

#### **Traffic and Transportation Consulting**

Kevin P. McDonough (1953-1994) John H. Rea, P.E. Jay S. Troutman, Jr., P.E. Scott T. Kennel

July 27, 2020

Howell Township Zoning Board of Adjustment 4567 Route 9 North P.O. Box 580 Howell, NJ 08730

Re:

Flex Space-Preliminary & Final Site Plan

Lot 17.02 in Block 219

Howell Township, Monmouth County

MRA File No. 20-160

#### Dear Board Members:

McDonough & Rea Associates (MRA) has been asked to provide the Zoning Board of Adjustment with a *Traffic Impact Analysis* for plans to construct 3 flex space (office and warehouse) buildings on the noted property. The subject property is located on the east side of Squankum-Yellowbrook Road (CR 524A) as shown on *Figure 1* a *Site Location Map* in the *Appendix*.

Plans prepared by WJH Engineering (WJH) show a single point of access to CR 524A which is under the jurisdiction of Monmouth County. Three *flex space* buildings containing office and warehouse space are proposed along with 111 parking spaces.

#### Scope of Study

In order to prepare a thorough *Traffic Impact Analysis* for the proposed flex space buildings, MRA conducted the following tasks:

- 1. Made field visits to the site to establish existing roadway and traffic conditions in the area.
- 2. Obtained peak hour traffic volume data for traffic volumes passing the site from historical data collected by MRA at the CR 524A/CR524 intersection.
- 3. Prepared estimates of traffic to be generated by the flex space based upon Institute of Transportation Engineers (ITE) data.

Please reply to:

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105 Elm Street, Lower Level, Westfield, NJ 07090 • (908) 789-7180 • Fax (908) 789-7181



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- 4. Distributed site generated traffic north and south along CR 524A in accordance with anticipated origins and destinations of site generated traffic.
- 5. Prepared estimates of future traffic volume demand for the design year of the project (2025), including background traffic growth from historical New Jersey Department of Transportation (NJDOT) data and traffic to be generated by other projects in the area either approved or under construction.
- 6. Conducted level of service capacity analyses for the site driveway, based upon *Highway Capacity Manual* procedures.
- 7. Reviewed the *Site Plan* with respect to availability and accessibility of the parking supply and conformance to proper traffic engineering principles.

The following report sets forth the database accumulated and the conclusions reached with respect to the flex space buildings.

#### **EXISTING CONDITIONS**

Squankum-Yellowbrook Road (CR 524A) is an urban major collector roadway providing for 2 travel lanes, 1 in each direction. It has a general east/west orientation and a posted speed limit of 45 MPH in the vicinity of the site.

Surrounding land use consists of the *Howell Township Middle School* and *Howell Township High School* on the opposite side of CR 524A, *Crosspoint Church* and several industrial buildings on the same side of CR 524A.

#### Existing Traffic Volumes

Traffic volume data was obtained by reviewing historical counts conducted by MRA in 2019 at the CR 524A/CR 524 intersection during AM and PM peak street hours. The counts were conducted when schools in the area (Howell middle School, Howell High School) were open and generating traffic. The counts were revised upward to reflect 2020 conditions. Existing traffic flow passing the site during the AM and PM peak street hour are shown on *Figure 2* in the *Appendix*.



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#### TRIP GENERATION/DISTRIBUTION

Estimates of traffic to be generated by the flex space were made after consulting the  $10^{th}$  Edition of the ITE Trip Generation Manual. A separate calculation was conducted for the amount of office space (13,072 SF) and warehouse space (57,650 SF) that are proposed. Table I illustrates the anticipated AM and PM peak hour traffic volumes generated by the site.

# TABLE I TRIP GENERATION FLEX SPACE BUILDINGS

|                           |           | <u> AM P</u> | <u>'SH</u>   |  | <u>PM P</u> | <u>'SH</u>   |
|---------------------------|-----------|--------------|--------------|--|-------------|--------------|
| <u>USE</u>                | <u>In</u> | <u>Out</u>   | <b>TOTAL</b> | $\underline{\mathbf{I}}\underline{\mathbf{N}}$ | <b>OUT</b>  | <b>TOTAL</b> |
| 13,072 SF Office Space    | 34        | 5            | 39           | 3  | 14          | 17           |
| 57,650 SF Warehouse Space | <u>25</u> | <u>_7</u>    | <u>32</u>    | _9   | <u>26</u>   | <u>35</u>    |
| Total                     | <b>59</b> | 12           | 71           | 12   | 40          | <b>52</b>    |

With respect to the distribution of site generated traffic, a review was made of higher order roadways in the area such as CR 524 and Interstate 195, as well as a review of existing traffic volumes and population density surrounding the site. As a result, traffic was distributed 50 percent to and from the north and 50 percent to and from the south and is shown on *Figure 3* in the *Appendix* entitled *Site Generated Traffic Volumes*.

#### ANALYSIS OF FUTURE TRAFFIC

A design year of 2025 was assumed for analysis. Existing 2020 traffic volumes were expanded to 2025 after reviewing the NJDOT's *Historical Growth Rate* data for the area and reviewing traffic that will be generated by the *Stone Quest* warehouse building which was not occupied at the time of the existing traffic counts. *Figure 4* in the Appendix illustrates design year 2025 *no-build* traffic volumes. Site generated and distributed traffic volumes were then surcharged onto *no-build* volumes and are shown on *Figure 5* in the *Appendix*.

Traffic engineers calculate levels of service of unsignalized intersections which relate to the quality of traffic flow. Level of service is a measure of average control delay. Average control delay is the time lost due to deceleration and the amount of time from when a vehicle is stopped for a traffic control device (or at the end of the queue) to when the vehicle departs the intersection. Delay is a relative quantity of driver discomfort, frustration, fuel consumption, and loss in travel time.



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Levels of service range from "A" to "F" with "A" being the highest or best attainable level of service. Level of service "E" with average control delays of not more than 50 seconds per vehicle at an unsignalized intersection indicates near to or at capacity conditions and is generally considered the limit of acceptable level of service and delay.

Full definitions of levels of service for unsignalized intersections as well as level of service summaries are included in the *Appendix*. The intersections studied by this report were analyzed according to the procedures set forth in the *Highway Capacity Manual 2010*, using the *McTrans Highway Capacity Software (HCS)*, release 7.5.

Findings were that exiting movements at the site driveway to CR 524A will do so at level of service "B" during both the AM and PM peak street hours. Left turns into the site driveway from eastbound CR 524A will do so at level of service "A" during both time frames. Therefore the site driveway to CR 524A will operate within acceptable traffic engineering parameters for the design year.

#### SITE PLAN AND PARKING

The Site Plan, prepared by WJH shows a single point of access to CR 524A and 3 flex space buildings totaling 70,722 SF of building area. Based on Howell Township ordinance requirements of 1 parking space per 300 SF for office space (44 spaces required) and 1 space per 5,000 SF for warehouse space (12 spaces required), a total of 56 parking spaces are required whereas 111 spaces are provided. Parking is well distributed around the site.

#### **CONCLUSIONS**

It is concluded based on the analysis set forth in this report, that a *Use Variance* and a *Site Plan* to permit 13,072 SF of office space and 57,650 SF of warehouse space on the noted property can be approved without having an adverse or detrimental impact on traffic conditions in the area. The site driveway to CR 524A will operate at an acceptable level of service "B" for exiting movements for both the AM and PM peak hours. Left turns into the site driveway will operate at level of service "A" during both time frames.

The Site Plan itself has been properly designed with respect to adherence to proper traffic engineering principles and the number of parking spaces required (56) is substantially exceeded as 111 are provided.



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A representative from MRA will be in attendance at an upcoming Howell Township Zoning Board of Adjustment meeting to provide expert testimony and to answer any questions board members, board experts or the public may have.

Very truly yours,

John H. Rea, PE

rincipal

Scott T. Kennel

Sr. Associate

cc: Andrew Werbler, Esq.

Walter Hopkin, PE





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**FIGURE** 

JOB NO.

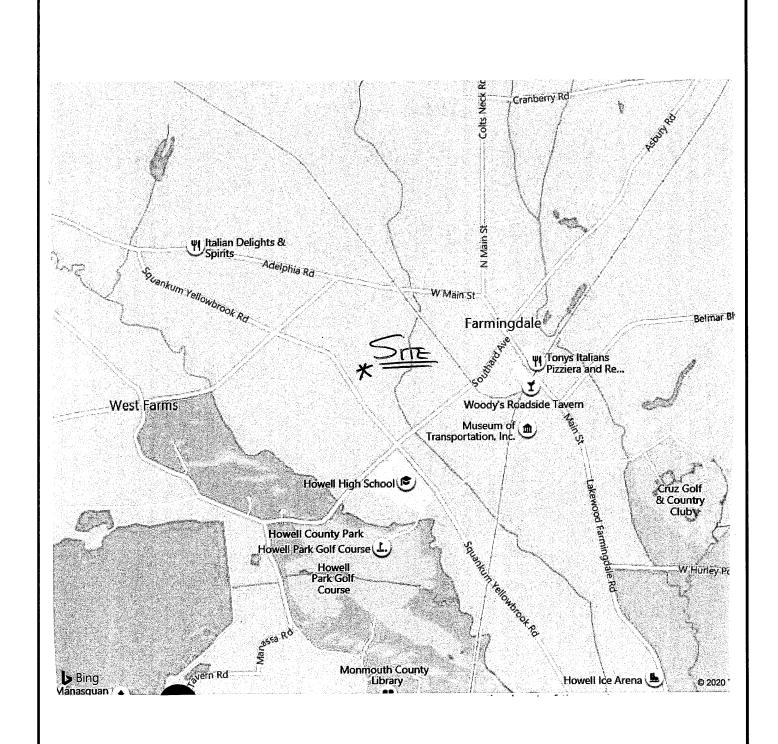
DATE:

20-160

**JUNE 2020** 

SUBJECT:

# SITE LOCATION MAP





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FIGURE

2

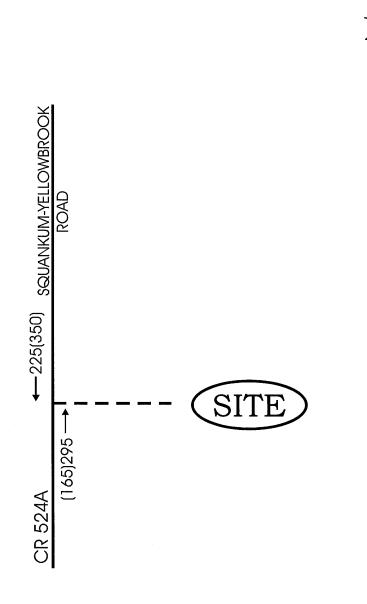
JOB NO. 20-160

DATE:

JUNE 2020

SUBJECT:

# EXISTING AM PSH (PM PSH) TRAFFIC VOLUMES





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FIGURE

JOB NO. 20-160

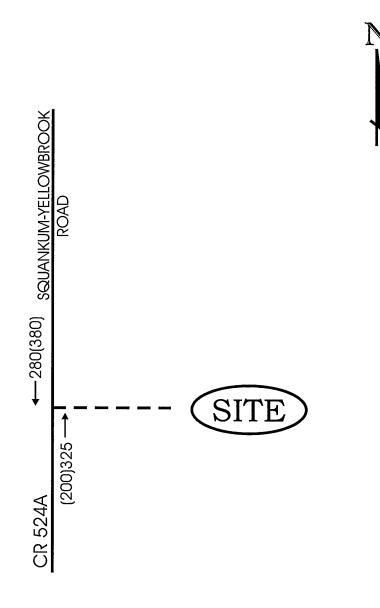
DATE:

4

JUNE 2020

SUBJECT:

# 2025 PRE - DEVELOPMENT TRAFFIC VOLUMES





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FIGURE 3

JOB NO.

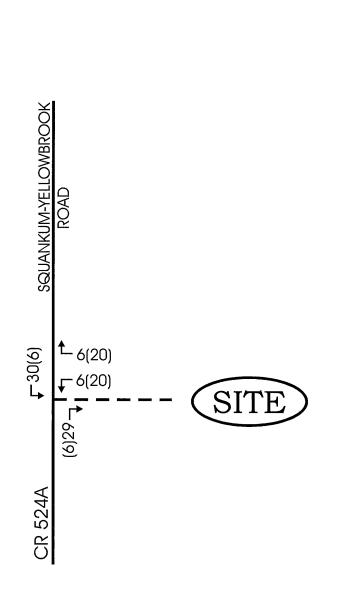
DATE:

20-160

JUNE 2020

SUBJECT:

## SITE GENERATED TRAFFIC VOLUMES





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FIGURE

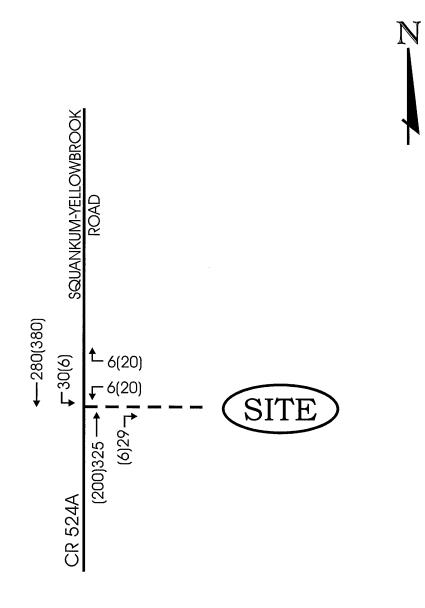
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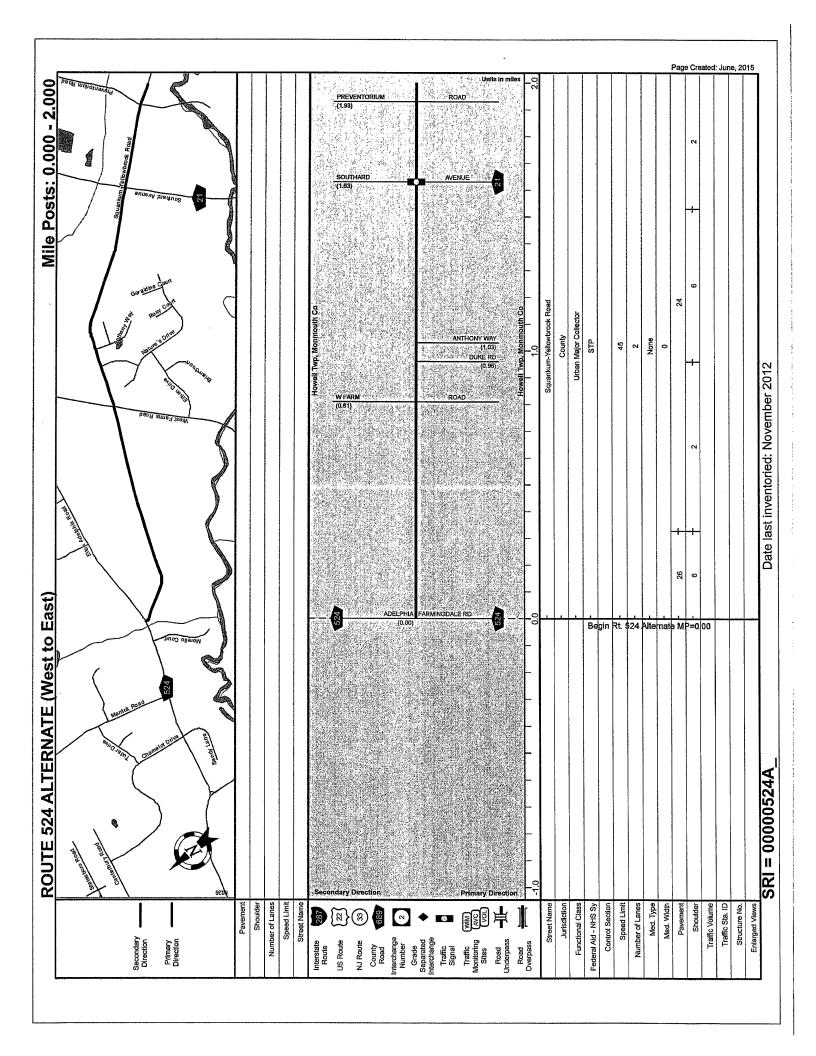
JOB NO. 20-160

DATE: JUNE 2020

SUBJECT:

# 2025 POST - DEVELOPMENT TRAFFIC VOLUMES





McDonough & Rea Associates 1431 Lakewood Road Suite C Manasquan NJ 08736 (732) 528-7076 STONE QUEST
ROUTE 524 & ROUTE 524A
HOWELL TOWNSHIP, MONMOUTH COUNTY
MRA JOB 18-264 TUESDAY AM COUNT

File Name: 18264 rt 524 & squankum am1 Site Code: 00018264

Start Date : 1/8/2019 Page No : 1

|  |                                   | Int. Total | 196        | 234       | 173      | 5 5      | 180      | 789      | 190      | 148      | 170           | 151      | 629   | 1448        |          |         |                                   | lat Total      | - 35        |
|--|-----------------------------------|------------|------------|-----------|----------|----------|----------|----------|----------|----------|---------------|----------|-------|-------------|----------|---------|-----------------------------------|----------------|-------------|
|  |                                   | App. Total | 101        | 127       | 17       | ÷ :      | 53       | 328      | 92       | 47       | 49            | 29       | 254   | 582         |          | 40.2    |                                   | John Total     | 200         |
| -<br>· .                                   | CR 524)<br>ind                    | RTOR       | 15         | 2.6       | 1        | o (      | 7        | 44       | 80       | 2        | ∞             | 10       | 31    | 75          | 12.9     | 5.2     | CR 524)                           | acta           |             |
| 280  | Adelphia Rd (CR 524)<br>Fasthound | Right      | 99         | 25.       | 2 0      | 0 (      | 16       | 165      | 19       | 13       | 19            | 20       | 71    | 236         | 40.5     | 16.3    | Adelphia Rd (CR 524)<br>Fastbound | Diaht<br>table | -           |
|  |                                   | That       | 200        | 3 %       | 2 6      | g i      | 32       | 119      | 49       | 29       | 37            | 37       | 152   | 271         | 46.6     | 18.7    |                                   |                | _           |
| HOOL BUS                                   | 4a                                | Ann Total  | 50         | 9 %       | 8 8      | 8 3      | 84<br>44 | 288      | 74       | 67       | 62            | 09       | 260   | 548         |          | 37.8    | 4a                                | 1              | Δnn - 019 - |
| Groups Printed- CARS - TRUCKS - SCHOOL BUS | Squankum-Yellowbrook Rd (CR 524a  | acta       |            | 0 0       | <b>.</b> | <b>)</b> | 0        | 0        | 0        | 0        | 0             | <b>~</b> | -     | -           | 0.2      | 0.1     | Squankum-Yellowbrook Rd (CR 524a  | DIL            | -<br>כר     |
| ed- CARS - T                               | im-Yellowbrook                    | Dight      | TI C       | o c       | > 5      |          | 0        | <b>-</b> | က        | 0        | 0             | 0        | က     | 4           | 0.7      | 0.3     | um-Yellowbro                      | DINOGINION     | 1           |
| Groups Printe                              | Squankı                           | 40         | 202        | ၃ ဗ       | 3 8      | /s       | 84       | 287      | 89       | 29       | 62            | 20       | 256   | 543         | 99.1     | 37.5    | Squankı                           |                | 4           |
|  | 24)                               | Ann Total  | App. Iolai | <br>? ₹   | 4 0      | 88       | 49       | 173      | 43       | 34       | 4             | 24       | 145   | 318         |          | 22.0    | (54)                              |                | - 1-4-F     |
|  | Adelphia Rd (CR 524)              | westbound  | DIBL       | 4-¢       | က<br>(၁) | 25       | 48       | 167      | 40       | 24       | 43            | 25.0     | 141   | 308         | 96.9     | 21.3    | <br>Adelphia Rd (CR 524)          | Westbound      | ì           |
| AY AM CO                                   | Adelphi                           | -          | Len        | 7 (       | 7 ·      | <b>,</b> | τ-       | 9        | er:      | c        | · <del></del> | . 0      | 4     | 10          | , c.     | 0.7     | Adelph                            | \$             |             |
| JB 18-264 LUESDAT AM COUNT                 |                                   | i          | Start Lime | 07:00 AIM | 07:15 AM | 07:30 AM | 07:45 AM | Total    | 08-00 AM | 08-15 AM | 08:30 AM      | 08:45 AM | Total | Grand Total | Annrch % | Total % |                                   |                |             |

|  | Aneibina              | Adelphila rd (Cr 524) |            | Oduania  | GWOID I TIE | Oqualinalis I cilowal con I ta ( of t oz : a | 5          |           | housethern | 7    |            |            |
|--|-----------------------|-----------------------|------------|----------|-------------|--|------------|-----------|------------|------|------------|------------|
|  | West                  | Westbound             |            |          | Northbound  | ound   |            |           | Lasino     | 215  |            |            |
| Start Time                                     | Left                  | Thru                  | App. Total | Left     | Right       | RTOR   | App. Total | Thru      | Right      | RTOR | App. Total | Int. lotal |
| eak Hour From 07:00 AM to 08:45 AM - Peak 1 of | 8:45 AM - Peak 1 of 1 |                       | -          |          |             |  | _          |           |            |      | -          |            |
| Intersection 07:00 AM                          | 07:00 AM              |                       |            |          |             | 1  |            | 7         | 1          | ***  | 000        | 790        |
| Volume   | 9                     | 167                   | 173        | 287      | ψ-          | 0  | 288        | 119       | 165        | 4 5  | 320        | 807        |
| Percent  | 3.5                   | 96.5                  |            | 266      | 0.3         | 0.0  | ,          | 36.3      | 50.3       | 13.4 |            | 700        |
| 07:15 Volume                                   | 2                     | 93                    | 41         | 99       | 0           | 0  | 99         | 28        | ς)         | 24   | 171        | 0.843      |
| Peak Factor                                    | -                     |                       |            |          |             |  |            | 77.47     |            |      |            | 2          |
| . High Int.                                    | 07:45 AM              |                       |            | 07:30 AM | ,           |  | ç          | U/CID AIM | 76         | 70   | 127        |            |
| Volume   | ****                  | 48                    | 49         | 87       | -           | 5  | 2 0        | 07        | 2          | +    | 0.646      |            |
| Peak Factor                                    |                       |                       | 0.883      |          |             |  | 0.818      |           |            |      | 0.0        |            |

STONE QUEST ROUTE 524 & ROUTE 524A HOWELL TOWNSHIP, MONMOUTH COUNTY MRA JOB 18-264 TUESDAY PM COUNT

| • |                            |                            | í                  |                |  |
|---|----------------------------|----------------------------|--------------------|----------------|--|
|   | McDonough & Rea Associates | 1431 Lakewood Road Suite C | Manasquan NJ 08736 | (732) 528-7076 |  |
| - |                            |                            |                    |                |  |

Groups Printed- CARS - TRUCKS - SCHOOL BUS

File Name: 18264 rt 524 & squankum pm1 Site Code: 00018264 Start Date: 1/8/2019

Page No

| Westpound         Northbound         App. Total         Timulary Late         Eastbound         Final Fight         From the Procession of the Processi   |    | Adel        | Adelphia Rd (CR 524) | 24)        | Squank | um-Yellowbr | Squankum-Yellowbrook Rd (CR 524a | 524a       |      | Adelphia Rd (CR 524) | (CR 524)   |             |            |
|---|----|-------------|----------------------|------------|--------|-------------|----------------------------------|------------|------|----------------------|------------|-------------|------------|
| Thru   App. Total   Left   Right   RTOR   App. Total   Thru   Right   RTOR   App. Total   Int.     42   |    |             | Westbound            | -          |        | Northbo     | punc                             |            |      | Eastbo               | pund       |             |            |
| 42         44         48         1         1         50         45         42         16         103           36         38         33         0         1         34         34         42         16         13         110           38         44         48         47         0         0         47         60         127         143           160         171         3         163         158         218         67         443         103           55         57         45         0         0         45         36         66         15         117         443         117         443         117         443         117         443         117         443         117         443         117         443         117         443         117         443         117         443         117         443         117         444         118         441         773         14         128         441         128         441         447         447         128         441         128         441         447         447         128         488         488         488         488         488   | 13 | #           | Thru                 | App. Total | Left   | Right       | RTOR                             | App. Total | Thru | Right                | RTOR       | App. Total  | Int. Total |
| 36         38         33         0         1         34         37         60         13         110           44         48         47         0         0         1         44         63         20         127           160         171         159         1         3         163         168         218         67         443           160         171         3         163         163         168         174         443           44         42         28         0         0         24         66         16         174           44         42         28         6         66         16         174         128           41         42         28         0         0         24         38         2         78           41         42         246         47         47         47         47           177         186         129         1         0         1         35.1         2.46         47         47           94.4         98.3         0.7         1.0         0         20.3         35.1         7.4         57.8           194   |    | 2           | 42                   | 44         | 48     | -           | -                                | 20         | 45   | 42                   | 16         | 103         | 197        |
| 44         48         47         0         0         47         44         63         20         127           160         171         169         1         32         32         53         18         103           55         57         45         0         0         45         36         66         15         117         443           44         42         28         0         0         28         41         73         14         128           41         42         28         0         0         28         41         73         14         128           37         38         24         38         38         2         78           177         186         129         1         0         28         41         73         14         128           94.4         337         36         69         16         16         16         16         17         447         17           94.4         38         35.1         464         114         890         11           94.4         98.3         0.7         1.0         20.3         35.1         22.3   |    | 2           | 36                   | 38         | 33     | 0           | _                                | 34         | 37   | .09                  | 13         | 110         | 182        |
| 38         41         31         0         1         32         52         53         18         103           160         171         159         1         3         163         158         218         67         443           45         45         0         0         45         36         66         15         117         443           41         42         28         0         0         28         41         73         14         128           37         38         24         0         0         24         38         38         2         78           177         186         129         1         154         246         47         447         74           94.4         98.3         0.7         1.0         154         246         47         447         74         57.8           94.4         98.3         0.7         1.0         20.3         35.1         52.1         12.8         57.8         74         57.8           154         25.2         18.7         Adelphia Rd (CR 524)  |    | 4           | 44                   | 48         | 47     | 0           | 0                                | 47         | 4    | 63                   | 20         | 127         | 222        |
| 160         171         159         1         3         163         158         218         67         443           55         57         45         0         0         45         38         66         15         117           44         49         32         1         0         28         41         73         14         128           37         38         24         0         0         24         38         2         78           177         186         129         1         0         154         246         47         447           177         186         129         1         0         154         246         47         447           94.4         98.3         0.7         1.0         35.1         12.8         90         1           94.4         98.3         0.7         1.0         20.3         35.1         7.4         57.8           18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Westbound         App. 70tal         App. 70tal         App. 70tal         App. 70tal         App. 70tal         App. 70tal   |    | ო           | 38                   | 41         | 31     | 0           | -                                | 32         | 32   | 53                   | 18         | 103         | 176        |
| 55         57         45         0         0         45         36         66         15         117           44         49         32         1         0         33         39         69         16         124           41         42         28         2         0         0         28         41         73         14         128           37         38         24         0         0         24         38         2         78           94.4         129         1         0         130         154         246         47         447           94.4         98.3         0.7         1.0         35.1         52.1         12.8         57.8           94.4         23.5         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Phylia Rd (CR 524)         App. 7otal         Northbound         Northbound         Right         RTOR         App. 7otal         Int.  |    | 1           | 160                  | 171        | 159    | τ-          | က                                | 163        | 158  | 218                  | 29         | 443         | 777        |
| 44         49         32         1         0         33         39         69         16         124           41         42         28         2         41         73         14         128           37         38         24         38         38         2         78           177         186         129         1         0         24         38         2         78           337         357         288         2         3         293         312         464         114         890         1           94,4         98,3         0.7         1.0         35.1         52.1         12.8         1           21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Westbound         App. 10tal         Northbound         Northbound         App. 10tal         App. 10tal         App. 10tal         App. 10tal         Int.   |    | 2           | 22                   | 22         | 45     | 0           | 0                                | 45         | 36   | 99                   | 15         | 117         | 219        |
| 41         42         28         0         0         24         38         38         2         78           37         38         24         0         0         24         38         2         78           177         186         129         1         0         130         154         246         47         447           337         357         288         2         3         293         312         464         114         890         1           94.4         98.3         0.7         1.0         35.1         52.1         12.8         1           21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Westbound         App. 10tal         Northbound         Northbound         App. 10tal         Adelphia Rd (CR 524)         Adelphia Rd (CR 524)         Int.  |    | ιΩ          | 4                    | 49         | 32     | _           | 0                                | 33         | 36   | 69                   | 16         | 124         | 206        |
| 37         38         38         38         2         78           177         186         129         1         0         130         154         246         47         447           337         357         288         2         3         293         312         464         114         890         1           94.4         98.3         0.7         1.0         35.1         52.1         12.8         1           21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Westbound Westbound Holl of Machinary Intra- I   |    | <del></del> | 41                   | 42         | 28     | 0           | 0                                | 28         | 4    | 73                   | 14         | 128         | 198        |
| 177         186         129         1         0         130         154         246         47         447           337         357         288         2         3         293         312         464         114         890         1           94.4         98.3         0.7         1.0         35.1         52.1         12.8         8         1           21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8         7           Ielphia Rd (CR 524)         Squankum-Yellowbrook Rd (CR 524a         Adelphia Rd (CR 524)         Eastbound         Eastbound         App. Total         Int.           Westbound         Left         Right         RTOR         App. Total         Int.         App. Total         Int.  |    | ~           | 37                   | 38         | 24     | 0           | 0                                | 24         | 38   | 38                   | 2          | 78          | 140        |
| 337         357         288         2         3         293         312         464         114         890           94.4         98.3         0.7         1.0         35.1         52.1         12.8         890           21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           Ielphia Rd (CR 524)         Squankum-Yellowbrook Rd (CR 524a         Adelphia Rd (CR 524)           Westbound         Northbound           Thu         App. Total         Right         RTOR         App. Total         Int.  |    | 6           | 177                  | 186        | 129    | -           | 0                                | 130        | 154  | 246                  | 47         | 447         | 763        |
| 94.4     98.3     0.7     1.0     35.1     52.1     12.8       21.9     23.2     18.7     0.1     0.2     19.0     20.3     30.1     7.4     57.8       telphia Rd (CR 524)     Adelphia Rd (CR 524)       Westbound       Westbound     App. Total     App. Total       Thu     App. Total     Thu   Right   RTOR   App. Total   |    | 20          | 337                  | 357        | 288    | 7           | ო                                | 293        | 312  | 464                  | 114        | 890         | 1540       |
| 21.9         23.2         18.7         0.1         0.2         19.0         20.3         30.1         7.4         57.8           lelphia Rd (CR 524)         Squankum-Yellowbrook Rd (CR 524a         Adelphia Rd (CR 524)         Eastbound           Westbound         Northbound         Northbound         Right         Right         App. Total         App   |    | 5.6         | 94.4                 | -          | 98.3   | 0.7         | 0.                               |            | 35.1 | 52.1                 | 12.8       |             |            |
| Squankum-Yellowbrook Rd (CR 524a   Adelphia Rd (CR 524)   Eastbound   Eastbound   App. Total   Thru   App. Total   App. |    | 1.3         | 21.9                 | 23.2       | 18.7   | 0.1         | 0.2                              | 19.0       | 20.3 | 30.1                 | 7.4        | 27.8        |            |
| leiphia Rd (CR 524)Adelphia Rd (CR 524)WestboundNorthboundThuApp. TotalThuRightApp. Total   |    |             |                      |            |        |             |                                  |            | •    |                      |            |             |            |
| Westbound         Northbound         Eastbound           Thru         App. Total         Thru         Right         App. Total  |    | Adel        | phia Rd (CR 5        | (24)       | Squank | um-Yellowbr | ook Rd (CR                       | 524a       |      | Adelphia Rd          | (CR 524)   |             |            |
| Thru App. Total Left Right RTOR App. Total Thru Right RTOK App. 10tal   |    |             | Westbound            |            |        | Northbo     | puno                             |            |      | Eastbo               | onna       | H           | F 1-1      |
|   |    | Left        | Thru                 | App. Total | Left   | Right       | RTOR                             | App. Total | Thru | Right                | ROE<br>ROE | App. I otal | Int. Lotal |

823 222

471

0.927

127 0.927

20

63

04:30 PM 44

0

0

04:30 PM 47

57 0.855

22

04:30 Volume
Peak Factor
High Int. 05:00 PM

Percent Volume

Volume Peak Factor

127

69 14.6 20

251 53.3 63

32.1 44

157 47

0.6

0.6

155 98.7 47

195 48

181 92.8 44

Start Time Left | Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1 | Intersection 04:30 PM

NJ AMERICAN WATER RT 524A SQUANKUM-YELLOWBROOK ROAD HOWELL TOWNSHIP, MONMOUTH COUNTY MRA JOB 18-262 ATR COUNT

McDonough & Rea Associates 1431 Lakewood Road Suite C Manasquan NJ 08736 (732) 528-7076

| Section   Sect   | cation I<br>tion I | SB(A) NB(B) | 13 12    | )<br>7 | 2. 4  | 6 17   | 24 41 |             | 134 318 |       | 108 102  | 2 7   | ,   |         | 328 147 |       |  | 279 199  | - Charlest Control of the Control of | 76    |                | 98 41      |       | 2724 2450  | 174  | 07:00 07:00<br>154 318 |                 | 37          | 6149  |            |
|--|--------------------|-------------|----------|--------|-------|--|-------|-------------|---------|-------|--|-------|---|---------|---------|-------|--|----------|--|-------|----------------|------------|-------|--|------|------------------------|-----------------|-------------|-------|------------|
| Nei(e)   |                    | NB(B)       | 15       | 10     | 2 6   | 10   | 7     | 18          | 50      | 77    | 99   | *     | *   | *       | *       | *     | *  | *        | *  | •     | · *            | 1          | * *   | ADM PAGE   | - 1  | 09:00<br>77            | 1 1             | Ç<br>L      | 553   |            |
| National Color   Nati   |                    | SB(A)       | 7        | 7      | > -   | 2  | 16    | 13          | 36      | 200   | 78   | *     | *   | *       | *       | *     | *  | <b>k</b> | *  | k +   | •              |            | . *   | 279  | 57   | 09:00<br>85            |                 | •           | -     |            |
| New Part    | 1                  | NB(B)       | 21       | 7      | - 2   | 13   | 28    | 45          | 8 6     | 167   |  |       |   |         |         |       | no experience and a second   | 105      | 82   | 20    | 51             | 30         | 36    | -  |      | 09:00<br>167           | 14:00<br>143    |             | 3620  |            |
| New Color   The   New Color   The   New Color   New    | - 1                | SB(A)       | 19       | ۱۵     |       |  |       | PROTESTICAL |         |       |  |       | 165   | 163     | 150     | 157   | 136  | 112      | 79   | 101   | 53             | 00         | 32    | 1857   | 36   | 11:00<br>154           | 12:00<br>165    |             |       |            |
| -Jan-19         The NB(B)         SB(A) NB(B)         NB(B) SB(A) NB(B)         SB(A) NB(B) NB(B) NB(B)         SB(A) NB(B) NB(B) NB(B) NB(B)         SB(A) NB(B) NB(B) NB(B) NB(B)         SB(A) NB(B) NB(B) NB(B) NB(B) NB(B)         SB(A) NB(B) NB(B) NB(B) NB(B) NB(B)         SB(B) NB(B) NB(B) NB(B) NB(B) NB(B) NB(B)         SB(B) NB(B) NB(B) NB(B) NB(B) NB(B) NB(B) NB(B)         SB(B) NB(B)  | - 1                | NB(         |          |        | 9     | 14   | 46    | 727         | 257     | 133   | 112  | 130   |   |         |         | 155   | 172  | 196      | CONTRACTOR CO.   |       |                | 40         | 38    | 1  |      | 07:00<br>426           | 17:00<br>196    | ,<br>2<br>1 | 9617  |            |
| -Jan-19  -Ja |                    | SB(A)       | 14       | 3      |       | STATE OF THE STATE |       |             |         |       |  |       | A TON TON TON THE PARTY OF THE |         |         |       | NEW GRANDERS   |          | H SHIRE SHARE  |       |                |            |       | 293  | 20   | 07:00<br>204           | 14:00<br>390    |             |       |            |
| -Jan-19  -Ja | 重                  | NB(E        |          |        | া ব   | Spiralization and the spiralization of the spiraliz |       |             |         |       |  |       |   |         |         |       | Notice Control of the |          | A Bed Service Code   |       |                |            |       | The control of the co | _    | 07:00<br>422           | 17:00<br>204    | 2.5         | 5611  |            |
| -Jan-19 Tue Wed Net  |                    | SB(A)       | 11       | 3      | ) (   | 4  | 23    |             |         | 911   |  | 118   | 121   |         |         |       |  |          |  | 161   | Total Control  |            |       | 292  |      | 0                      | _               |             |       |            |
| -Jan-19  | Wed                |             | 10       | 2      | 2     | EPSOPORA OF DOS  |       |             |         |       |  |       |   | 100     |         |       |  |          | Mark The State of  |       |                |            |       |  | 9036 | 0                      | -               | 000         | 96036 |            |
| -Jan-19 Tue NB(B) SB(A) N NB(B) SB(A) N NB(B) SB(A) N NB(B) SB(A)  |                    |             | 7L 17    |        |       |  |       |             |         |       |  |       |   |         |         | 10    | Tree Consultance   |          |  |       |                |            |       | 315  |      | 0                      | -               |             |       |            |
| -Jan-19  NB(B)  SB(A  B  T  NB(B)  SB(A  B  T  SB(B  SB(A  SB(B  S | Tue                | N<br>N<br>N |          |        |       |  |       |             |         |       | COLUMN COLUMN TO THE COLUMN TO |       |   |         |         |       |  |          | Service Services   |       |                |            |       |  | 9250 |                        |                 | 1           | 9/66  | AADT 5,347 |
| -Jan-19 N N 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |                    |             | ν ν      |        |       | SHADON SHOW  |       |             |         |       |  |       |   |         |         |       | THE PROPERTY OF  |          |  |       |                |            |       | 285  |      | 0                      |                 |             |       |            |
|  | -Jan-              |             | 0        |        | 1     | Shell Marketon   |       |             |         |       |  |       |   |         |         |       |  |          |  |       |                | \$0.00 ARC |       | 2  | 5623 |                        |                 | 000         | 5623  | ADT 5,34   |
|  | Start              | IIMe        | 12:00 AM | 02:00  | 00:00 | 04:00  | 00:GD | 00.00       | 08:00   | 00:60 | 10:00  | 11:00 | 12:00 PM  | 00:1:00 | 02:00   | 03:00 | 04:00  | 02:00    | 00:90  | 00,00 | 08:00<br>08:00 | O'SO       | 10:00 | Lane   | Day  | AM Peak                | PM Peak<br>Vol. | Comb        | Total | ADT        |

# New Jersey Department of Transportation Daily Volume from 04/11/2016 through 04/14/2016

091332, , Squankum-Yellowbrook Road-3.67, 00000524A\_, Howell T Site Names:

MONMOUTH County:

Rural Major Collector Funct.

Bet New Castle St and Rt 547 Squankum Rd Location:

RG4\_FC7 RG4\_FC7 RG4\_FC7 RG4\_FC7 Seasonal Factor Group: Daily Factor Group:

Axle Factor Group:

Growth Factor Group:

|              | Sun  | Sun 04/10/2016 | 910 | Mon   | Mon 04/11/2016 | 910   | Tue   | Tue 04/12/2016 | 9     | Wed   | Wed 04/13/2016 | 9     | Thu   | Thu 04/14/2016 | 16    | Fri  | Fri 04/15/2016 | 16 | Sat  | Sat 04/16/2016 | 16 |
|--------------|------|----------------|-----|-------|----------------|-------|-------|----------------|-------|-------|----------------|-------|-------|----------------|-------|------|----------------|----|------|----------------|----|
|              | ROAD | W              | E   | ROAD  | W              | E     | ROAD  | W              | E     | ROAD  | W              | E I   | ROAD  | A              | E     | ROAD | W              | Ξ  | ROAD | W              | H  |
| 00:00        |      |                |     |       |                |       | 34    | 13             | 21    | 38    | 13             | 25    | 43    | 17             | 26    |      |                |    |      |                |    |
| 01:00        |      |                |     |       |                |       | 6     | 4              | 5     | 17    | 7              | 10    | 19    | 4              | 15    |      |                |    |      |                |    |
| 02:00        |      |                |     |       |                |       | 5     | 77             | 6     | 7     | 1              | -     | ∞     | S              | 33    |      |                |    |      |                |    |
| 03:00        |      |                |     |       |                |       | 9     | 4              | 7     | 7     | 1              | 1     | S     | 7              | m     |      |                |    |      |                |    |
| 04:00        |      |                |     |       |                |       | 30    | 17             | 13    | 28    | 18             | 10    | 17    | 13             | 4     |      |                |    |      |                |    |
| 02:00        |      |                |     |       |                |       | 20    | 38             | 12    | 54    | 39             | 15    | 42    | 30             | 12    |      |                |    |      |                |    |
| 00:90        |      |                |     |       |                |       | 239   | 185            | 54    | 252   | 199            | 53    | 242   | 186            | 99    |      |                |    |      |                |    |
| 07:00        |      |                |     |       |                |       | 749   | 530            | 219   | 710   | 487            | 223   | 779   | 546            | 233   |      |                |    |      |                |    |
| 08:00        |      |                |     |       |                |       | 512   | 328            | 184   | 539   | 360            | 179   | 504   | 325            | 179   |      |                |    |      |                |    |
| 00:60        |      |                |     |       |                |       | 297   | 179            | 118   | 372   | 227            | 145   | 324   | 175            | 149   |      |                |    |      |                |    |
| 10:00        |      |                |     |       |                |       | 216   | 114            | 102   | 263   | 141            | 122   | 285   | 147            | 138   |      |                |    |      |                |    |
| 11:00        |      |                |     |       |                |       | 227   | 106            | 121   | 283   | 150            | 133   | 282   | 136            | 146   |      |                |    |      |                |    |
| 12:00        |      |                |     |       |                |       | 240   | 134            | 106   | 278   | 141            | 137   |       |                |       |      |                |    |      |                |    |
| 13:00        |      |                |     |       |                |       | 256   | 119            | 137   | 306   | 162            | 144   |       |                |       |      |                |    |      |                |    |
| 14:00        |      |                |     |       |                |       | 522   | 175            | 347   | 265   | 170            | 395   |       |                |       |      |                |    |      |                |    |
| 15:00        |      |                | ·   | 258   | 237            | 321   | 570   | 219            | 351   | 919   | 264            | 352   |       |                |       |      |                |    |      |                |    |
| 16:00        |      |                |     | 592   | 220            | 372   | 290   | 208            | 382   | 189   | 268            | 413   |       |                |       |      |                |    |      |                |    |
| 17:00        |      |                |     | 109   | 212            | 389   | 627   | 218            | 409   | 730   | 236            | 494   |       |                |       |      |                |    |      |                |    |
| 18:00        |      |                |     | 497   | 187            | 310   | 420   | 163            | 257   | 503   | 173            | 330   |       |                |       |      |                |    |      |                |    |
| 19:00        |      |                |     | 307   | 104            | 203   | 299   | 126            | 173   | 329   | 140            | 189   |       |                |       |      |                |    |      |                |    |
| 20:00        |      |                |     | 184   | 20             | 114   | 174   | 80             | 94    | 500   | 91             | 118   |       |                |       |      |                |    |      |                |    |
| 21:00        |      |                |     | 125   | 51             | 74    | 124   | 23             | 71    | 181   | 81             | 100   |       |                |       |      |                |    |      |                |    |
| 22:00        |      |                |     | 53    | 33             | 20    | 70    | 28             | 42    | 20    | 29             | 41    |       |                |       |      |                |    |      |                |    |
| 23:00        |      |                |     | 50    | 19             | 31    | 47    | 20             | 27    | 51    | 22             | 29    |       |                |       |      |                |    |      |                |    |
| Volume       |      |                |     | 2,967 | 1,133          | 1,834 | 6,313 | 3,063          | 3,250 | 7,079 | 3,420          | 3,659 | 2,550 | 1,586          | 964   |      |                |    |      |                |    |
| AM Peak Vol  |      |                |     |       |                |       | 749   | 530            | 239   | 712   | 487            | 236   | 6//   | 546            | 236   |      |                |    |      |                |    |
| AM Peak Fct  |      |                |     |       |                |       | 0.79  | 0.84           | 0.74  | 0.72  | 0.73           | 0.75  | 0.87  | 06.0           | 0.80  |      |                |    |      |                |    |
| AM Peak Hr   |      |                |     |       |                |       | 7:00  | 7:00           | 7:30  | 7:15  | 7:00           | 7:30  | 7:00  | 7:00           | 7:15  |      |                |    |      |                |    |
| PM Peak Vol  |      |                |     |       |                |       | 630   | 224            | 419   | 747   | 277            | 515   |       |                |       |      |                |    |      |                |    |
| PM Peak Fct  |      |                | i   |       |                |       | 0.88  | 0.85           | 0.85  | 0.93  | 0.95           | 0.93  | -     |                |       |      |                |    |      |                |    |
| PM Peak Hr   |      |                |     |       |                |       | 16:45 | 17:15          | 16:45 | 16:45 | 15:45          | 16:45 |       |                |       |      |                |    |      |                |    |
| Seasonal Fct |      |                |     | 1.072 | 1.072          | 1.072 | 1.072 | 1.072          | 1.072 | 1.072 | 1.072          | 1.072 | 1.072 | 1.072          | 1.072 |      |                |    |      |                |    |
| Daily Fct    |      |                |     | 0.957 | 0.957          | 0.957 | 0.995 | 0.995          | 0.995 | 996:0 | 996.0          | 996.0 | 1.038 | 1.038          | 1.038 |      |                |    |      |                |    |
| Axle Fct     |      |                |     | 0.484 | 0.484          | 0.484 | 0.484 | 0.484          | 0.484 | 0.484 | 0.484          | 0.484 | 0.484 | 0.484          | 0.484 |      |                |    |      |                |    |
| Pulse Fct    |      |                |     | 2.000 | 2.000          | 2.000 | 2.000 | 2.000          | 2.000 | 2.000 | 2.000          | 2.000 | 2.000 | 2.000          | 2.000 |      |                |    |      |                |    |
|              |      |                |     |       |                |       |       |                |       |       |                |       |       |                |       |      |                |    |      |                |    |

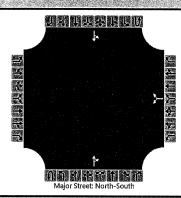
# LEVEL OF SERVICE CRITERIA FOR $\label{eq:two-Way} \textbf{STOP-CONTROLLED INTERSECTIONS}^1$

| <b>Level of Service</b> | Average Control Delay                        |
|-------------------------|--|
| A                       | $\leq 10.0$ Seconds Per Vehicle              |
| В                       | $> 10.0$ and $\leq 15.0$ Seconds Per Vehicle |
| C                       | $> 15.0$ and $\leq 25.0$ Seconds Per Vehicle |
| D                       | $>$ 25.0 and $\leq$ 35.0 Seconds Per Vehicle |
| E                       | $>$ 35.0 and $\leq$ 50.0 Seconds Per Vehicle |
| F                       | > 50.0 Seconds Per Vehicle                   |

<sup>&</sup>lt;sup>1</sup> Transportation Research Board, <u>Highway Capacity Manual 2010</u>, National Research Council, Washington, DC, 2010.

|                          | HCS7 Two-       | Way Stop-Control Report    |                       |
|--------------------------|-----------------|----------------------------|-----------------------|
| General Information      |                 | Site Information           |                       |
| Analyst                  | STK             | Intersection               | CR 524A & SITE ACCESS |
| Agency/Co.               | MRA             | Jurisdiction               |                       |
| Date Performed           | 6/11/2020       | East/West Street           | SITE ACCESS           |
| Analysis Year            | 2025            | North/South Street         | CR 524A               |
| Time Analyzed            | PM              | Peak Hour Factor           | 0.90                  |
| Intersection Orientation | North-South     | Analysis Time Period (hrs) | 0.25                  |
| Project Description      | 20-160PFB BUILD |                            |                       |

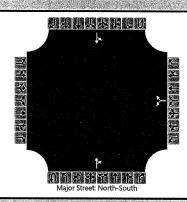
#### Lanes



| Approach                                |            | Eastk                                   | oound                                  |      |                       | West | bound                                   |              |    | North                                   | bound                                    |       |                     | South | bound                                   | Acodemic Property                       |
|---|------------|---|--|------|-----------------------|------|---|--------------|----|---|--|-------|---------------------|-------|---|---|
| Movement                                | Ü          | L                                       | T                                      | R    | U                     | L    | T                                       | R            | U  | L                                       | Ť  | R     | U                   | i L   | 7                                       | R                                       |
| Priority                                |            | 10                                      | 11                                     | 12   |                       | 7    | 8                                       | 9            | 10 | 1                                       | 2  | 3     | 4U                  | 4     | 5                                       | 6                                       |
| Number of Lanes                         |            | 0                                       | 0                                      | 0 .  |                       | . 0  | 1.5                                     | 0            | 0  | 0                                       | 1  | 0     | 0                   | . 0   | 1.                                      | -0                                      |
| Configuration                           |            |   |  |      |                       |      | LR                                      | 45000-000000 |    | - S - 20 ( 30 ( 20 / 2 ) 1 h            | 0.000.000.000.000.000                    | TR    | 1000 mg 19 19       | LT    | 20000000000000000000000000000000000000  | 11.00                                   |
| Volume (veh/h)                          |            |   |  |      |                       | 20   | . E. C. F. C. C.                        | 20           |    |   | 200                                      | 6     | ne na taon<br>Santa | 6     | 380                                     |   |
| Percent Heavy Vehicles (%)              |            |   |  |      |                       | 20   |   | 20           |    | 111111111111111111111111111111111111111 |  |       |                     | 20    |   |   |
| Proportion Time Blocked                 |            |   |  |      |                       |      |   |              |    | \$ 1                                    |  |       |                     |       |   |   |
| Percent Grade (%)                       |            |   | <b></b>                                |      |                       |      | 0                                       |              |    |   |  |       |                     |       |   |   |
| Right Turn Channelized                  |            |   |  |      |                       |      |   |              |    |   |  |       |                     |       |   |   |
| Median Type   Storage                   |            | *************************************** |  | Undi | vided                 |      | *************************************** |              |    |   |  |       | <b>-</b>            |       | 1/4 / / / / / / / / / / / / / / / / / / | *************************************** |
| Critical and Follow-up H                | eadwa      | ys                                      |  |      |                       |      |   | ¥            |    |   |  |       |                     |       |   |   |
| Base Critical Headway (sec)             |            |   |  |      | CONTRACTOR CONTRACTOR | 7.1  |   | 6.2          |    |   | 551031-186113111                         |       |                     | 4.1   |   |   |
| Critical Headway (sec)                  |            |   |  |      |                       | 6.60 |   | 6.40         |    |   |  |       |                     | 4.30  | 300                                     |   |
| Base Follow-Up Headway (sec)            |            |   |  |      |                       | 3.5  |   | 3.3          |    |   |  |       | ,                   | 2.2   |   | 158188 54188                            |
| Follow-Up Headway (sec)                 |            |   |  |      |                       | 3.68 |   | 3.48         |    |   |  | i vii |                     | 2.38  |   |   |
| Delay, Queue Length, an                 | d Leve     | l of S                                  | ervice                                 |      |                       |      |   |              |    |   |  |       | 3.00                |       |   |   |
| Flow Rate, v (veh/h)                    | ********** |   | C115260 WESTERN                        |      |                       |      | 44                                      |              |    |   |  |       |                     | 7     |   |   |
| Capacity, c (veh/h)                     |            |   |  |      |                       |      | 525                                     |              |    |   | n aller                                  |       |                     | 1240  |   |   |
| v/c Ratio                               |            | *************************************** |  |      |                       |      | 0.08                                    |              |    |   |  |       |                     | 0.01  |   |   |
| 95% Queue Length, Q <sub>95</sub> (veh) |            |   |  |      |                       |      | 0.3                                     |              |    |   |  |       |                     | 0.0   |   |   |
| Control Delay (s/veh)                   |            |   |  |      | <u> </u>              |      | 12.5                                    |              |    |   |  |       |                     | 7.9   |   |   |
| Level of Service (LOS)                  |            |   |  |      |                       |      | В                                       |              |    |   |  |       |                     | Α     |   |   |
| Approach Delay (s/veh)                  |            | -                                       | ************************************** |      |                       | 1:   | 2.5                                     |              |    |   |  |       |                     | 0     | .2                                      |   |
| Approach LOS                            |            |   |  |      |                       |      | В                                       |              |    | W. 75 7 7                               | : 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. |       |                     |       | 144 D. 1                                | 100                                     |

|                          | HCS7 Two-\      | Way Stop-Control Report    |                       |
|--------------------------|-----------------|----------------------------|-----------------------|
| General Information      |                 | Site Information           |                       |
| Analyst                  | STK             | Intersection               | CR 524A & SITE ACCESS |
| Agency/Co.               | MRA             | Jurisdiction               |                       |
| Date Performed           | 6/11/2020       | East/West Street           | SITE ACCESS           |
| Analysis Year            | 2025            | North/South Street         | CR 524A               |
| Time Analyzed            | AM              | Peak Hour Factor           | 0.90                  |
| Intersection Orientation | North-South     | Analysis Time Period (hrs) | 0.25                  |
| Project Description      | 20-160AFB BUILD |                            |                       |

#### Lanes



| Vehicle Volumes and Adj                 | ustme  | nts            | -11 A                     |                         |                                |                                |                             |                                  |  |  |                         |  |                    |                    |                        |                    |
|---|--|----------------|---------------------------|-------------------------|--------------------------------|--------------------------------|-----------------------------|----------------------------------|--|--|-------------------------|--|--------------------|--------------------|------------------------|--------------------|
| Approach                                | PH DO NOT THE PARTY OF THE PART | Eastk          | oound                     | Shirten and             | 72274074LESE partierona        | West                           | bound                       | Military with the a will process | Contraction  | North  | bound                   |  | Mari Milatana atau | South              | bound                  | SS BRODINGS Brown  |
| Movement                                | · U  | L              | † T' •                    | R                       | Ü                              | L                              | T.                          | R                                | Ü  | ×Ĺ   | T                       | , R                                    | .U                 | L                  | Ť                      | R                  |
| Priority                                |  | 10             | 11                        | 12                      |                                | 7                              | 8                           | 9                                | 1U   | 1  | 2                       | 3                                      | 4U                 | 4                  | 5                      | 6                  |
| Number of Lanes                         |  | 0              | 0                         | . 0                     |                                | 0                              | 1                           | 0                                | 0  | 0  | 1                       | - 0                                    | 0 '                | 0.                 | - 1                    | 0.0                |
| Configuration                           |  |                |                           |                         |                                |                                | LR                          |                                  |  |  |                         | TR                                     |                    | LT                 |                        |                    |
| Volume (veh/h)                          |  | ersk -         | 2000<br>1000              |                         |                                | 6                              | 21.15.5                     | 6                                |  |  | 325                     | 29                                     | 1                  | 30                 | 280                    |                    |
| Percent Heavy Vehicles (%)              |  |                |                           |                         |                                | 20                             |                             | 20                               |  |  |                         |  |                    | 20                 |                        |                    |
| Proportion Time Blocked                 | T.   | 4.3            |                           | i i i s                 | and the second                 |                                | 6 (1) (1)<br>10 (2) (4) (1) |                                  |  |  |                         |  |                    |                    |                        |                    |
| Percent Grade (%)                       |  | C              |                           | Military and the second | - <del>Million Samuellan</del> | 1                              | 0                           | <u> </u>                         |  |  |                         | 1                                      |                    |                    |                        | 20                 |
| Right Turn Channelized                  |  |                |                           |                         | 15.                            | 4. i.e.                        |                             |                                  |  |  |                         | a resamble<br>States<br>Artes Mississe |                    |                    |                        |                    |
| Median Type   Storage                   |  | <del></del>    | <u> </u>                  | Undi                    | ivided                         | ,                              | ,                           |                                  |  |  |                         |  | Late Contract      |                    |                        | 2550 25020         |
| Critical and Follow-up H                | eadwa  | ys             |                           |                         | TO COMPANY                     |                                |                             |                                  |  |  |                         |  |                    |                    |                        |                    |
| Base Critical Headway (sec)             | T  |                |                           |                         |                                | 7.1                            |                             | 6.2                              |  | 2000 to 1000 to  | O little parent ray the |  | POST GRAND         | 4.1                | SECTION OF MENTING AND | COC MALDINA        |
| Critical Headway (sec)                  | 100  |                |                           |                         |                                | 6.60                           |                             | 6.40                             |  |  |                         |  |                    | 4.30               |                        |                    |
| Base Follow-Up Headway (sec)            |  |                |                           |                         |                                | 3.5                            |                             | 3.3                              |  | Addition of the control of the contr |                         |  |                    | 2.2                |                        |                    |
| Follow-Up Headway (sec)                 |  |                |                           |                         |                                | 3.68                           |                             | 3.48                             |  |  |                         |  |                    | 2.38               |                        |                    |
| Delay, Queue Length, an                 | d Leve   | l of So        | ervice                    | 1                       |                                |                                |                             |                                  | e de la composición dela composición de la composición de la composición dela composición dela composición dela composición de la composición dela comp |  |                         |  |                    | tipe in the second |                        |                    |
| Flow Rate, v (veh/h)                    | ESIGN VISITORY TO VISITE VINEY   | SHARLOW STREET | 100 Section of the second | ACRES TOR GIVE AND      | MATAREA GRANTA ATTEN           | 0.000 December 2017 Strange 20 | 13                          | SOLVE ON COUNTY OF A SAME        |  | STATE OF STA |                         | 303466 / <u>30</u> 05 (800 Cm)         |                    | 33                 | DOWNSTABING CO.        | A Section Property |
| Capacity, c (veh/h)                     |  |                |                           |                         |                                |                                | 443                         |                                  |  |  |                         |  |                    | 1074               |                        |                    |
| v/c Ratio                               |  |                |                           |                         |                                |                                | 0.03                        |                                  |  |  |                         | 1 300 0.5 mg                           |                    | 0.03               |                        | Section 1816 ages  |
| 95% Queue Length, Q <sub>95</sub> (veh) |  |                |                           |                         |                                |                                | 0.1                         |                                  |  |  |                         |  |                    | 0,1                |                        |                    |
| Control Delay (s/veh)                   |  |                |                           |                         |                                |                                | 13.4                        |                                  |  |  |                         |  |                    | 8.5                |                        |                    |
| Level of Service (LOS)                  |  |                |                           |                         |                                |                                | В                           |                                  |  |  |                         |  |                    | Α                  |                        |                    |
| Approach Delay (s/veh)                  |  | I              |                           | I.                      |                                | 13                             | 3.4                         |                                  |  |  |                         | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1  |                    | 1                  | 1.1                    | The section of     |
| Approach LOS                            |  |                |                           |                         |                                |                                | В                           |                                  |  |  |                         |  |                    |                    |                        |                    |