | | | | |
| Signal Informat | tion | | | | | I.J. | | | | | | | | | |
| Cycle, s | 90.0 | Reference Phase | 2 | | 取 介 | RA | | | | | | | 잭 [| | |
| Offset, s | 0 | Reference Point | End | Green | | 54.0 | 0.0 | 0.0 | 0.0 | 0.0 | _ | - 1 | 1 ² | 3 | - 4 |
| Uncoordinated | No | Simult. Gap E/W | On | Yellow | | 4.0 | 0.0 | 0.0 | | 0.0 | | | | | |
| Force Mode | Fixed | Simult. Gap N/S | On | Red | 2.0 | 2.0 | 0.0 | 0.0 | | 0.0 | | 6 | - 6 | 7 | 8 |
| | | | | | | | | | | | | | | | |
| Timer Results | | | | EBI | | EBT | WB | L | WBT | NBI | | NBT | SB | L | SBT |
| Assigned Phase | | | | | | | | | | 5 | | 2 | | | 6 |
| Case Number | | | | | | | | | | 1.0 | | 4.0 | | Sala ay | 7.3 |
| Phase Duration, | S | | | | | | | | | 30.0 |) | 90.0 | | | 60.0 |
| Change Period, | AMARIAN MANAGEMENT AND | .\ s | Q.O. S.A. | | | N. turinin. | | | ona hiva nig | 6.0 | | 6.0 | | | 6.0 |
| Max Allow Head | | | | | | | | | | 3.1 | | 0.0 | | | 0.0 |
| Queue Clearand | ***** | | · | | | *************************************** | | | *************************************** | 9.3 | | 0.0 | | | |
| Green Extension | - | | | | | | | | | 1.4 | N 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 0.0 | | 1: - 1: - 1: - 1: - 1: - 1: - 1: - 1: - | 0.0 |
| | ************ | (<i>g e)</i> , s | . 15. (12. 12. 12. 12. 12. 12. 12. 12. 12. 12. | | 25-4-24 - 45-45° | | | 30: L | | 1.00 | Charle Fairte | U.U | | | 0.0 |
| Phase Call Prob | | | | | | | | ârejîar - N | alifica, Porti | 3 | | Programs | | ape titi kuri | TRANSPORT |
| Max Out Probab | onity | | | l | | | | | all and | 0.01 | | | | | |
| Movement Gro | un Pas | ulte | | l Total | EB | | | WB | | | NB | | | SB | |
| Approach Move | | iulio — maggaragaga | | The state of the s | Т | R | 1 | T | R | L | Т | R | 1 | Ιτ | R |
| Assigned Mover | *************************************** | nen sed elle se ving selle se este for | te nos l'inume s | | | ranten (a) | L State of the state of the | 1 | | 5 | 2 | | _ L | 6 | 16 |
| | | | A 1 1 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | a igna e i | i. v . v . v . v | 4.619606 | | in invited | - Alley spile | 2 | | an besake | | <u></u> | 277 |
| Adjusted Flow F | ************************************** | | \$110,4004 | 1921 (22.2.4) | ristinia in a | 212 42 2 2 2 | 992. 1.35 % | A Francisco | n v. s. 14. | 695 | 720 | 14 | | 529 | <u> </u> |
| - | | ow Rate (s), veh/h/ | in . | | | | logicoli. | | | 1767 | 1885 | | | 1885 | 1585 |
| Queue Service | ****** | | 11 114 11 14 | | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | 0.000000 | | 7.3 | 0.0 | | | 14.0 | 7.6 |
| Cycle Queue Cl | ******* | e lime (gc), s | | | halibrij | North St. | | ļ | | 7.3 | 0.0 | | | 14.0 | 7.6 |
| Green Ratio (g/ | | | a car start | | 3 - 5 - 5 - 5 - 5 - 5 | | | | y 1920 A. | 0.89 | 0.93 | | | 0.60 | 0.60 |
| Capacity (c), v | | | | | | | | | | 937 | 1760 | | | 1131 | 951 |
| Volume-to-Capa | NAME OF TAXABLE PARTY. | | energe finances comments | | | | | | | 0.742 | 0.409 | | | 0.467 | 0.291 |
| Back of Queue | (Q), fl. | in (95 th percentile |) | | | | | | | 192.3 | 15.7 | tistickei | | 235.1 | 114.7 |
| Back of Queue | (Q), ve | eh/ln (95 th percent | ile) | | | | | | | 7.5 | 0.6 | | | 9.3 | 4.5 |
| Queue Storage | Ratio (| RQ) (95 th percen | tile) | | | vilve. | | 100.00 | | 0.00 | 0.00 | | | 0.00 | 0.00 |
| Uniform Delay (| d 1), s | /veh | | | | | | | | 5.1 | 0.0 | | | 10.0 | 8.7 |
| Incremental Del | ay (d 2 |), s/veh | | | | | | | | 5.3 | 0.7 | | | 1.4 | 0.8 |
| Initial Outres De | elay (d | з), s/veh | | | THE PROPERTY OF THE PARTY OF TH | *************************************** | o de la composition della comp | | | 0.0 | 0.0 | ************************************* | | 0.0 | 0.0 |
| Initial Queue De | mezuinunjounu | | | | | J. Wali | | 48.50 | | 10.4 | 0.7 | ig dis k | | 11.4 | 9.5 |
| Control Delay (| | | (-) | | | | | | | В | Α | | | В | Α |
| | (LOS) | | | Same and the same | | | | | | 5.4 | haranga ana | Α | 10. | , | В |
| Control Delay (Level of Service | | /LOS | | 0.0 | 300 La 79 | 1. 1 1 1 | 0.0 | | | | | | 8 IU | | |
| Control Delay (Level of Service Approach Delay | , s/veh | | | 0.0 | | 7 | 2 | | | <u> </u> | 31.11.1 | , , , , , , , , | Α | (1, w. i) | |
| Control Delay (Level of Service | , s/veh | | | 0,0 | | 7 | .4 | | | | | | <u> </u> | | |
| Control Delay (Level of Service Approach Delay Intersection Delay | /, s/veh ay, s/ve | | | 0.0 | EB | 7 | 2 | WB | | | | | <u> </u> | | |
| Control Delay (Level of Service Approach Delay | /, s/veh ay, s/v∈ sults | eh/LOS | | 1.95 | EB | 7 B | 2 | WB | В | 0.54 | NB | A | <u> </u> | SB | A |

| | HCS7 Two-Way Sto | p-Control Report | |
|--------------------------|--------------------------------|---------------------------------------|--------------------------|
| General Information | | Site Information | |
| Analyst | LDK | Intersection | Rt. 93/W. Columbia/Dwy |
| Agency/Co. | Bowman | Jurisdiction | NJDOT |
| Date Performed | 12/20/21 | East/West Street | W. Columbia Ave/Site Dwy |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) |
| Time Analyzed | Build - AM Peak | Peak Hour Factor | 0.92 |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 |
| Project Description | 15 Grand Ave BCG 081197-01-001 | · · · · · · · · · · · · · · · · · · · | |



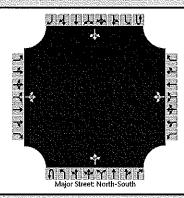
| Approach | | Eastb | ound | | | Westł | ound | | | North | bound | | | South | bound | |
|---|-------|----------------|--------------------------|------|-------|-----------|--------------------|-----------------|----|--------------------|--------------------------|---|-----------------------------|-----------------------|-------|------|
| Movement | υ | L | T | R | Ü | \$ LLX | े प | R | U | i L | ÷τ | R | U | L | Т | R |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 10 | 1 | 2 | 3 | 4U | 4 | 5 | 6 |
| Number of Lanes | | 0 | 111 | 0 | HAN | 0 | 1 | 0 | 0 | 0 | ij j | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | LR | | | | LTR | | | LT | | | | | | TR |
| Volume (veh/h) | | 25 | \$MA | 66 | | 26 | 5 | 48 | | 38 | 625 | | | | 759 | 25 |
| Percent Heavy Vehicles (%) | | 3 | | 2 | | 0 | 0 | 4 | | 0 | | | | | | |
| Proportion Time Blocked | 11.00 | | | | | | 44.0 | | | | | | | | | 7453 |
| Percent Grade (%) | | (|) | | | (|) | | | | | | | | | |
| Right Turn Channelized | | | | | | g (Mej la | M. Heb | AWAU | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | villay esternis | | | | | | | | |
| Base Critical Headway (sec) | | 6.9 | | 6.0 | | 6.9 | 6.3 | 6.0 | | 4.1 | | | | | | |
| Critical Headway (sec) | | 6.93 | | 6,02 | | 6.90 | 6.30 | 6.04 | | 4.10 | V. | | | | | |
| Base Follow-Up Headway (sec) | | 3.3 | | 3,1 | | 3.3 | 3,8 | 3.1 | | 2.2 | | | | | | |
| | | 3.33 | | 3.12 | | 3.30 | 3,80 | 3.14 | Ŋ. | 2.20 | i in man i dan laying | | | | | |
| Follow-Up Headway (sec) | | | | £ | | | 1.00 | | | | | | Street and a forest section | Source State Services | | |
| Delay, Queue Length, and | Leve | valencementari | ervice | | | | | | | 883 | | | | | | |
| | Leve | valencementari | ervice 99 | | | | 86 | | | 41 | | | | | | |
| Delay, Queue Length, and | Leve | valencementari | | | | | 86 154 | | | 41 795 | | | | | | |
| Delay, Queue Length, and Flow Rate, v (veh/h) | Leve | valencementari | 99 | | | | | | | | | | | | | |
| Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) | Leve | valencementari | 99 180 | | | | 154 | | | 795 | | | | | | |
| Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio | Leve | valencementari | 99 180 0.55 | | | | 154 0.56 | | | 795 0.05 | | | | | | |
| Pelay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh) | Leve | valencementari | 99 180 0.55 2.9 | | | | 154 0.56 2.8 | | | 795 0.05 0.2 | | | | | | |

| | HCS7 Two-Way Sto | p-Control Report | |
|--------------------------|--------------------------------|----------------------------|--------------------------|
| General Information | | Site Information | |
| Analyst | LDK | Intersection | Rt. 93/W. Columbia/Dwy |
| Agency/Co. | Bowman | Jurisdiction | TODIN |
| Date Performed | 12/20/21 | East/West Street | W. Columbia Ave/Site Dwy |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) |
| Time Analyzed | Build - PM Peak | Peak Hour Factor | 0.95 |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | |



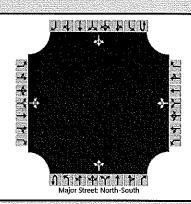
| Approach | | Eastb | ound | | | West | ound | | | North | bound | | | South | bound | |
|---|------------|--|--------------------|------|-------|------|-------------|-------|-------|---|----------------|----------|---------|-------|--------------------------|----|
| Movement | U | L | Ţ | R | U | L | Ţ | R | U | Ļ | Т | R | U | L | T | R |
| 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 | 11.1 | 0 |
| Configuration | | | LR | | | | LTR | | | LT | | | | | | TR |
| Volume (veh/h) | Milk | 27 | | 53 | | 4 | 10 | 31 | | 52 | 653 | | | | 743 | 45 |
| Percent Heavy Vehicles (%) | | 0 | | 2 | | 25 | 0 | 0 | | 4 | | | | | | |
| Proportion Time Blocked | # SW | \$1\$XX | | | | | | | | | | | Holb in | | Alleni, | |
| Percent Grade (%) | | (|) | | | (|) | | | | | | | | | |
| Right Turn Channelized | | id di | | | | | | | | | | | WALK. | | isoni Anye Yasani May | |
| Median Type Storage | | ······································ | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | /s | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 6.9 | | 6.0 | | 6.9 | 6.3 | 6.0 | | 4.1 | | | | | | |
| Critical Headway (sec) | 3 6 V C | 6,90 | 3.05 FA 3.05 FA | 6,02 | | 7.15 | 6.30 | 6.00 | | 4.14 | | | | | | |
| Base Follow-Up Headway (sec) | | 3.3 | | 3.1 | | 3.3 | 3.8 | 3.1 | | 2.2 | | | | | | |
| Follow-Up Headway (sec) | Control Co | 3.30 | | 3.12 | | 3.53 | 3.80 | 3.10 | | 2.24 | | | (Maj) | | Minim | |
| Delay, Queue Length, and | Leve | of Se | ervice | | | | | | | - 100 | | | | | | |
| Flow Rate, v (veh/h) | | | 84 | | | | 47 | | | 55 | | <u> </u> | | Ī | | |
| Capacity, c (veh/h) | | | 162 | | | | 201 | | 13:47 | 794 | Mille Mille | Julya | day. | That | Risk | |
| v/c Ratio | | | 0.52 | | | | 0.24 | | | 0.07 | | | | | | |
| 95% Queue Length, Q ₉₅ (veh) | | | 2.6 | | gy vi | | 0.9 | .aði. | | 0.2 | | | | | | |
| Control Delay (s/veh) | | | 49.0 | | | | 28.3 | | | 9.9 | | | | | | |
| Level of Service (LOS) | | ver. | E | | | | D | | | Α | | | | | Table 1 | |
| | | | | | | | | | | | | | | | | |

| | HCS7 Two-Way Sto | pp-Control Report | |
|--------------------------|--------------------------------|----------------------------|--------------------|
| General Information | | Site Information | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby |
| Agency/Co. | Bowman | Jurisdiction | NJDOT |
| Date Performed | 12/20/2021 | East/West Street | W. Ruby |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) |
| Time Analyzed | Build - AM Peak | Peak Hour Factor | 0.91 |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0,25 |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | |



| Approach | | Eastb | ound | | | Westb | oound | | | North | bound | | | South | bound | |
|---|-------------|---------|--------|---|----------|----------|---------|------|-------|-------|-------|--|--|--------------------|---------|-------|
| Movement | U | L | Τ | R | U | ∯L } | 7 | R | U | L | T | R | Ú | Ĺ | Т | R |
| Priority | | 10 | 11 | 12 | | 7 | 8 | 9 | 1U | 1 | 2 | 3 | 4U | 4 | 5 | 6 |
| Number of Lanes | | 0 | 11 | 0 | | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 |
| Configuration | | | LTR | | | | LTR | | | | LTR | | | | LTR | |
| Volume (veh/h) | Ţ | 14 | 0 | 13 | | 15 | 9 | 42 | | 21 | 643 | 34 | | 2 | 755 | 26 |
| Percent Heavy Vehicles (%) | | 0 | 0 | 23 | | 7 | 0 | 5 | | 5 | | ······································ | | 0 | | |
| Proportion Time Blocked | | X 5X | W. | | | N. S. | NAM! | | | | | | | | TERRITA | |
| Percent Grade (%) | | |) | *************************************** | | (|) | | | | | ••• | | | • | |
| Right Turn Channelized | | | | | | | Vijarij | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | And the second s | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6.2 | | 7.1 | 6.5 | 6.2 | | 4.1 | | 3001 003.4.4.4.0.000 0.200 | | 4.1 | | |
| Critical Headway (sec) | | 7.10 | 6.50 | 6,43 | \$10.00E | 7.17 | 6.50 | 6.25 | | 4.15 | | | | 4.10 | | |
| Base Follow-Up Headway (sec) | | 3.5 | 4.0 | 3.3 | | 3,5 | 4.0 | 3.3 | | 2,2 | | | | 2.2 | | |
| Follow-Up Headway (sec) | | 3.50 | 4.00 | 3.51 | 4.54 | 3.56 | 4.00 | 3,35 | | 2.25 | | | | 2,20 | | |
| Delay, Queue Length, and | Leve | l of Se | ervice | | | | | | | | | | | 82 95 9 83 91 9 | | |
| Flow Rate, v (veh/h) | | | 30 | | | | 73 | | | 23 | | | | 2 | | |
| Capacity, c (veh/h) | | y any | 103 | | 1818 | | 165 | | | 770 | | | 金融 | 873 | | |
| v/c Ratio | | | 0.29 | | | | 0,44 | | | 0.03 | | | | 0.00 | | |
| 95% Queue Length, Q95 (veh) | SEE | | 11,18 | | 4741 | | 2.0 | Hay | | 0.1 | | | | 0.0 | | |
| | | | 53,4 | | | | 42,8 | | | 9.8 | | | | 9.1 | | |
| Control Delay (s/veh) | | | | | | | | | | | | | - | | | |
| Control Delay (s/veh) Level of Service (LOS) | | 4 144 | F | | | 1.14.344 | E | | 144.3 | Α | 18.14 | THE VIE | | Α | | Vitte |

| | HCS7 Two-Way Sto | p-Control Report | |
|--------------------------|--------------------------------|----------------------------|--------------------|
| General Information | | Site Information | |
| Analyst | LDK | Intersection | Rt. 93/W. Ruby |
| Agency/Co. | Bowman | Jurisdiction | NJOOT |
| Date Performed | 12/20/21 | East/West Street | W. Ruby |
| Analysis Year | 2024 | North/South Street | Rt. 93 (Grand Ave) |
| Time Analyzed | Build - PM Peak | Peak Hour Factor | 0.96 |
| Intersection Orientation | North-South | Analysis Time Period (hrs) | 0.25 |
| Project Description | 15 Grand Ave BCG 081197-01-001 | | |



| Approach | | East | oound | | | Westl | oound | | | North | bound | | | South | bound | |
|--|------|-------------|--|-------------|-----------------|-------------|--|-------------|----|---|-------|----|-------|---------------------------------|-------|----------------------------------|
| Movement | U | i j | Τ | R | υ | Ľ | Ţ | R | υ | L | Т | R | U | i L | Т | R |
| 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 | | 0 | 0 | 0 | | 0 |
| Configuration | | | LTR | | | | LTR | | | | LTR | | | | LTR | |
| Volume (veh/h) | | 29 | 0 | 75 | | 4 | ं 5 | 42 | | 8 | 695 | 10 | N. N. | 7 | 704 | 24 |
| Percent Heavy Vehicles (%) | | 0 | 0 | 1 | | 0 | 0 | 0 | | 0 | | | | 0 | | |
| Proportion Time Blocked | | \$4.P# | | 18/18/1900 | 5.4 | | | | Y. | | | | 93,93 | 18,500 | | |
| Percent Grade (%) | | | 0 | | | (|) | | | | | | | <u> </u> | | ··············· |
| Right Turn Channelized | | | H. P. | | | | N. Maria | | | | | | | | | |
| Median Type Storage | | | | Undi | vided | | | | | | | | | | | |
| Critical and Follow-up He | adwa | ys | | | | | | | | | | | | | | |
| Base Critical Headway (sec) | | 7.1 | 6.5 | 6.2 | T in the second | 7.1 | 6,5 | 6.2 | | 4.1 | | | | 4.1 | | |
| | | | | - | | | | | | | | | | | | |
| Critical Headway (sec) | | 7.10 | 6.50 | 6,21 | | 7.10 | 6.50 | 6.20 | | 4.10 | | | | 4.10 | | 1. 11. 11. 12. 1. 11. 12. 12. |
| Critical Headway (sec) Base Follow-Up Headway (sec) | | 7.10 3.5 | 6.50 4.0 | 6.21 3.3 | | 7.10 3,5 | 6,50 4.0 | 6.20 3.3 | | 4,10 2.2 | | | | 4.10 2.2 | | |
| | | | ļ | | | | 50. | | | | | | | | | |
| Base Follow-Up Headway (sec) | Leve | 3.5 3.50 | 4.00 | 3.3 3.31 | | 3,5 | 4.0 | 3.3 | | 2.2 | | | | 2.2 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) | Leve | 3.5 3.50 | 4.00 | 3.3 3.31 | | 3,5 | 4.0 | 3.3 | | 2.2 | | | | 2.2 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and | Leve | 3.5 3.50 | 4.0 4.00 ervice | 3.3 3.31 | | 3,5 | 4.0 4.00 | 3.3 | | 2.2 2.20 | | | | 2.2 2.20 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) | Leve | 3.5 3.50 | 4.00 4.00 ervice 108 | 3.3 3.31 | | 3,5 | 4.00 4.00 | 3.3 | | 2.2 2.20 8 | | | | 2.2 2.20 7 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) | Leve | 3.5 3.50 | 4.00 4.00 ervice 108 194 | 3.3 3.31 | | 3,5 | 4.00 4.00 53 262 | 3.3 | | 2.2 2.20 8 862 | | | | 2.2 2.20 7 880 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio | Leve | 3.5 3.50 | 4.00 4.00 ervice 108 194 0.56 | 3.3 3.31 | | 3,5 | 4.00 4.00 53 262 0.20 | 3.3 | | 2.2 2.20 8 8 862 0.01 | | | | 2.2 2.20 7 880 0.01 | | |
| Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh) | Leve | 3.5 3.50 | 4.0 4.00 ervice 108 194 0.56 3.0 | 3.3 3.31 | | 3,5 | 4.00 4.00 53 262 0.20 0.7 | 3.3 | | 2.2 2.20 8 8 862 0.01 0.0 | | | | 7 880 0.01 | | |

APPENDIX III TRAFFIC COUNTS

Study Name 93&Maple
Start Date Tuesday, September 28, 2021 6:30 AM
End Date Tuesday, September 28, 2021 6:30 PM
Site Code

| | | | | South | bound | | | | | Westb | ound | | | | | North | bound | | | | | Eastb | ound | | | | | C | rosswal | k |
|-------------------|------------|----|------|-------|-------|------|------|------|----|-------|------|------|------|------|------|-------|-------|------|------|------|------|-------|------|------|----|-------|----|---------|---------|-------|
| Time Period | Class. | R | Т | L | U | | 0 | R | Т | L | U | | 0 | R | Т | L | U | | 0 | R | T | L | U | | 0 | Total | | s on Cr | destria | Total |
| Peak 1 | Lights | 0 | 326 | 2 | 0 | 328 | 1267 | 270 | 0 | 6 | 0 | 276 | 134 | 2 | 847 | 0 | 0 | 849 | 961 | 629 | 130 | 150 | 0 | 909 | 0 | 2362 | SB | 0 | 0 | 0 |
| Specified Period | % | 0% | 95% | 100% | 0% | 95% | 92% | 97% | 0% | 100% | 0% | 97% | 96% | 100% | 92% | 0% | 0% | 92% | 91% | 89% | 96% | 83% | 0% | 89% | 0% | 92% | | 0% | 0% | |
| 6:30 AM - 9:00 AM | Buses | 0 | 0 | 0 | 0 | 0 | 7 | 6 | 0 | 0 | 0 | 6 | 3 | 0 | 1 | 0 | 0 | 1 | 2 | 2 | 3 | 0 | 0 | 5 | 0 | 12 | WB | 1 | 0 | 1 |
| One Hour Peak | % | 0% | 0% | 0% | 0% | 0% | 1% | 2% | 0% | 0% | 0% | 2% | 2% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 0% | 0% | 0% | 0% | | 100% | 0% | |
| 7:15 AM - 8:15 AM | Trucks | 0 | 17 | 0 | 0 | 17 | 104 | 2 | 0 | 0 | 0 | 2 | 2 | 0 | 71 | 0 | 0 | 71 | 94 | 77 | 2 | 31 | 0 | 110 | 0 | 200 | NB | 0 | 0 | 0 |
| | % | 0% | 5% | 0% | 0% | 5% | 8% | 1% | 0% | 0% | 0% | 1% | 1% | 0% | 8% | 0% | 0% | 8% | 9% | 11% | 1% | 17% | 0% | 11% | 0% | 8% | | 0% | 0% | |
| | Total | 0 | 343 | 2 | 0 | 345 | 1378 | 278 | 0 | 6 | 0 | 284 | 139 | 2 | 919 | 0 | 0 | 921 | 1057 | 708 | 135 | 181 | 0 | 1024 | 0 | 2574 | EB | 0 | 0 | 0 |
| | PHF | 0 | 0.9 | 0.5 | 0 | 0.91 | 0.94 | 0.83 | 0 | 0.38 | 0 | 0.81 | 0.91 | 0.5 | 0.98 | 0 | 0 | 0.98 | 0.93 | 0.91 | 0.89 | 0.84 | 0 | 0.9 | 0 | 0.96 | | 0% | 0% | |
| | Approach % | | | | | 13% | 54% | | | | | 11% | 5% | | | | | 36% | 41% | | | | | 40% | 0% | | | 1 | 0 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak 2 | Lights | 0 | 493 | 1 | 0 | 494 | 1168 | 99 | 0 | 4 | 0 | 103 | 207 | 6 | 870 | 0 | 0 | 876 | 1100 | 603 | 200 | 199 | 0 | 1002 | 0 | 2475 | SB | 0 | 3 | 3 |
| Specified Period | % | 0% | 97% | 100% | 0% | 97% | 97% | 99% | 0% | 100% | 0% | 99% | 100% | 100% | 97% | 0% | 0% | 97% | 96% | 96% | 100% | 96% | 0% | 96% | 0% | 97% | | 0% | 100% | |
| 4:00 PM - 6:30 PM | Buses | 0 | 1 | 0 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 1 | 0 | 0 | 3 | 0 | 3 | 0 | 7 | WB | 2 | 1 | 3 |
| One Hour Peak | % | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | | 67% | 33% | |
| 5:00 PM - 6:00 PM | Trucks | 0 | 12 | 0 | 0 | 12 | 27 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 21 | 0 | 0 | 21 | 40 | 28 | 1 | 5 | 0 | 34 | 0 | 68 | NB | 0 | 2 | 2 |
| | % | 0% | 2% | 0% | 0% | 2% | 2% | 1% | 0% | 0% | 0% | 1% | 0% | 0% | 2% | 0% | 0% | 2% | 4% | 4% | 0% | 2% | 0% | 3% | 0% | 3% | | 0% | 100% | |
| | Total | 0 | 506 | 1 | 0 | 507 | 1201 | 100 | 0 | 4 | 0 | 104 | 208 | 6 | 894 | 0 | 0 | 900 | 1141 | 631 | 201 | 207 | 0 | 1039 | 0 | 2550 | EB | 0 | 0 | 0 |
| | PHF | 0 | 0.95 | 0.25 | 0 | 0.95 | 0.97 | 0.78 | 0 | 0.5 | 0 | 0.76 | 0.88 | 0.5 | 0.95 | 0 | 0 | 0.95 | 0.95 | 0.94 | 0.9 | 0.83 | 0 | 0.93 | 0 | 0.96 | | 0% | 0% | |
| | Approach % | | | | | 20% | 47% | | | | | 4% | 8% | | | | | 35% | 45% | | | | | 41% | 0% | | | 2 | 6 | 8 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Study Name 93&46WBRamp
Start Date Tuesday, September 28, 2021 6:30 AM
Tuesday, September 28, 2021 6:30 PM
Site Code

| | | | So | uthboı | ınd | | | Westl | bound | | | | North | ound | | | | | Eastb | ound | | | | | С | rosswa | lk |
|-------------------|------------|------|------|--------|------|------|----|-------|-------|------|------|------|-------|------|------|------|----|----|-------|------|----|------|-------|----|----------|---------|------|
| Time Period | Class. | R | Т | U | | 0 | Т | L | | 0 | R | Т | L | U | | 0 | R | Т | L | U | | 0 | Total | | s on Cro | destria | Tota |
| Peak 1 | Lights | 381 | 365 | 0 | 746 | 596 | 0 | 1 | 1 | 1 | 1 | 596 | 751 | 0 | 1348 | 366 | 0 | 0 | 0 | 0 | 0 | 1132 | 2095 | SB | 0 | 0 | 0 |
| Specified Period | % | 95% | 94% | 0% | 95% | 96% | 0% | 100% | 100% | 100% | 100% | 96% | 91% | 0% | 93% | 94% | 0% | 0% | 0% | 0% | 0% | 93% | 94% | | 0% | 0% | |
| 6:30 AM - 9:00 AM | Buses | 4 | 4 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 0 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 10 | 16 | WB | 1 | 4 | 5 |
| One Hour Peak | % | 1% | 1% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 1% | | 20% | 80% | |
| 8:00 AM - 9:00 AM | Trucks | 15 | 18 | 0 | 33 | 23 | 0 | 0 | 0 | 0 | 0 | 23 | 64 | 0 | 87 | 18 | 0 | 0 | 0 | 0 | 0 | 79 | 120 | NB | 0 | 0 | 0 |
| | % | 4% | 5% | 0% | 4% | 4% | 0% | 0% | 0% | 0% | 0% | 4% | 8% | 0% | 6% | 5% | 0% | 0% | 0% | 0% | 0% | 6% | 5% | | 0% | 0% | |
| | Total | 400 | 387 | 0 | 787 | 621 | 0 | 1 | 1 | 1 | 1 | 621 | 821 | 0 | 1443 | 388 | 0 | 0 | 0 | 0 | 0 | 1221 | 2231 | EB | 0 | 0 | 0 |
| | PHF | 0.76 | 0.93 | 0 | 0.86 | 0.89 | 0 | 0.25 | 0.25 | 0.25 | 0.25 | 0.89 | 0.93 | 0 | 0.92 | 0.93 | 0 | 0 | 0 | 0 | 0 | 0.91 | 0.95 | | 0% | 0% | |
| | Approach % | | | | 35% | 28% | | | 0% | 0% | | | | | 65% | 17% | | | | | 0% | 55% | | | 1 | 4 | 5 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak 2 | Lights | 246 | 479 | 0 | 725 | 646 | 0 | 0 | 0 | 1 | 1 | 646 | 613 | 0 | 1260 | 479 | 0 | 0 | 0 | 0 | 0 | 859 | 1985 | SB | 0 | 0 | 0 |
| Specified Period | % | 97% | 98% | 0% | 98% | 98% | 0% | 0% | 0% | 100% | 100% | 98% | 97% | 0% | 97% | 98% | 0% | 0% | 0% | 0% | 0% | 97% | 97% | | 0% | 0% | |
| 4:00 PM - 6:30 PM | Buses | 3 | 2 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 0 | 4 | 11 | WB | 3 | 22 | 25 |
| One Hour Peak | % | 1% | 0% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | | 12% | 88% | |
| 5:15 PM - 6:15 PM | Trucks | 5 | 7 | 0 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 8 | 21 | 0 | 29 | 7 | 0 | 0 | 0 | 0 | 0 | 26 | 41 | NB | 0 | 0 | 0 |
| | % | 2% | 1% | 0% | 2% | 1% | 0% | 0% | 0% | 0% | 0% | 1% | 3% | 0% | 2% | 1% | 0% | 0% | 0% | 0% | 0% | 3% | 2% | | 0% | 0% | |
| | Total | 254 | 488 | 0 | 742 | 659 | 0 | 0 | 0 | 1 | 1 | 659 | 635 | 0 | 1295 | 488 | 0 | 0 | 0 | 0 | 0 | 889 | 2037 | EB | 0 | 2 | 2 |
| | PHF | 0.92 | 0.95 | 0 | 0.98 | 0.91 | 0 | 0 | 0 | 0.25 | 0.25 | 0.91 | 0.9 | 0 | 0.98 | 0.95 | 0 | 0 | 0 | 0 | 0 | 0.95 | 0.98 | | 0% | 100% | |
| | Approach % | | | | 36% | 32% | | | 0% | 0% | | | | | 64% | 24% | | | | | 0% | 44% | | | 3 | 24 | 27 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Study Name 93&Columbia
Start Date Tuesday, September 28, 2021 6:30 AM
End Date Tuesday, September 28, 2021 6:30 PM
Site Code

| | | | | South | bound | | | | | Westk | ound | | | | | North | bound | | | | | Eastb | oound | | | | | C | rosswal | k |
|-------------------|------------|------|------|-------|-------|------|------|------|------|-------|------|------|------|------|------|-------|-------|------|------|------|------|-------|-------|------|------|-------|----|---------|---------|-------|
| Time Period | Class. | R | Т | L | U | | 0 | R | T | L | U | | 0 | R | Т | L | U | | 0 | R | Т | L | U | | 0 | Total | | s on Cr | destria | Total |
| Peak 1 | Lights | 21 | 683 | 2 | 0 | 706 | 617 | 45 | 4 | 25 | 0 | 74 | 8 | 5 | 555 | 31 | 1 | 592 | 747 | 38 | 1 | 17 | 0 | 56 | 56 | 1428 | SB | 0 | 2 | 2 |
| Specified Period | % | 100% | 94% | 100% | 0% | 94% | 96% | 96% | 100% | 100% | 0% | 97% | 100% | 100% | 96% | 100% | 100% | 97% | 94% | 95% | 100% | 94% | 0% | 95% | 100% | 95% | | 0% | 100% | |
| 6:30 AM - 9:00 AM | Buses | 0 | 9 | 0 | 0 | 9 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | WB | 2 | 5 | 7 |
| One Hour Peak | % | 0% | 1% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | | 29% | 71% | |
| 8:00 AM - 9:00 AM | Trucks | 0 | 34 | 0 | 0 | 34 | 22 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 19 | 0 | 0 | 19 | 36 | 2 | 0 | 1 | 0 | 3 | 0 | 58 | NB | 0 | 5 | 5 |
| | % | 0% | 5% | 0% | 0% | 5% | 3% | 4% | 0% | 0% | 0% | 3% | 0% | 0% | 3% | 0% | 0% | 3% | 5% | 5% | 0% | 6% | 0% | 5% | 0% | 4% | | 0% | 100% | |
| | Total | 21 | 726 | 2 | 0 | 749 | 641 | 47 | 4 | 25 | 0 | 76 | 8 | 5 | 576 | 31 | 1 | 613 | 792 | 40 | 1 | 18 | 0 | 59 | 56 | 1497 | EB | 0 | 6 | 6 |
| | PHF | 0.88 | 0.88 | 0.25 | 0 | 0.88 | 0.92 | 0.73 | 0.5 | 0.69 | 0 | 0.7 | 0.5 | 0.62 | 0.9 | 0.78 | 0.25 | 0.93 | 0.89 | 0.67 | 0.25 | 0.64 | 0 | 0.67 | 0.82 | 0.92 | | 0% | 100% | |
| | Approach % | | | | | 50% | 43% | | | | | 5% | 1% | | | | | 41% | 53% | | | | | 4% | 4% | | | 2 | 18 | 20 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak 2 | Lights | 33 | 688 | 1 | 0 | 722 | 665 | 30 | 7 | 3 | 0 | 40 | 6 | 3 | 612 | 32 | 0 | 647 | 726 | 35 | 2 | 23 | 0 | 60 | 72 | 1469 | SB | 0 | 3 | 3 |
| Specified Period | % | 100% | 96% | 50% | 0% | 97% | 98% | 100% | 100% | 75% | 0% | 98% | 86% | 100% | 98% | 94% | 0% | 98% | 96% | 97% | 100% | 100% | 0% | 98% | 97% | 97% | | 0% | 100% | |
| 4:00 PM - 6:30 PM | Buses | 0 | 9 | 0 | 0 | 9 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 5 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | WB | 2 | 10 | 12 |
| One Hour Peak | % | 0% | 1% | 0% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | | 17% | 83% | |
| 5:30 PM - 6:30 PM | Trucks | 0 | 16 | 1 | 0 | 17 | 7 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 7 | 2 | 0 | 9 | 18 | 1 | 0 | 0 | 0 | 1 | 2 | 28 | NB | 0 | 13 | 13 |
| | % | 0% | 2% | 50% | 0% | 2% | 1% | 0% | 0% | 25% | 0% | 2% | 14% | 0% | 1% | 6% | 0% | 1% | 2% | 3% | 0% | 0% | 0% | 2% | 3% | 2% | | 0% | 100% | |
| | Total | 33 | 713 | 2 | 0 | 748 | 677 | 30 | 7 | 4 | 0 | 41 | 7 | 3 | 624 | 34 | 0 | 661 | 753 | 36 | 2 | 23 | 0 | 61 | 74 | 1511 | EB | 3 | 22 | 25 |
| | PHF | 0.82 | 0.94 | 0.5 | 0 | 0.95 | 0.91 | 0.75 | 0.58 | 1 | 0 | 0.73 | 0.44 | 0.38 | 0.91 | 0.77 | 0 | 0.91 | 0.98 | 0.69 | 0.5 | 0.57 | 0 | 0.9 | 0.88 | 0.95 | | 12% | 88% | |
| | Approach % | | | | | 50% | 45% | | | | | 3% | 0% | | | | | 44% | 50% | | | | | 4% | 5% | | | 5 | 48 | 53 |
| | ,, | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Study Name 93&Ruby
Start Date Tuesday, September 28, 2021 6:30 AM
End Date Tuesday, September 28, 2021 6:30 PM
Site Code

| | | | | South | bound | | | | | West | bound | | | | | North | bound | | | | | Eastb | ound | | | | | (| rosswal | lk |
|-------------------|------------|------|------|-------|-------|------|------|------|------|------|-------|------|------|------|------|-------|-------|------|------|------|----|-------|------|------|------|-------|----|---------|---------|-------|
| Time Period | Class. | R | T | L | U | 1 | 0 | R | Т | L | U | - 1 | 0 | R | Т | L | U | ı | 0 | R | Т | L | U | ı | 0 | Total | | s on Cr | destria | Total |
| Peak 1 | Lights | 26 | 665 | 2 | 0 | 693 | 659 | 39 | 9 | 13 | 1 | 62 | 36 | 33 | 606 | 20 | 0 | 659 | 688 | 10 | 0 | 14 | 0 | 24 | 55 | 1438 | SB | 0 | 1 | 1 |
| Specified Period | % | 100% | 95% | 100% | 0% | 96% | 96% | 95% | 100% | 93% | 100% | 95% | 100% | 100% | 96% | 95% | 0% | 96% | 95% | 77% | 0% | 100% | 0% | 89% | 98% | 96% | | 0% | 100% | |
| 6:30 AM - 9:00 AM | Buses | 0 | 8 | 0 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | WB | 2 | 7 | 9 |
| One Hour Peak | % | 0% | 1% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | | 22% | 78% | |
| 8:00 AM - 9:00 AM | Trucks | 0 | 24 | 0 | 0 | 24 | 27 | 2 | 0 | 1 | 0 | 3 | 0 | 0 | 25 | 1 | 0 | 26 | 28 | 3 | 0 | 0 | 0 | 3 | 1 | 56 | NB | 0 | 3 | 3 |
| | % | 0% | 3% | 0% | 0% | 3% | 4% | 5% | 0% | 7% | 0% | 5% | 0% | 0% | 4% | 5% | 0% | 4% | 4% | 23% | 0% | 0% | 0% | 11% | 2% | 4% | | 0% | 100% | |
| | Total | 26 | 697 | 2 | 0 | 725 | 688 | 41 | 9 | 14 | 1 | 65 | 36 | 33 | 633 | 21 | 0 | 687 | 724 | 13 | 0 | 14 | 0 | 27 | 56 | 1504 | EB | 1 | 7 | 8 |
| | PHF | 0.65 | 0.84 | 0.5 | 0 | 0.84 | 0.91 | 0.73 | 0.45 | 0.58 | 0.25 | 0.65 | 0.82 | 0.82 | 0.9 | 0.66 | 0 | 0.92 | 0.85 | 0.65 | 0 | 0.88 | 0 | 0.75 | 0.61 | 0.91 | | 13% | 88% | |
| | Approach % | | | | | 48% | 46% | | | | | 4% | 2% | | | | | 46% | 48% | | | | | 2% | 4% | | | 3 | 18 | 21 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Peak 2 | Lights | 23 | 648 | 7 | 0 | 678 | 718 | 40 | 5 | 3 | 1 | 49 | 18 | 10 | 649 | 8 | 0 | 667 | 723 | 72 | 0 | 29 | 0 | 101 | 36 | 1495 | SB | 0 | 1 | 1 |
| Specified Period | % | 96% | 98% | 100% | 0% | 98% | 98% | 98% | 100% | 100% | 100% | 98% | 100% | 100% | 98% | 100% | 0% | 98% | 98% | 96% | 0% | 100% | 0% | 97% | 97% | 98% | | 0% | 100% | |
| 4:00 PM - 6:30 PM | Buses | 0 | 5 | 0 | 0 | 5 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 5 | 7 | 2 | 0 | 0 | 0 | 2 | 0 | 13 | WB | 1 | 14 | 15 |
| One Hour Peak | % | 0% | 1% | 0% | 0% | 1% | 1% | 2% | 0% | 0% | 0% | 2% | 0% | 0% | 1% | 0% | 0% | 1% | 1% | 3% | 0% | 0% | 0% | 2% | 0% | 1% | | 7% | 93% | |
| 5:15 PM - 6:15 PM | Trucks | 1 | 9 | 0 | 0 | 10 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 10 | 1 | 0 | 0 | 0 | 1 | 1 | 18 | NB | 0 | 2 | 2 |
| | % | 4% | 1% | 0% | 0% | 1% | 1% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 1% | 0% | 0% | 1% | 1% | 1% | 0% | 0% | 0% | 1% | 3% | 1% | | 0% | 100% | |
| | Total | 24 | 662 | 7 | 0 | 693 | 731 | 41 | 5 | 3 | 1 | 50 | 18 | 10 | 661 | 8 | 0 | 679 | 740 | 75 | 0 | 29 | 0 | 104 | 37 | 1526 | EB | 1 | 11 | 12 |
| | PHF | 0.67 | 0.97 | 0.58 | 0 | 0.97 | 0.92 | 0.79 | 0.42 | 0.38 | 0.25 | 0.83 | 0.64 | 0.62 | 0.93 | 0.67 | 0 | 0.93 | 0.97 | 0.89 | 0 | 0.81 | 0 | 0.87 | 0.84 | 0.96 | | 8% | 92% | |
| | Approach % | | | | | 45% | 48% | | | | | 3% | 1% | | | | | 44% | 48% | | | | | 7% | 2% | | | 2 | 28 | 30 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

APPENDIX IV SIGNAL TIMING

Route NJ 93 & Maple Avenue / Route US 46 Ramps Palisades Park / Ridgefield Boros, Bergen County

90 - SECOND CYCLE

| | <u>Phase</u> | | | Sig | nal Indica | tions | | | Time (Sec.) | | | | |
|----|----------------------------------|-------------|-------------|-------------|------------|--------------------|-----------------|--------------|--------------|---------|--|--|--|
| | | <u>1, 2</u> | <u>4, 5</u> | <u>6, 7</u> | <u>8</u> | <u>9, 10</u> | <u>3, 11-16</u> | <u>17-22</u> | <u>23-26</u> | | | | |
| | | | | | | | | | | | | | |
| 1) | Route NJ 93 ROW | G | G | G | ∳ | G | R | W | DW | 48 – 25 | | | |
| | Pedestrian Clearance | G | G | G | ₫ | G | R | FDW | DW | 8 | | | |
| | SB Outside Change | Υ | G | G | ∳ | G | R | FDW | DW | 4* | | | |
| | SB Outside Clearance | R | G | G | ₫ | G | R | DW | DW | 2 | | | |
| | | | | | | | | | | | | | |
| 2) | Route NJ 93 NB Lag ROW | R | G | G | ₫ | G/ ∢G | R | DW | DW | 10 | | | |
| | Route NJ 93 NB Change | R | Υ | Υ | ₫ | G/ ∢G | R | DW | DW | 4 | | | |
| | Clearance | R | R | R | ₫ | G/ ∢G | R | DW | DW | 2 | | | |
| | | | | | • | | | | | | | | |
| 3) | Route US 46 Ramp / Maple Ave ROW | R | R | R | \$ | G/ ∢G - | G | DW | DW | 7 – 30 | | | |
| | Change | R | R | R | ₫ | G/ ∢Y | Υ | DW | DW | 3 | | | |
| | Clearance | R | R | R | Ġ | G | R | DW | DW | 2 | | | |
| | | | | | | | | | | | | | |
| | | ν | VITH PE | DESTRI | AN ACT | UATION | | | | | | | |
| 1) | Route NJ 93 ROW | G | G | G | ₫ | G | R | W | DW | 35 - 25 | | | |
| | Pedestrian Clearance | G | G | G | ₫. | G | R | FDW | DW | 8 | | | |
| | SB Outside Change | Υ | G | G | ∳ | G | R | FDW | DW | 4* | | | |
| | SB Outside Clearance | R | G | G | Ġ | G | R | DW | DW | 2 | | | |
| | | | | | 4: | | | | | | | | |
| 2) | Route NJ 93 NB Lag ROW | R | G | G | Ğ. | G/ ∢G - | R | DW | DW | 10 | | | |
| | Route NJ 93 NB Change | R | Υ | Υ | Ğ. | G/ ∢G - | R | DW | DW | 4 | | | |
| | Clearance | R | R | R | ₫ | G/ ◀G | R | DW | DW | 2 | | | |
| | | | | | • | | | | | | | | |
| 3) | Route US 46 Ramp / Maple Ave ROW | R | R | R | Ğ | G/ ∢C- | G | DW | W | 7 | | | |
| | Pedestrian Clearance | R | R | R | Ğ | G/ ∢G | G | DW | FDW | 13 | | | |
| | Vehicle Extension | R | R | R | Ğ ▲ | G/ ∢G | G | DW | DW | 0 - 10 | | | |
| | Change | R | R | R | ₫ | G/ ∢Y | Υ | DW | DW | 3 | | | |
| | Clearance | R | R | R | ∳ | G | R | DW | DW | 2 | | | |
| Em | ergency Flash | Υ | Υ | Υ | \$ | Υ | R | DARK | DARK | F (4) | | | |

Route NJ 93 & Maple Avenue / Route US 46 Ramps Palisades Park / Ridgefield Boros, Bergen County

NOTES:

*An offset of seven (7) seconds is to be maintained from the beginning of yellow to Route 93 traffic at Fort Lee Road to the beginning of yellow to Route 93 traffic at this intersection.

The vehicle extension interval is to be two (2) seconds.

The manual control is to be disconnected.

A force-off operation is to be employed such that constant actuation of the force-off detector for a period of five (5) seconds shall cause Phase 1 to be terminated at the completion of its minimum green interval of seven (7) seconds, followed by Phase 2. All appropriate change and clearance intervals shall be maintained.

The Route 93 Phase 1 ROW (W) minimum green interval shall be set at seven (7) seconds.