



## MEMORANDUM

February 8, 2022

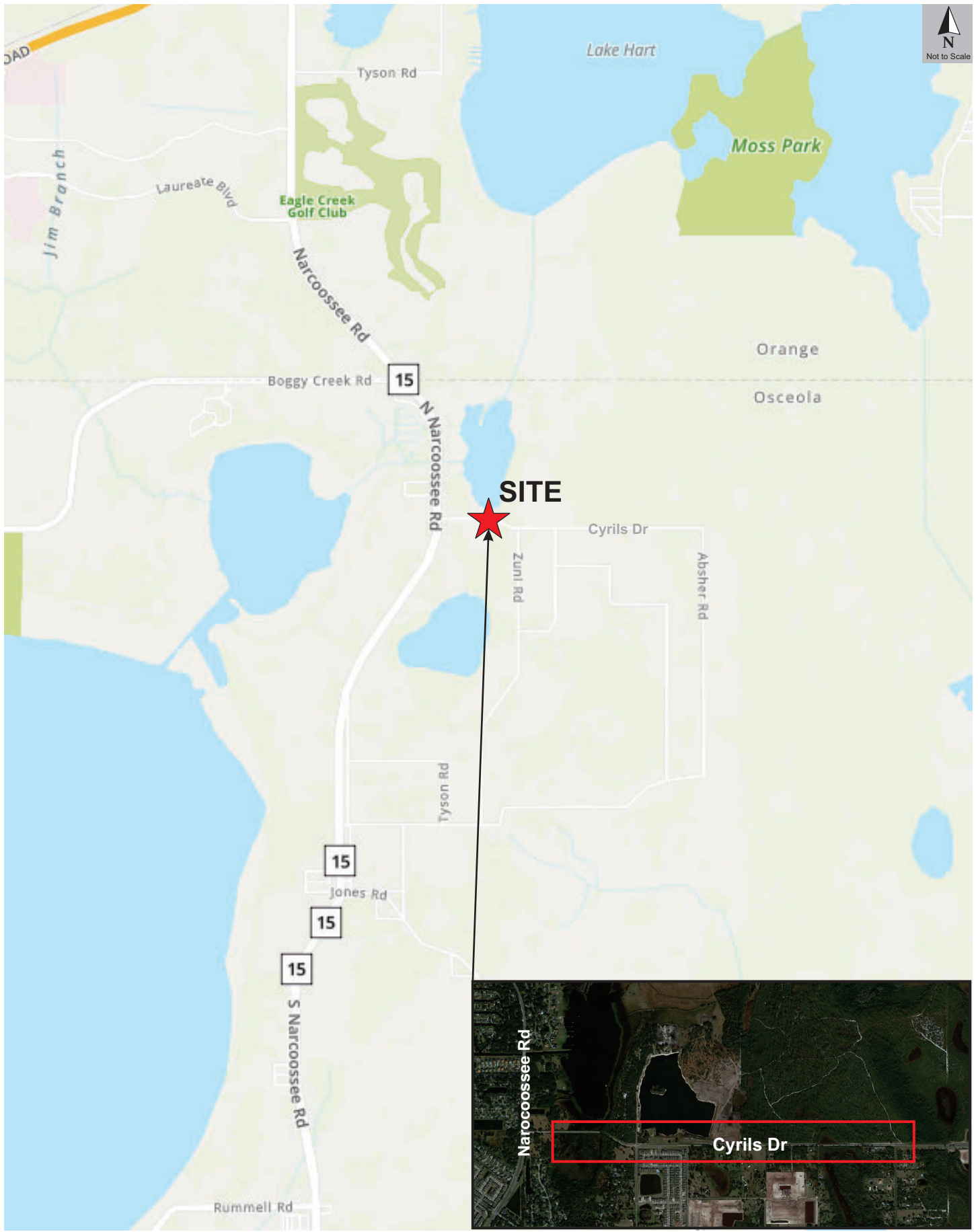
**Re: Cyrils Drive – Narcoossee Road to Absher Road - Road Widening**  
Lane Closure Analysis  
Osceola County, Florida  
Project № 21190.1

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This memorandum contains a Lane Closure Analysis to determine if a temporary lane closure would affect the roadway during the peak hours for the roadway widening of Cyrils Drive, in Osceola County, which will be widening the existing 2-lane, undivided roadway to a 4-lane, divided roadway from Narcoossee Road to Absher Road, illustrated in **Figure 1**.

The 24-hour traffic count data was obtained by Traffic & Mobility Consultants for Cyrils Drive on December 7, 2021. Additionally, the Peak Season Conversion Factor (PSCF) was obtained from the *FDOT Traffic Online* for Osceola County. The recommended PSCF value of 1.04 was used in the analysis.

**Figure 2** represents the hourly variation of daily traffic. In the graph, the red line represents the signalized percentage, and the blue line represents the open road percentage.



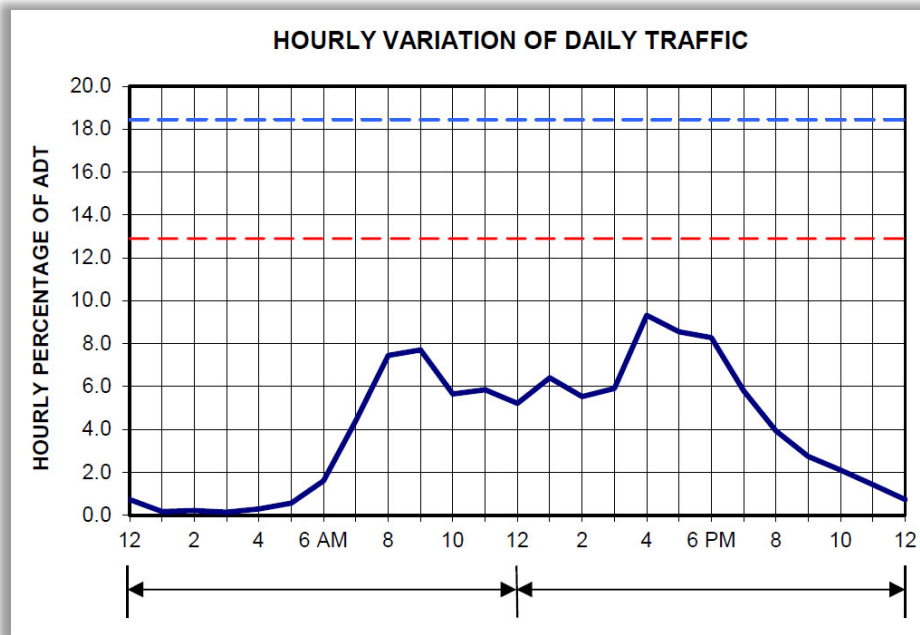



Figure 2 – Lane Closure Graph

The recommendations below are based on results from the Lane Closure Analysis performed in accordance with FDOT procedures outlined in the *Florida Design Manual* (FDM).

- The counts revealed that there is enough capacity to close a single lane on Cyrils Drive without impacting the peak hours.
- There is no identified restricted time for the lane closures. However, FDOT guidelines pertaining to holidays and special events should be considered.
- No offsite detours are anticipated.

The traffic counts and the lane closure analysis are included in the **Attachments**.

  
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Jeremy M. Crowe, PE  
Florida PE No 77064

## **ATTACHMENTS**

ADT Traffic Services

ID: 21-190  
 Location: Cyrils Dr, approximately located halfway between Narcoossee Rd and Zuni Rd

Start Date: 12/7/2021  
 Start Time: 0:00  
 Export Version: Volume V1.03  
 Interval: 15 Min  
 Title: Vehicle Volume

| Date/Time                | Eastbound | Westbound | Total | SUM |
|--------------------------|-----------|-----------|-------|-----|
| 12/07/2021 00:00 - 00:14 | 7         | 2         | 9     | 13  |
| 12/07/2021 00:15 - 00:29 | 2         | 1         | 3     |     |
| 12/07/2021 00:30 - 00:44 | 1         | 0         | 1     |     |
| 12/07/2021 00:45 - 00:59 | 0         | 0         | 0     |     |
| 12/07/2021 01:00 - 01:14 | 4         | 1         | 5     | 15  |
| 12/07/2021 01:15 - 01:29 | 3         | 1         | 4     |     |
| 12/07/2021 01:30 - 01:44 | 3         | 1         | 4     |     |
| 12/07/2021 01:45 - 01:59 | 1         | 1         | 2     |     |
| 12/07/2021 02:00 - 02:14 | 2         | 1         | 3     | 9   |
| 12/07/2021 02:15 - 02:29 | 1         | 1         | 2     |     |
| 12/07/2021 02:30 - 02:44 | 0         | 1         | 1     |     |
| 12/07/2021 02:45 - 02:59 | 2         | 1         | 3     |     |
| 12/07/2021 03:00 - 03:14 | 1         | 3         | 4     | 20  |
| 12/07/2021 03:15 - 03:29 | 0         | 0         | 0     |     |
| 12/07/2021 03:30 - 03:44 | 4         | 4         | 8     |     |
| 12/07/2021 03:45 - 03:59 | 1         | 7         | 8     |     |
| 12/07/2021 04:00 - 04:14 | 0         | 6         | 6     | 38  |
| 12/07/2021 04:15 - 04:29 | 0         | 8         | 8     |     |
| 12/07/2021 04:30 - 04:44 | 2         | 7         | 9     |     |
| 12/07/2021 04:45 - 04:59 | 7         | 8         | 15    |     |
| 12/07/2021 05:00 - 05:14 | 5         | 13        | 18    | 109 |
| 12/07/2021 05:15 - 05:29 | 3         | 18        | 21    |     |
| 12/07/2021 05:30 - 05:44 | 9         | 21        | 30    |     |
| 12/07/2021 05:45 - 05:59 | 13        | 27        | 40    |     |
| 12/07/2021 06:00 - 06:14 | 18        | 35        | 53    | 299 |
| 12/07/2021 06:15 - 06:29 | 37        | 26        | 63    |     |
| 12/07/2021 06:30 - 06:44 | 39        | 55        | 94    |     |
| 12/07/2021 06:45 - 06:59 | 42        | 47        | 89    |     |
| 12/07/2021 07:00 - 07:14 | 36        | 60        | 96    | 504 |
| 12/07/2021 07:15 - 07:29 | 56        | 55        | 111   |     |
| 12/07/2021 07:30 - 07:44 | 53        | 82        | 135   |     |
| 12/07/2021 07:45 - 07:59 | 51        | 111       | 162   |     |
| 12/07/2021 08:00 - 08:14 | 79        | 93        | 172   | 521 |
| 12/07/2021 08:15 - 08:29 | 60        | 78        | 138   |     |
| 12/07/2021 08:30 - 08:44 | 36        | 56        | 92    |     |
| 12/07/2021 08:45 - 08:59 | 62        | 57        | 119   |     |
| 12/07/2021 09:00 - 09:14 | 43        | 53        | 96    | 382 |
| 12/07/2021 09:15 - 09:29 | 40        | 58        | 98    |     |
| 12/07/2021 09:30 - 09:44 | 54        | 45        | 99    |     |
| 12/07/2021 09:45 - 09:59 | 48        | 41        | 89    |     |

|                          |     |    |     |     |
|--------------------------|-----|----|-----|-----|
| 12/07/2021 10:00 - 10:14 | 46  | 43 | 89  | 396 |
| 12/07/2021 10:15 - 10:29 | 48  | 57 | 105 |     |
| 12/07/2021 10:30 - 10:44 | 45  | 51 | 96  |     |
| 12/07/2021 10:45 - 10:59 | 45  | 61 | 106 |     |
| 12/07/2021 11:00 - 11:14 | 40  | 34 | 74  | 353 |
| 12/07/2021 11:15 - 11:29 | 43  | 44 | 87  |     |
| 12/07/2021 11:30 - 11:44 | 47  | 48 | 95  |     |
| 12/07/2021 11:45 - 11:59 | 53  | 44 | 97  |     |
| 12/07/2021 12:00 - 12:14 | 43  | 72 | 115 | 434 |
| 12/07/2021 12:15 - 12:29 | 74  | 65 | 139 |     |
| 12/07/2021 12:30 - 12:44 | 51  | 53 | 104 |     |
| 12/07/2021 12:45 - 12:59 | 32  | 44 | 76  |     |
| 12/07/2021 13:00 - 13:14 | 51  | 41 | 92  | 374 |
| 12/07/2021 13:15 - 13:29 | 50  | 50 | 100 |     |
| 12/07/2021 13:30 - 13:44 | 45  | 46 | 91  |     |
| 12/07/2021 13:45 - 13:59 | 38  | 53 | 91  |     |
| 12/07/2021 14:00 - 14:14 | 62  | 43 | 105 | 400 |
| 12/07/2021 14:15 - 14:29 | 50  | 41 | 91  |     |
| 12/07/2021 14:30 - 14:44 | 43  | 48 | 91  |     |
| 12/07/2021 14:45 - 14:59 | 71  | 42 | 113 |     |
| 12/07/2021 15:00 - 15:14 | 70  | 53 | 123 | 631 |
| 12/07/2021 15:15 - 15:29 | 97  | 42 | 139 |     |
| 12/07/2021 15:30 - 15:44 | 131 | 49 | 180 |     |
| 12/07/2021 15:45 - 15:59 | 128 | 61 | 189 |     |
| 12/07/2021 16:00 - 16:14 | 91  | 56 | 147 | 579 |
| 12/07/2021 16:15 - 16:29 | 66  | 51 | 117 |     |
| 12/07/2021 16:30 - 16:44 | 91  | 46 | 137 |     |
| 12/07/2021 16:45 - 16:59 | 134 | 44 | 178 |     |
| 12/07/2021 17:00 - 17:14 | 128 | 55 | 183 | 560 |
| 12/07/2021 17:15 - 17:29 | 61  | 54 | 115 |     |
| 12/07/2021 17:30 - 17:44 | 68  | 66 | 134 |     |
| 12/07/2021 17:45 - 17:59 | 58  | 70 | 128 |     |
| 12/07/2021 18:00 - 18:14 | 53  | 73 | 126 | 393 |
| 12/07/2021 18:15 - 18:29 | 48  | 44 | 92  |     |
| 12/07/2021 18:30 - 18:44 | 67  | 26 | 93  |     |
| 12/07/2021 18:45 - 18:59 | 58  | 24 | 82  |     |
| 12/07/2021 19:00 - 19:14 | 50  | 21 | 71  | 266 |
| 12/07/2021 19:15 - 19:29 | 44  | 22 | 66  |     |
| 12/07/2021 19:30 - 19:44 | 45  | 14 | 59  |     |
| 12/07/2021 19:45 - 19:59 | 54  | 16 | 70  |     |
| 12/07/2021 20:00 - 20:14 | 38  | 17 | 55  | 185 |
| 12/07/2021 20:15 - 20:29 | 33  | 9  | 42  |     |
| 12/07/2021 20:30 - 20:44 | 36  | 10 | 46  |     |
| 12/07/2021 20:45 - 20:59 | 25  | 17 | 42  |     |
| 12/07/2021 21:00 - 21:14 | 23  | 11 | 34  | 142 |
| 12/07/2021 21:15 - 21:29 | 38  | 6  | 44  |     |
| 12/07/2021 21:30 - 21:44 | 25  | 12 | 37  |     |
| 12/07/2021 21:45 - 21:59 | 21  | 6  | 27  |     |
| 12/07/2021 22:00 - 22:14 | 19  | 8  | 27  | 96  |
| 12/07/2021 22:15 - 22:29 | 28  | 5  | 33  |     |
| 12/07/2021 22:30 - 22:44 | 8   | 5  | 13  |     |
| 12/07/2021 22:45 - 22:59 | 16  | 7  | 23  |     |
| 12/07/2021 23:00 - 23:14 | 11  | 2  | 13  | 49  |

|                          |    |   |    |
|--------------------------|----|---|----|
| 12/07/2021 23:15 - 23:29 | 7  | 0 | 7  |
| 12/07/2021 23:30 - 23:44 | 10 | 8 | 18 |
| 12/07/2021 23:45 - 23:59 | 7  | 4 | 11 |

# LANE CLOSURE WORKSHEET

DATE: January 13, 2022

FINANCIAL PROJECT ID: 000000-0-00-00

FEDERAL AID PROJECT NO: NA

COUNTY: Osceola

DESIGNER: TMC

NO. OF EXISTING LANES: 2

LOCATION: Cyrils Drive

SCOPE OF WORK: Road Widening

Calculate the peak hour traffic volume (V):

$$V = \text{ATC } \underline{6767} \times \text{P/D } \underline{0.093} \times \text{D } \underline{1.00} \times \text{PSCF } \underline{1.04} \times \text{RTF } \underline{1.00} = \underline{656}$$

### LANE CLOSURE CAPACITY TABLE

Capacity (C) of an Existing 2-Lane – Converted to 2-Way, 1-Lane = 1400 VPH  
 Capacity (C) of an Existing 4-Lane – Converted to 1-Way, 1-Lane = 1800 VPH  
 Capacity (C) of an Existing 6-Lane – Converted to 1-Way, 2-Lane = 3600 VPH  
 Capacity (C) of an Existing 8-Lane – Converted to 1-Way, 3-Lane = 5400 VPH  
 User Defined Capacity (C) of Existing 2-Lane - Converted to 2-Way, 1-Lane =  
 User Defined Capacity (C) of an Existing Multi-Lane - Converted to 1-Way, 0-Lane =

Factors restricting Capacity:

TLW 11                      LC 8                      WZL 500                      G/C 0.7

Calculate the Restricted Capacity (RC) at the Lane Closure Site by multiplying the appropriate 2L, 4L, or 6L Capacity (C) from the Table above by the Obstruction Factor (OF) and the Work Zone Factor (WZF). If the Lane Closure is through or within 600 ft. of a signalized intersection, multiply the RC by the G/C Ratio.

$$\text{RC (Open Road)} = C \underline{1400} \times \text{OF } \underline{0.96} \times \text{WZF } \underline{0.97} = \underline{1297}$$

$$\text{RC (Signalized)} = \text{RC (Open Road)} \underline{1297} \times \text{G/C } \underline{0.7} = \underline{908}$$

If  $V \leq RC$ , there is no restriction on Lane Closure

If  $V > RC$ , calculate the hourly percentage of ADT at which Lane Closure will be permitted

$$\text{Open Road \%} = \frac{\text{RC (Open Road)} \underline{1297}}{(\text{ATC } \underline{6767} \times \text{D } \underline{1} \times \text{PSCF } \underline{1.04} \times \text{RTF } \underline{1})} = \underline{18.43 \%}$$

$$\text{Signalized \%} = \text{Open Road \% } \underline{18.43} \times \text{G/C } \underline{0.70} = \underline{12.90 \%}$$

Plot 24 hour traffic to determine when Lane Closure permitted.

NOTE: For Existing 2-Lane Roadways, D = 1.00.

Work Zone Factor (WZF) applies only to 2-Lane Roadways.

For RTF < 1.00, briefly describe alternate route:

NA



# LANE CLOSURES

## 24 HOUR COUNTS

|         | AM               |              | PM               |            |
|---------|------------------|--------------|------------------|------------|
|         | Hourly<br>Volume | ATC %        | Hourly<br>Volume | ATC %      |
| 12 - 1  | 12               | 0.2          | 434              | 6.4        |
| 1 - 2   | 15               | 0.2          | 374              | 5.5        |
| 2 - 3   | 9                | 0.1          | 400              | 5.9        |
| 3 - 4   | 20               | 0.3          | 631              | 9.3        |
| 4 - 5   | 38               | 0.6          | 579              | 8.6        |
| 5 - 6   | 109              | 1.6          | 560              | 8.3        |
| 6 - 7   | 299              | 4.4          | 393              | 5.8        |
| 7 - 8   | 504              | 7.4          | 266              | 3.9        |
| 8 - 9   | 521              | 7.7          | 185              | 2.7        |
| 9 - 10  | 382              | 5.6          | 142              | 2.1        |
| 10 - 11 | 396              | 5.9          | 96               | 1.4        |
| 11 - 12 | 353              | 5.2          | 49               | 0.7        |
|         |                  | <b>TOTAL</b> | <b>6,767</b>     | <b>100</b> |

COUNT DATE:

**December 7, 2021**

Designer:

**TMC**

Financial Project ID No.:

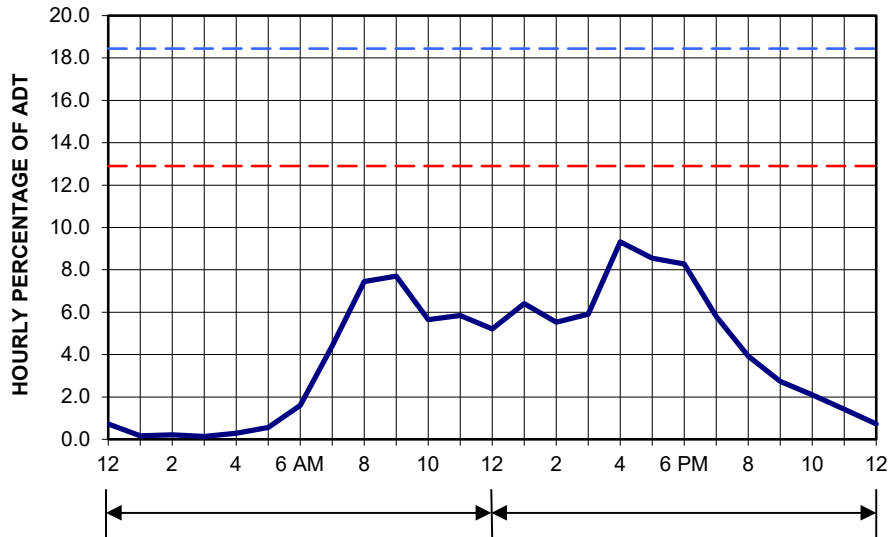
**000000-0-00-00**

Location:

**Cyrils Drive**

P/D = 0.093

**HOURLY VARIATION OF DAILY TRAFFIC**



**- CONCLUSION -**

ROUND TO THE NEAREST  
1/2 HOUR  
CONSERVATIVELY

OPEN ROAD LANE CLOSURE  
**12:00 AM to 11:59 PM**

SIGNALIZED LANE CLOSURE  
**n/a to n/a**

2020 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL  
 CATEGORY: 9200 OSCEOLA COUNTYWIDE

| WEEK | DATES                   | SF   | MOCF: 0.91<br>PSCF |
|------|-------------------------|------|--------------------|
| * 1  | 01/01/2020 - 01/04/2020 | 0.95 | 1.04               |
| * 2  | 01/05/2020 - 01/11/2020 | 0.90 | 0.99               |
| * 3  | 01/12/2020 - 01/18/2020 | 0.85 | 0.93               |
| * 4  | 01/19/2020 - 01/25/2020 | 0.85 | 0.93               |
| * 5  | 01/26/2020 - 02/01/2020 | 0.84 | 0.92               |
| * 6  | 02/02/2020 - 02/08/2020 | 0.83 | 0.91               |
| * 7  | 02/09/2020 - 02/15/2020 | 0.83 | 0.91               |
| * 8  | 02/16/2020 - 02/22/2020 | 0.86 | 0.95               |
| * 9  | 02/23/2020 - 02/29/2020 | 0.90 | 0.99               |
| *10  | 03/01/2020 - 03/07/2020 | 0.94 | 1.03               |
| *11  | 03/08/2020 - 03/14/2020 | 0.97 | 1.07               |
| *12  | 03/15/2020 - 03/21/2020 | 1.01 | 1.11               |
| *13  | 03/22/2020 - 03/28/2020 | 1.14 | 1.25               |
| 14   | 03/29/2020 - 04/04/2020 | 1.27 | 1.40               |
| 15   | 04/05/2020 - 04/11/2020 | 1.40 | 1.54               |
| 16   | 04/12/2020 - 04/18/2020 | 1.53 | 1.68               |
| 17   | 04/19/2020 - 04/25/2020 | 1.43 | 1.57               |
| 18   | 04/26/2020 - 05/02/2020 | 1.34 | 1.47               |
| 19   | 05/03/2020 - 05/09/2020 | 1.24 | 1.36               |
| 20   | 05/10/2020 - 05/16/2020 | 1.15 | 1.26               |
| 21   | 05/17/2020 - 05/23/2020 | 1.13 | 1.24               |
| 22   | 05/24/2020 - 05/30/2020 | 1.10 | 1.21               |
| 23   | 05/31/2020 - 06/06/2020 | 1.08 | 1.19               |
| 24   | 06/07/2020 - 06/13/2020 | 1.06 | 1.16               |
| 25   | 06/14/2020 - 06/20/2020 | 1.03 | 1.13               |
| 26   | 06/21/2020 - 06/27/2020 | 1.04 | 1.14               |
| 27   | 06/28/2020 - 07/04/2020 | 1.04 | 1.14               |
| 28   | 07/05/2020 - 07/11/2020 | 1.04 | 1.14               |
| 29   | 07/12/2020 - 07/18/2020 | 1.04 | 1.14               |
| 30   | 07/19/2020 - 07/25/2020 | 1.03 | 1.13               |
| 31   | 07/26/2020 - 08/01/2020 | 1.02 | 1.12               |
| 32   | 08/02/2020 - 08/08/2020 | 1.01 | 1.11               |
| 33   | 08/09/2020 - 08/15/2020 | 1.00 | 1.10               |
| 34   | 08/16/2020 - 08/22/2020 | 1.00 | 1.10               |
| 35   | 08/23/2020 - 08/29/2020 | 1.00 | 1.10               |
| 36   | 08/30/2020 - 09/05/2020 | 1.00 | 1.10               |
| 37   | 09/06/2020 - 09/12/2020 | 0.99 | 1.09               |
| 38   | 09/13/2020 - 09/19/2020 | 0.99 | 1.09               |
| 39   | 09/20/2020 - 09/26/2020 | 0.98 | 1.08               |
| 40   | 09/27/2020 - 10/03/2020 | 0.98 | 1.08               |
| 41   | 10/04/2020 - 10/10/2020 | 0.97 | 1.07               |
| 42   | 10/11/2020 - 10/17/2020 | 0.96 | 1.05               |
| 43   | 10/18/2020 - 10/24/2020 | 0.96 | 1.05               |
| 44   | 10/25/2020 - 10/31/2020 | 0.96 | 1.05               |
| 45   | 11/01/2020 - 11/07/2020 | 0.96 | 1.05               |
| 46   | 11/08/2020 - 11/14/2020 | 0.96 | 1.05               |
| 47   | 11/15/2020 - 11/21/2020 | 0.96 | 1.05               |
| 48   | 11/22/2020 - 11/28/2020 | 0.96 | 1.05               |
| 49   | 11/29/2020 - 12/05/2020 | 0.95 | 1.04               |
| 50   | 12/06/2020 - 12/12/2020 | 0.95 | 1.04               |
| 51   | 12/13/2020 - 12/19/2020 | 0.95 | 1.04               |
| 52   | 12/20/2020 - 12/26/2020 | 0.90 | 0.99               |
| 53   | 12/27/2020 - 12/31/2020 | 0.85 | 0.93               |

\* PEAK SEASON

27-FEB-2021 10:30:06

830UPD

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