

TRAFFIC IMPACT STATEMENT

FOR A

PROPOSED AUTOMATED CAR WASH

Downtowner Express Car Wash

PREPARED FOR:

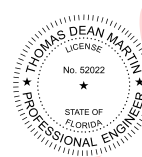
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1. PURPOSE

OBJECTIVE

This report has been prepared in accordance with Lee County Department of Community Development criteria as outlined in the Lee County Traffic Impact Statement Guidelines and the Lee County Turn Lane Policy for projects seeking Development Order approval. This report analyzes the anticipated traffic conditions of the proposed development in order to determine any adverse roadway impacts associated with the addition of **Downtowner Express Car Wash**.

The subject parcel per the latest survey by Harris-Jorgensen is 1.478 acres.

This Traffic Impact Statement is based on the assumption that the proposed facility will be completed in 2025.

2. SITE DESCRIPTION

SITE LOCATION

Downtowner Express Car Wash is a 1.478-acre project located on the east side of Three Oaks Parkway in Section 15, Township 46 South, Range 25 East, Lee County, Florida (see Exhibit 1). The applicant proposes to construct an automated car wash with one (1) tunnel and 5,820 square feet of total gross floor area (a 5,137 square foot car wash building and a 683 square foot dog wash building) on the site.

Access to the proposed development will be provided by one (1) proposed full-access driveway connection to Oaks Center Drive. As Oaks Center Drive is private, the project traffic must be distributed to Three Oaks Parkway.

3. OBSERVATIONS

3.1 TRIP GENERATION CALCULATIONS

Vehicular trips generated by the proposed development were calculated by using the equations provided by the Institute of Transportation Engineers, 11th Edition of the Trip Generation Manual, Land Use Code 948 (Automated Car Wash) using the average rates shown in the tables.

Table 1. Raw Trip Generation – Proposed Automated Car Wash (LUC 948)

<u>5,820 Square Feet of Gross Floor Area:</u> * - Use LUC 949 Pro-Rated for Tunnel	
A.	A.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street)* $T = (8.60/77.50) 14.20 (5.820) = \mathbf{9 (6 \text{ entering, } 3 \text{ exiting})}$
B.	P.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street) $T = 14.20 (5.820) = \mathbf{82 (41 \text{ entering, } 41 \text{ exiting})}$

Source: TDM, 2023

Table 2. Raw Trip Generation – Proposed Automated Car Wash (LUC 948)

<u>1 Tunnel:</u> * - Use LUC 949	
A.	A.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street)* $T = 8.60 (1) = \mathbf{9 (6 \text{ entering, } 3 \text{ exiting})}$
B.	P.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street) $T = 77.50 (1) = \mathbf{78 (39 \text{ entering, } 39 \text{ exiting})}$

Source: TDM, 2023

Based on this, the development will be analyzed using the criteria established for developments generating less than three hundred (300) vehicle trips during the peak hour as outlined in the Lee County Traffic Impact Guidelines.

3.2 TRIP DISTRIBUTION

As stated previously herein, access to the proposed development will be provided by one (1) proposed full-access driveway connection to Oaks Center Drive. As Oaks Center Drive is private, the project traffic must be distributed to Three Oaks Parkway.

Because Oaks Center Drive accesses the nearest arterial street (Three Oaks Parkway) to the north (lighted intersection) and the south (right-in right-out left-in intersection), it is assumed for this report that 50% of traffic using this proposed driveway connection will

enter and exit the proposed development from/to the north while the remaining 50% of traffic using this proposed driveway connection will enter and exit the proposed development from/to the south.

3.3 EXISTING TRAFFIC CONDITIONS

Three Oaks Parkway is the nearest arterial road being accessed. Based on the 2022 Traffic Count Report prepared by the Lee County Department of Transportation, traffic on Three Oaks Parkway near the proposed development heads south 76% of the time and north 24% of the time in the A.M. peak. In the P.M. peak, traffic near the proposed development heads north 59% of the time and south 41% of the time.

Three Oaks Parkway is classified by the Lee County Comprehensive Plan as a four-lane divided principal arterial road. It has a posted speed limit of forty-five (45) miles per hour near the proposed development. Per the 2022 Lee County Concurrency Report, it has an existing “B” Level of Service near the proposed development with a 2021 peak direction of flow volume of seven hundred seven (707) vehicles per hour, a Performance Standard “E” Level of Service, and a Performance Standard Capacity of one thousand nine hundred forty (1,940) vehicles per hour.

Oaks Center Drive provides direct access to Three Oaks Parkway. The Oaks Center Drive intersection with Three Oaks Parkway is full-access, is controlled by a light, has an exclusive north-bound right-turn lane on Three Oaks Parkway, has an exclusive south-bound left-turn lane on Three Oaks Parkway (260’ of stacking with an additional 50’ of taper), and has two (2) west-bound egress lanes (one right-turn only, one left-turn/straight only, both approximately 150’ long) on Oaks Center Drive.

Oaks Center Drive provides indirect access to Three Oaks Parkway via Oaks Town Center Lane. The Oaks Town Center Lane intersection with Three Oaks Parkway is right-in right-out left-in, is controlled by a stop bar on west-bound Oaks Town Center Lane, has an exclusive north-bound right-turn lane on Three Oaks Parkway, has an exclusive south-bound left-turn lane on Three Oaks Parkway (475’ of stacking with an additional 50’ of taper), has one (1) west-bound egress lane (right-turn only) on Oaks Town Center Lane, and has two (2) east-bound ingress lanes on Oaks Town Center Lane.

Oaks Center Drive provides indirect access to Three Oaks Parkway via Oaks Town Center Lane. The Oaks Town Center Lane intersection with Oaks Center Drive is full-access, is controlled by stop bars on north-bound and south-bound Oaks Center Drive,

has an exclusive east-bound right-turn lane on Oaks Town Center Lane, and has an exclusive east-bound left-turn/straight lane on Oaks Town Center Lane.

Oaks Center Drive is a privately-maintained two-lane local road. It has an assumed speed limit of thirty (30) miles per hour.

Oaks Town Center Lane is a privately-maintained two-lane local road. It has an assumed speed limit of thirty (30) miles per hour.

3.4 TURN LANE ANALYSIS (OAKS CENTER DRIVE AT SITE ACCESS)

A. Traffic Conditions on Oaks Center Drive (Local), Exhibit 2

- A.M. Peak Hour Vehicle Trip Ends - 9
- P.M. Peak Hour Vehicle Trip Ends - 82
- Assumed Speed Limit - 30 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is not required. Only one (1) of the required warrants is satisfied. The assumed speed limit of the local street is equal to the threshold. However, the number of left-turning movements from the local street during the peak hour of the local street is below the threshold; the available sight distance for the assumed speed limit of the local street is above the threshold; and the access point connection is not controlled by a traffic signal.

C. Separate Left Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate left turn lane on the access point connection is not required. Only one (1) of the required warrants is satisfied. The assumed speed limit of the local street is equal to the threshold. However, the number of left-turning vehicles from the access point connection during the peak hour of the local street is below the threshold and the access point connection is not controlled by a traffic signal.

D. Deceleration and Right Turn Lane

Based on the Turn Lane Policy, a deceleration and right turn lane is not required. Only one (1) of the required warrants is satisfied. The assumed speed limit of the local street is equal to the threshold. However, the number of right-turning movements from the local street during the peak hour of the local street is below the threshold, the available sight distance for the assumed speed limit of the local street is above the threshold, and the access point connection is not controlled by a traffic signal.

E. Separate Right Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate right turn lane on the access point connection is not required. Only one (1) of the required warrants is satisfied. The assumed speed limit of the intersecting street is equal to the threshold. However, the number of right-turning movements from the access point connection during the peak hour of the local street is below the threshold and the access point connection is not controlled by a traffic signal.

3.5 TURN LANE ANALYSIS (THREE OAKS PARKWAY AT OAKS CENTER DRIVE) – CURRENT CONDITIONS

In addition to the proposed development, the existing full-access lighted driveway connection also generates trips from the other nearby businesses. To accurately estimate the existing background traffic utilizing this existing driveway connection, TDM Consulting witnessed and tabulated turning movements in fifteen (15) minute intervals on Friday, January 13, 2023 from 7 A.M. to 9 A.M. and again from 4 P.M. to 6 P.M. The following table recaps the peak traffic counts realized during the rush hours (see actual tallies at the end of this report):

Table 3. Trip Generation - Existing Background Traffic

<u>Highest Hourly Interval:</u>	
A.	A.M. Peak Hour Vehicle Trip Ends (7:15 to 8:15) $T = 64 + 71 + 92 + 45 = \mathbf{272 \text{ (71 entering, 201 exiting)}}$
B.	P.M. Peak Hour Vehicle Trip Ends (5:00 to 6:00) $T = 82 + 97 + 111 + 111 = \mathbf{401 \text{ (152 entering, 249 exiting)}}$

Source: TDM, 2023

Because this analysis must be based on peak-season peak-hour traffic, Table 3 above must be adjusted to reflect peak-season peak-hour trip generations. Per the 2019 FDOT Project Traffic Forecasting Handbook, peak season is defined as the thirteen (13) consecutive weeks of the year with the highest traffic volume demand. The Peak Season Weekday Average Daily Traffic (PSWADT) equals ADT (Average Daily Traffic from Table 3 above) multiplied by the Peak Season Conversion Factor (PSCF). PSCF is obtained by dividing the seasonal factor of the traffic count month by the average of the seasonal factors of the three (3) months with the highest seasonal factors. $PSCF = 1.27 / ((1.27 + 1.28 + 1.21) / 3) = 1.27 / 1.2533 = 1.0133$ using 2019 data from Lee County

permanent count station #72 to reflect normal year-round traffic conditions not influenced by COVID-19 and hurricane recovery work. See Table 4 below.

Table 4. Trip Generation - Existing Background Traffic (Adjusted)

Table 3 x 1.0133:

- A.** A.M. Peak Hour Vehicle Trip Ends (7:15 to 8:15)
 $T = 272 \times 1.0133 = \mathbf{276 \text{ (72 entering, 204 exiting)}}$
- B.** P.M. Peak Hour Vehicle Trip Ends (5:00 to 6:00)
 $T = 401 \times 1.0133 = \mathbf{406 \text{ (154 entering, 252 exiting)}}$

Source: TDM, 2023

For the requisite turn-lane analysis, the trips generated by the proposed development (Table 1 above, only the trips using this driveway connection) must be added to the trips from the adjusted existing background traffic (Table 4 above) to yield the expected traffic distribution (Table 5 below).

Table 5. Trip Generation – Proposed + Adjusted Existing Background

Table 1 + Table 4

- A.** A.M. Peak Hour Vehicle Trip Ends
 $T = 4 + 276 = \mathbf{280 \text{ (75 entering, 205 exiting)}}$
- B.** P.M. Peak Hour Vehicle Trip Ends
 $T = 40 + 406 = \mathbf{446 \text{ (174 entering, 272 exiting)}}$

Source: TDM, 2024

A. Traffic Conditions on Three Oaks Parkway (Arterial), Exhibit 3

- A.M. Peak Hour Vehicle Trip Ends - 280
- P.M. Peak Hour Vehicle Trip Ends - 446
- Posted Speed Limit - 45 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of left-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

C. Separate Left Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate left turn lane on the access point connection is

required. Two (2) of the required warrants are satisfied. The posted speed limit of the intersecting street is above the threshold and the number of left-turning movements from the access point connection during the peak hour of the arterial street is above the threshold.

D. Deceleration and Right Turn Lane

Based on the Turn Lane Policy, a deceleration and right turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of right-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

E. Separate Right Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate right turn lane on the access point connection is required. Two (2) of the required warrants are satisfied. The posted speed limit of the intersecting street is equal to the threshold and the number of right-turning movements from the access point connection during the peak hour of the arterial street is above the threshold.

3.6 TURN LANE ANALYSIS (THREE OAKS PARKWAY AT OAKS TOWN CENTER LANE) – CURRENT CONDITIONS

In addition to the proposed development, the existing right-in right-out left-in driveway connection also generates trips from the other nearby businesses. To accurately estimate the existing background traffic utilizing this existing driveway connection, TDM Consulting witnessed and tabulated turning movements in fifteen (15) minute intervals on Friday, January 20, 2023 from 7 A.M. to 9 A.M. and again from 4 P.M. to 6 P.M. The following table recaps the peak traffic counts realized during the rush hours (see actual tallies at the end of this report):

Table 6. Trip Generation - Existing Background Traffic

<u>Highest Hourly Interval:</u>	
A.	A.M. Peak Hour Vehicle Trip Ends (7:15 to 8:15)
	$T = 22 + 106 + 118 + 30 = \mathbf{276 (177 \text{ entering, } 99 \text{ exiting})}$
B.	P.M. Peak Hour Vehicle Trip Ends (5:00 to 6:00)
	$T = 10 + 13 + 15 + 12 = \mathbf{50 (42 \text{ entering, } 8 \text{ exiting})}$

Source: TDM, 2023

Because this analysis must be based on peak-season peak-hour traffic, Table 6 above must be adjusted to reflect peak-season peak-hour trip generations. Per the 2019 FDOT Project Traffic Forecasting Handbook, peak season is defined as the thirteen (13) consecutive weeks of the year with the highest traffic volume demand. The Peak Season Weekday Average Daily Traffic (PSWADT) equals ADT (Average Daily Traffic from Table 6 above) multiplied by the Peak Season Conversion Factor (PSCF). PSCF is obtained by dividing the seasonal factor of the traffic count month by the average of the seasonal factors of the three (3) months with the highest seasonal factors. $PSCF = 1.27 / ((1.27 + 1.28 + 1.21) / 3) = 1.27 / 1.2533 = 1.0133$ using 2019 data from Lee County permanent count station #72 to reflect normal year-round traffic conditions not influenced by COVID-19 and hurricane recovery work. See Table 7 below.

Table 7. Trip Generation - Existing Background Traffic (Adjusted)

<u>Table 6 x 1.0133:</u>	
A.	A.M. Peak Hour Vehicle Trip Ends (7:15 to 8:15) $T = 276 \times 1.0133 = \mathbf{280 (180 \text{ entering, } 100 \text{ exiting})}$
B.	P.M. Peak Hour Vehicle Trip Ends (5:00 to 6:00) $T = 50 \times 1.0133 = \mathbf{51 (43 \text{ entering, } 8 \text{ exiting})}$

Source: TDM, 2023

For the requisite turn-lane analysis, the trips generated by the proposed development (Table 1 above, only the trips using this driveway connection) must be added to the trips from the adjusted existing background traffic (Table 7 above) to yield the expected traffic distribution (Table 8 below).

Table 8. Trip Generation – Proposed + Adjusted Existing Background

<u>Table 1 + Table 7</u>	
A.	A.M. Peak Hour Vehicle Trip Ends $T = 5 + 280 = \mathbf{285 (183 \text{ entering, } 102 \text{ exiting})}$
B.	P.M. Peak Hour Vehicle Trip Ends $T = 42 + 51 = \mathbf{93 (64 \text{ entering, } 29 \text{ exiting})}$

Source: TDM, 2024

A. Traffic Conditions on Three Oaks Parkway (Arterial), Exhibit 4

- A.M. Peak Hour Vehicle Trip Ends - 285
- P.M. Peak Hour Vehicle Trip Ends - 93

- Posted Speed Limit - 45 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of left-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

C. Separate Left Turn Lane on the Access Point Connection

This turning movement is currently prohibited at this driveway connection.

D. Deceleration and Right Turn Lane

Based on the Turn Lane Policy, a deceleration and right turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of right-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

E. Separate Right Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate right turn lane on the access point connection is required. Two (2) of the required warrants are satisfied. The posted speed limit of the intersecting street is equal to the threshold and the number of right-turning movements from the access point connection during the peak hour of the arterial street is above the threshold.

3.7 TURN LANE ANALYSIS (OAKS CENTER DRIVE AT OAKS TOWN CENTER LANE) – CURRENT CONDITIONS

In addition to the proposed development, the existing full-access driveway connection also generates trips from the other nearby businesses. To accurately estimate the existing background traffic utilizing this existing driveway connection, TDM Consulting witnessed and tabulated turning movements in fifteen (15) minute intervals on Friday, January 27, 2023 from 7 A.M. to 9 A.M. and again from 4 P.M. to 6 P.M. The following table recaps the peak traffic counts realized during the rush hours (see actual tallies at the end of this report):

Table 9. Trip Generation - Existing Background Traffic**Highest Hourly Interval:**

- A.** A.M. Peak Hour Vehicle Trip Ends (7:00 to 8:00)
 $T = 10 + 35 + 80 + 69 = \mathbf{194 \text{ (182 entering, 12 exiting)}}$
- B.** P.M. Peak Hour Vehicle Trip Ends (4:15 to 5:15)
 $T = 19 + 11 + 11 + 10 = \mathbf{51 \text{ (46 entering, 5 exiting)}}$

Source: TDM, 2023

Because this analysis must be based on peak-season peak-hour traffic, Table 9 above must be adjusted to reflect peak-season peak-hour trip generations. Per the 2019 FDOT Project Traffic Forecasting Handbook, peak season is defined as the thirteen (13) consecutive weeks of the year with the highest traffic volume demand. The Peak Season Weekday Average Daily Traffic (PSWADT) equals ADT (Average Daily Traffic from Table 9 above) multiplied by the Peak Season Conversion Factor (PSCF). PSCF is obtained by dividing the seasonal factor of the traffic count month by the average of the seasonal factors of the three (3) months with the highest seasonal factors. $PSCF = 1.27 / ((1.27 + 1.28 + 1.21) / 3) = 1.27 / 1.2533 = 1.0133$ using 2019 data from Lee County permanent count station #72 to reflect normal year-round traffic conditions not influenced by COVID-19 and hurricane recovery work. See Table 10 below.

Table 10. Trip Generation - Existing Background Traffic (Adjusted)**Table 9 x 1.0133:**

- A.** A.M. Peak Hour Vehicle Trip Ends (7:00 to 8:00)
 $T = 194 \times 1.0133 = \mathbf{197 \text{ (185 entering, 12 exiting)}}$
- B.** P.M. Peak Hour Vehicle Trip Ends (4:15 to 5:15)
 $T = 51 \times 1.0133 = \mathbf{52 \text{ (47 entering, 5 exiting)}}$

Source: TDM, 2023

For the requisite turn-lane analysis, the trips generated by the proposed development (Table 1 above, only the trips using this driveway connection) must be added to the trips from the adjusted existing background traffic (Table 10 above) to yield the expected traffic distribution (Table 11 below).

Table 11. Trip Generation – Proposed + Adjusted Existing Background**Table 1 + Table 10**

- A.** A.M. Peak Hour Vehicle Trip Ends
 $T = 5 + 197 = \mathbf{202}$ (188 entering, 14 exiting)
- B.** P.M. Peak Hour Vehicle Trip Ends
 $T = 42 + 52 = \mathbf{94}$ (68 entering, 26 exiting)

Source: TDM, 2024

A. Traffic Conditions on Oaks Center Drive (Local), Exhibit 5

- A.M. Peak Hour Vehicle Trip Ends - 202
- P.M. Peak Hour Vehicle Trip Ends - 94
- Assumed Speed Limit - 30 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is not required. Only (1) of the required warrants is satisfied. The assumed speed limit of the local street is equal to the threshold. However, and the number of left-turning vehicles from the local street during the peak hour of the local street is below the threshold, the available site distance for the assumed speed limit of the local street is above the threshold, and the intersecting street is not controlled by a traffic signal.

C. Separate Left Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate left turn lane on the access point connection is not required. Only one (1) of the required warrants is satisfied. The assumed speed limit of the intersecting street is equal to the threshold. However, the number of left-turning movements from the access point connection during the peak hour of the local street is below the threshold and the intersecting street is not controlled by a traffic signal.

D. Deceleration and Right Turn Lane

Based on the Turn Lane Policy, a deceleration and right turn lane is required. Two (2) of the required warrants are satisfied. The assumed speed limit of the local street is equal to the threshold and the number of right-turning vehicles from the local street during the peak hour of the local street is above the threshold.

E. Separate Right Turn Lane on the Access Point Connection

Based on the Turn Lane Policy, a separate right turn lane on the access point connection is not required. Only one (1) of the required warrants is satisfied. The assumed speed

limit of the intersecting street is equal to the threshold. However, the number of right-turning movements from the access point connection during the peak hour of the local street is below the threshold and the intersecting street is not controlled by a traffic signal.

3.8 **TURN LANE ANALYSIS (THREE OAKS PARKWAY AT OAKS CENTER DRIVE) – AT BUILD-OUT**

In addition to the proposed development, the existing full-access lighted driveway connection also will generate trips from the other nearby existing businesses (including the Athenian Academy Charter School) as well as the future proposed 6,579 square foot fire station. To accurately estimate the existing background traffic utilizing the existing south-bound left-in at this driveway connection, TDM Consulting witnessed and tabulated turning movements in fifteen (15) minute intervals on Wednesday, May 24, 2023 from 4 P.M. to 6 P.M. The following table recaps the peak traffic counts realized during the rush hour (see actual tallies at the end of this report):

Table 12. Trip Generation - Existing Background Traffic

<u>Highest Hourly Interval:</u> P.M. Peak Hour Vehicle Trip Ends (4:00 to 5:00) $T = 16 + 19 + 14 + 16 = \mathbf{65 \text{ (65 entering)}}$
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Source: TDM, 2023

Because this analysis must be based on peak-season peak-hour traffic, Table 12 above must be adjusted to reflect peak-season peak-hour trip generations. Per the 2019 FDOT Project Traffic Forecasting Handbook, peak season is defined as the thirteen (13) consecutive weeks of the year with the highest traffic volume demand. The Peak Season Weekday Average Daily Traffic (PSWADT) equals ADT (Average Daily Traffic from Table 12 above) multiplied by the Peak Season Conversion Factor (PSCF). PSCF is obtained by dividing the seasonal factor of the traffic count month by the average of the seasonal factors of the three (3) months with the highest seasonal factors. $PSCF = 1.27 / ((1.27 + 1.28 + 1.21) / 3) = 1.27 / 1.2533 = 1.0133$ using 2019 data from Lee County permanent count station #72 to reflect normal year-round traffic conditions not influenced by COVID-19 and hurricane recovery work. See Table 13 below.

Table 13. Trip Generation - Existing Background Traffic (Adjusted)**Table 12 x 1.0133:**

P.M. Peak Hour Vehicle Trip Ends (4:00 to 5:00)

$$T = 65 \times 1.0133 = \mathbf{66 \text{ (66 entering)}}$$

Source: TDM, 2024

The existing charter school has a current school student enrollment of 391 students (per the Lee County School District) with a full enrollment estimated at 1,145 students. This yields a trip rate of (66 trips/391 students) 0.1688 trips per student. Using this trip rate, Table 14 below can be used to estimate future school build-out traffic volumes for this turning movement.

Table 14. Raw Trip Generation – Future Adjusted Highest Hourly Interval**1,145 Students:**

P.M. Peak Hour Vehicle Trip Ends

$$T = 0.1688 \text{ trips per student} \times 1,145 \text{ students} = \mathbf{193 \text{ (193 entering)}}$$

Source: TDM, 2024

Vehicular trips generated by the future proposed fire station were calculated by using the equations provided by the Institute of Transportation Engineers, 11th Edition of the Trip Generation Manual, Land Use Code 575 (Fire and Rescue Station) using the average rates shown in the tables. Note that because LUC 575 does not contain any AM peak information, LUC 715 (Single-Tenant Office Building) will be utilized as suggested by County staff on previous similar projects.

Table 15. Raw Trip Generation – Future Proposed Fire Station (LUC 575)**6,579 Square Feet of Gross Floor Area:****A.** A.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street)

$$T = 1.85 (6.579) = \mathbf{12 \text{ (11 entering, 1 exiting)}}$$

B. P.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street)

$$T = 0.48 (6.579) = \mathbf{3 \text{ (1 entering, 2 exiting)}}$$

Source: TDM, 2023

For the requisite turn-lane analysis, the trips generated by the proposed development (Table 1 above, only the trips using this driveway connection) must be added to the trips from the adjusted existing background traffic (Table 13 above), the future existing background traffic (Table 14 above, only the trips using this driveway connection). Per

the JMB TIS for DOS2018-00030, this is zero because all vehicles south-bound on Three Oaks Parkway will enter the site using the left-in at Oaks Town Center Lane), and the future proposed fire station (Table 15 above, only the trips using this driveway connection) to yield the expected traffic distribution (Table 16 below).

Table 16. Trip Generation – Proposed + Adjusted Existing Background + Future

Table 1 + Table 13 + Table 14 + Table 15 (Adjusted)

P.M. Peak Hour Vehicle Trip Ends

$$T = 11 + 66 + 0 + 1 = \mathbf{78 \text{ (78 entering)}}$$

Source: TDM, 2024

A. Traffic Conditions on Three Oaks Parkway (Arterial), Exhibit 6

- P.M. Peak Hour Vehicle Trip Ends - 78
- Posted Speed Limit - 45 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of left-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

C. Separate Left Turn Lane on the Access Point Connection

Not analyzed.

D. Deceleration and Right Turn Lane

Not analyzed.

E. Separate Right Turn Lane on the Access Point Connection

Not analyzed.

3.9 TURN LANE ANALYSIS (THREE OAKS PARKWAY AT OAKS TOWN CENTER LANE) – AT BUILD-OUT

In addition to the proposed development, the existing right-in right-out left-in driveway connection also will generate trips from the other nearby existing businesses (including the Athenian Academy Charter School) as well as the future proposed 6,579 square foot fire station. To accurately estimate the existing background traffic utilizing the existing south-bound left-in at this driveway connection, TDM Consulting witnessed and tabulated turning movements in fifteen (15) minute intervals on Wednesday, May 24,

2023 from 7 A.M. to 9 A.M. The following table recaps the peak traffic counts realized during the rush hour (see actual tallies at the end of this report):

Table 16. Trip Generation - Existing Background Traffic

Highest Hourly Interval:

A.M. Peak Hour Vehicle Trip Ends (7:00 to 8:00)

$$T = 4 + 16 + 44 + 49 = \mathbf{113 \text{ (113 entering)}}$$

Source: TDM, 2023

Since school-related traffic will likely not appreciably increase during peak season, Table 16 above will not be adjusted to reflect peak-season peak-hour trip generations.

The existing charter school has a current school student enrollment of 391 students (per the Lee County School District) with a full enrollment estimated at 1,145 students. This yields a trip rate of (113 trips/391 students) 0.2890 trips per student. Using this trip rate, Table 17 below can be used to estimate future school build-out traffic volumes for this turning movement.

Table 17. Raw Trip Generation – Future Adjusted Highest Hourly Interval

1,145 Students:

A.M. Peak Hour Vehicle Trip Ends

$$T = 0.2890 \text{ trips per student} \times 1,145 \text{ students} = \mathbf{331 \text{ (331 entering)}}$$

Source: TDM, 2023

Vehicular trips generated by the future proposed fire station were calculated by using the equations provided by the Institute of Transportation Engineers, 11th Edition of the Trip Generation Manual, Land Use Code 575 (Fire and Rescue Station) using the average rates shown in the tables. Note that because LUC 575 does not contain any AM peak information, LUC 715 (Single-Tenant Office Building) will be utilized as suggested by County staff on previous similar projects.

Table 18. Raw Trip Generation – Future Proposed Fire Station (LUC 575)

<u>6,579 Square Feet of Gross Floor Area:</u>	
A.	A.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street) $T = 1.85 (6.579) = 12$ (11 entering, 1 exiting)
B.	P.M. Peak Hour Average Vehicle Trip Ends (Adjacent Street) $T = 0.48 (6.579) = 3$ (1 entering, 2 exiting)

Source: TDM, 2023

For the requisite turn-lane analysis, the trips generated by the proposed development (Table 1 above, only the trips using this driveway connection) must be added to the trips from the adjusted existing background traffic (Table 17 above), and the future proposed fire station (Table 18 above, only the trips using this driveway connection, which is 40% per the JMB TIS for DOS2018-00030). See Table 19 below.

Table 19. Trip Generation – Proposed + Adjusted Existing Background + Future

<u>Table 1 + Table 17 + Table 18 (Adjusted)</u>	
	A.M. Peak Hour Vehicle Trip Ends
	$T = 2 + 331 + 11 (40\%) = 337$ (337 entering)

Source: TDM, 2024

A. Traffic Conditions on Three Oaks Parkway (Arterial), Exhibit 7

- A.M. Peak Hour Vehicle Trip Ends - 337
- Posted Speed Limit - 45 mph

B. Deceleration and Left Turn Lane

Based on the Turn Lane Policy, a deceleration and left turn lane is required. Two (2) of the required warrants are satisfied. The posted speed limit of the arterial street is above the threshold and the number of left-turning vehicles from the arterial street during the peak hour of the arterial street is above the threshold.

C. Separate Left Turn Lane on the Access Point Connection

Not analyzed.

D. Deceleration and Right Turn Lane

Not analyzed.

E. Separate Right Turn Lane on the Access Point Connection

Not analyzed.

3.10 RECOMMENDED IMPROVEMENTS (OAKS CENTER DRIVE)

One (1) typical full-access driveway connection is proposed for the site access. No other improvements are required or proposed.

In addition, all required improvements are existing at the intersection with Oaks Town Center Lane. The required exclusive east-bound right-turn lane on Oaks Town Center Lane and the required exclusive east-bound left-turn/straight lane on Oaks Town Center Lane are provided. No additional improvements are required or proposed.

3.11 RECOMMENDED IMPROVEMENTS (THREE OAKS PARKWAY)

All required improvements are existing at the intersection with Oaks Center Drive. The required exclusive north-bound right-turn lane on Three Oaks Parkway and the required exclusive south-bound left-turn lane on Three Oaks Parkway (260' of stacking with an additional 50' of taper) is provided. FDOT FDM Section 212 requires 185' deceleration distance (based on a design speed of forty-five miles per hour) plus $(96/(3,600/120) \times 25 \times 2)$ 160' (rounded up to 175') of queue for a single lighted left-turn lane in rural conditions (total required turn-lane length is 360'). The existing left-turn lane is inadequate (by 50'), but is inadequate even without the proposed project (by 25'); therefore, a deviation will be requested allowing the existing turn lane to remain unchanged. The required two (2) west-bound egress lanes (one right-turn only, one left-turn/straight only) on Oaks Center Drive are also provided. Both west-bound egress lanes are approximately 150' long and are required to be 125' long per the Turn Lane Policy; therefore, they are adequate. No additional improvements are required or proposed at this time.

In addition, all required improvements are existing at the intersection with Oaks Town Center Lane. The required exclusive north-bound right-turn lane on Three Oaks Parkway, the required exclusive south-bound left-turn lane on Three Oaks Parkway (475' of stacking with an additional 50' of taper) is provided. FDOT FDM Section 212 requires 185' deceleration distance (based on a design speed of forty-five miles per hour) plus $(337/30 \times 25)$ 281' (rounded up to 300') of queue for a single left-turn lane in rural conditions (total required turn-lane length is 485'). The required west-bound egress lane (right-turn only) on Oaks Town Center Lane and the required two (2) east-bound ingress lanes on Oaks Town Center Lane are provided. No additional improvements are required or proposed at this time.

3.12 LEVEL OF SERVICE ANALYSIS (THREE OAKS PARKWAY)

The development will not introduce a significant increase in traffic flows and will not degrade the Level of Service of Three Oaks Parkway during the peak season below the Performance Standard Level of Service (see attached 100th Highest Hour Level of Service Calculations).

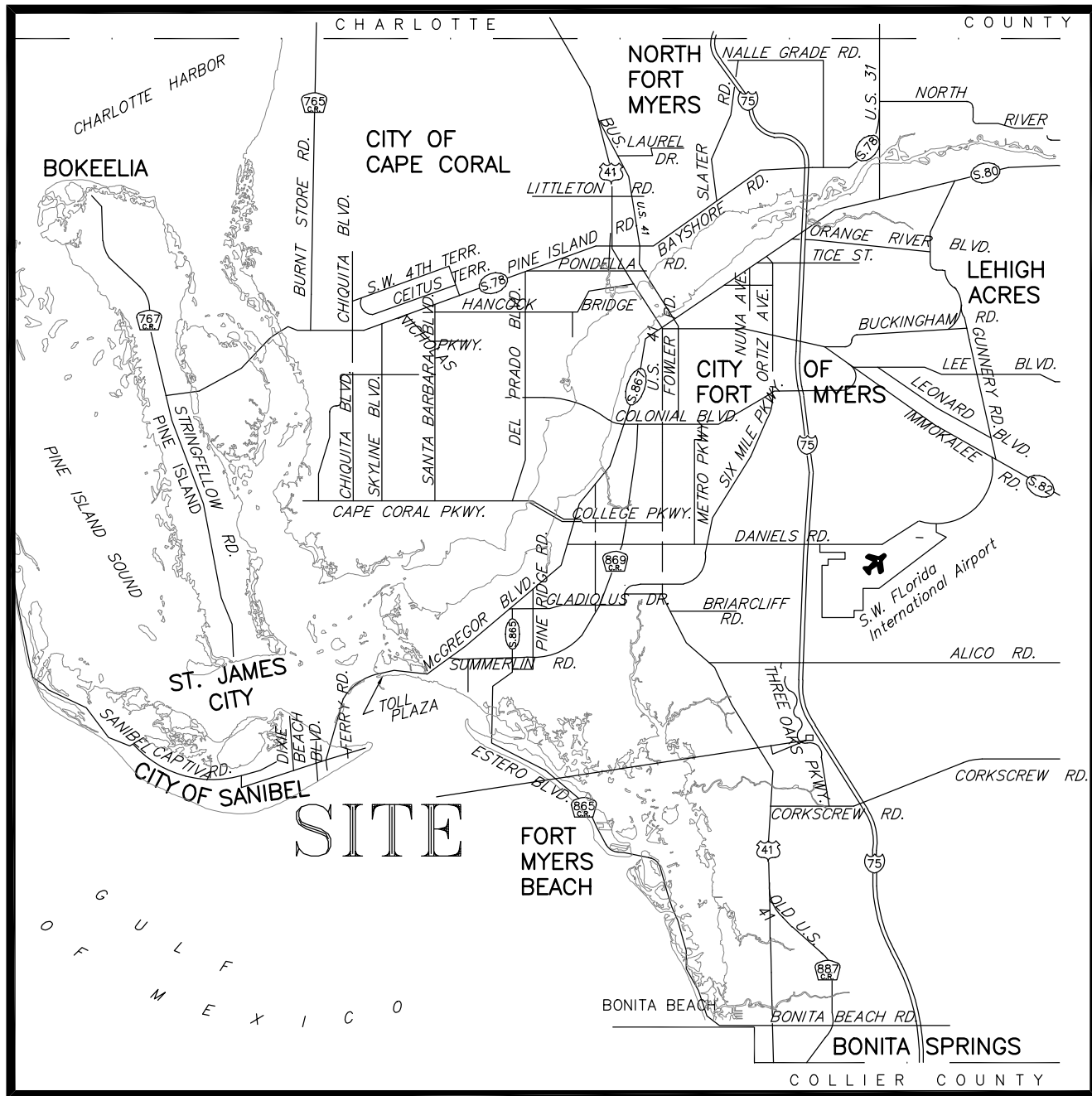
3.13 DETERMINATION OF POTENTIAL IMPACTS (THREE OAKS PARKWAY)

The proposed development will add twenty-four (24) vehicle trips to Three Oaks Parkway in the peak hour peak direction. The maximum service volume at LOS “E” of Three Oaks Parkway is one thousand nine hundred forty (1,940) vehicles in the peak hour in the peak direction.

Significance determination percentage = (Cumulative project traffic)/(maximum service volume at LOS standard) = $(24)/(1,940) = 1.24\%$.

This does not meet the definition of a significant impact on Three Oaks Parkway with less than 5% of the adopted peak hour LOS maximum service volume of the roadway.

The proposed development is not required to pay a proportionate share towards a future improvement of Three Oaks Parkway.



LOCATION SKETCH
N.T.S.

EXHIBIT 1
TRAFFIC IMPACT STATEMENT
LOCATION MAP
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL

SOURCE: TDM, 02/23



43 Barkley Circle, Suite #200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
Email: dean@tdmconsulting.com
Certificate of Authorization # 29086

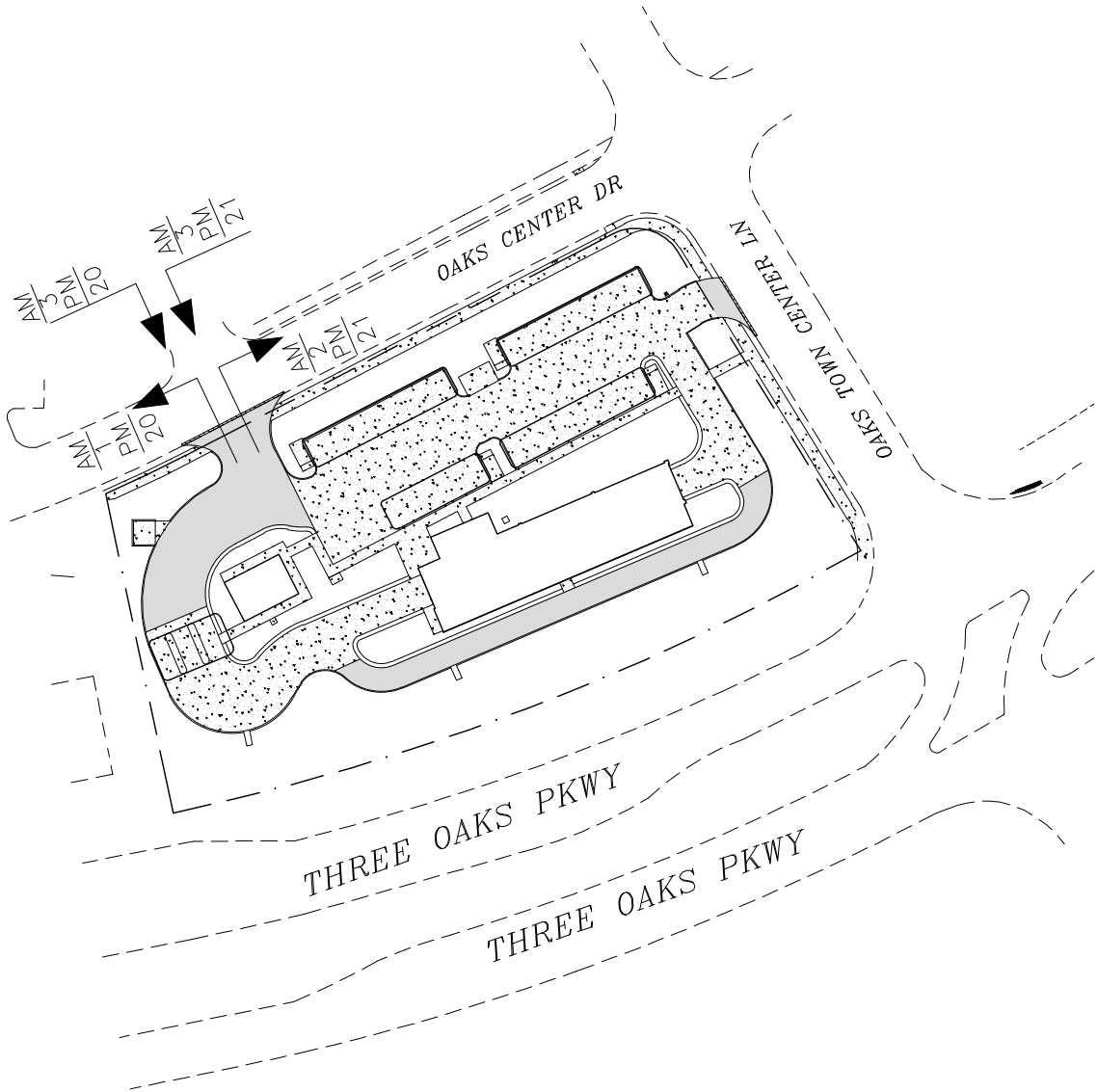
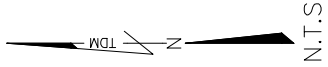


EXHIBIT 2

TRAFFIC IMPACT STATEMENT

SITE GENERATION TRAFFIC DISTRIBUTION

DOWNTOWN EXPRESS CAR WASH

FORT MYERS, FL

SOURCE: TDM, 02/24



43 Barkley Circle, Suite #200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
Email: dean@tdmconsulting.com
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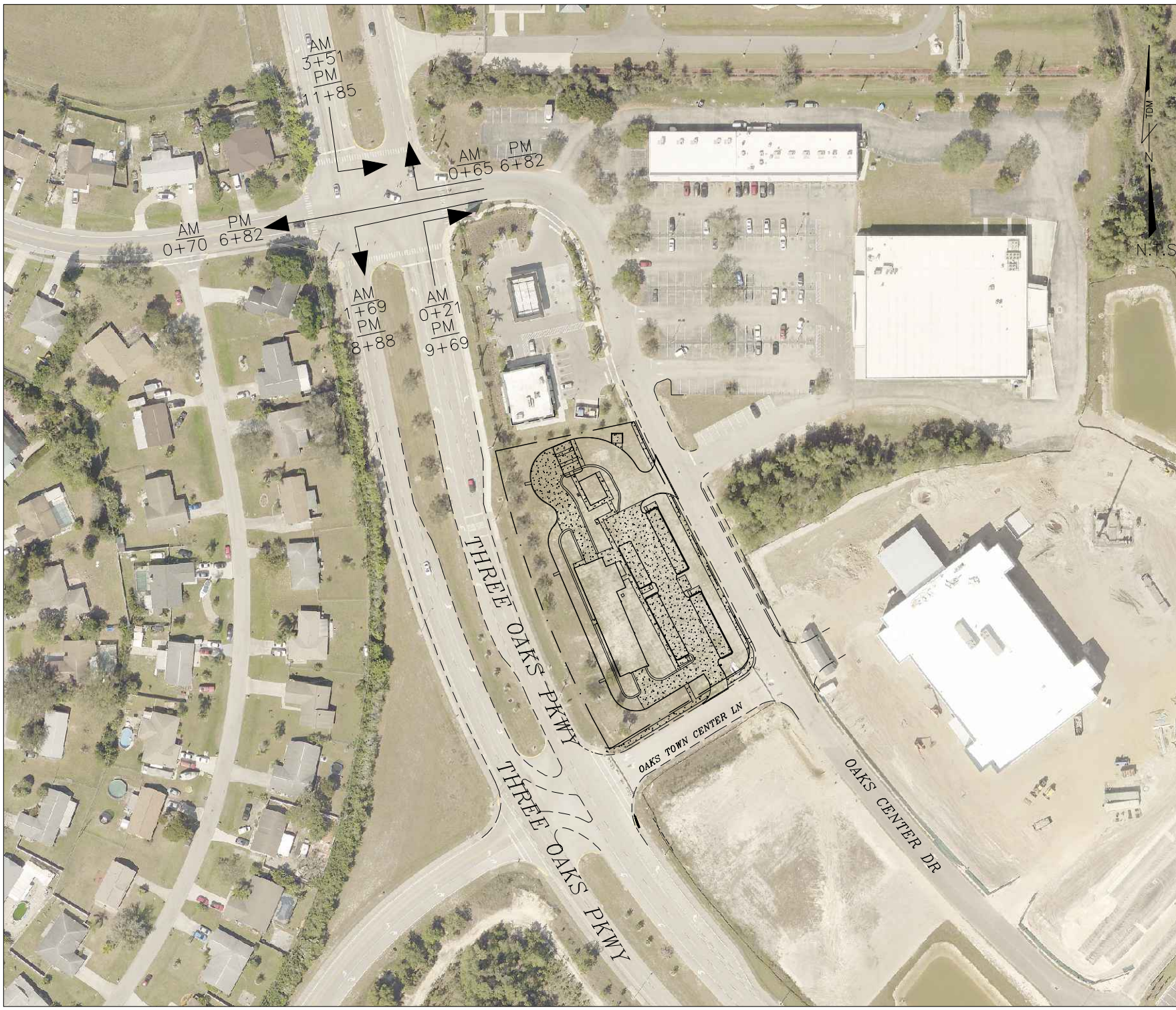


EXHIBIT 3
TRAFFIC IMPACT STATEMENT – CURRENT CONDITIONS
SITE GENERATION + BACKGROUND TRAFFIC DISTRIBUTION
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL
SOURCE: TDM, 02/24

TDM CIVIL ENGINEERING
CONSULTING, INC.

43 Barkley Circle, Suite #200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
Email: dean@tdmconsulting.com
Certificate of Authorization # 29086

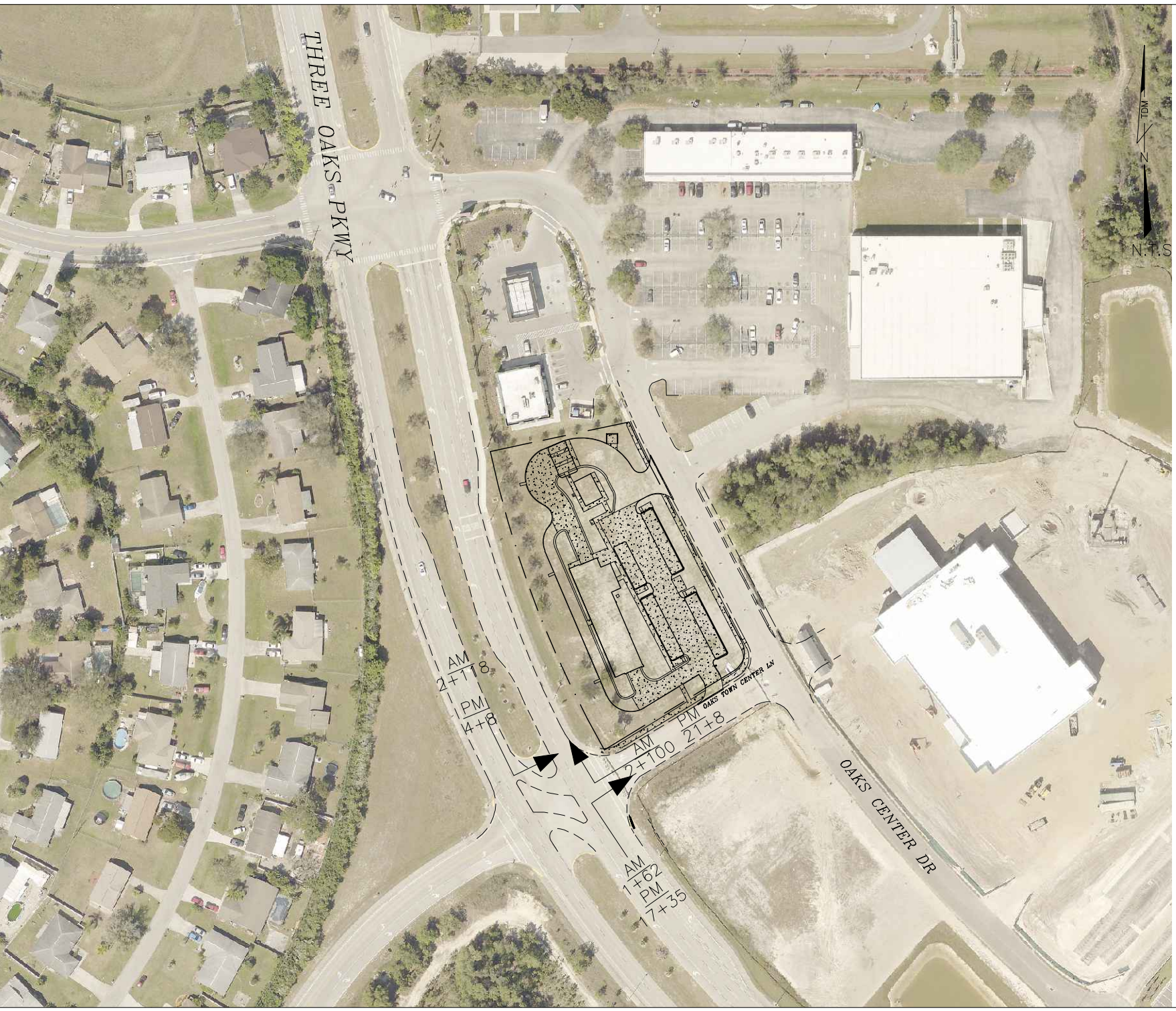


EXHIBIT 4
TRAFFIC IMPACT STATEMENT – CURRENT CONDITIONS
SITE GENERATION + BACKGROUND TRAFFIC DISTRIBUTION
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL
SOURCE: TDM, 02/24

CIVIL ENGINEERING
TDM
CONSULTING, INC.
43 Barkley Circle, Suite #200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
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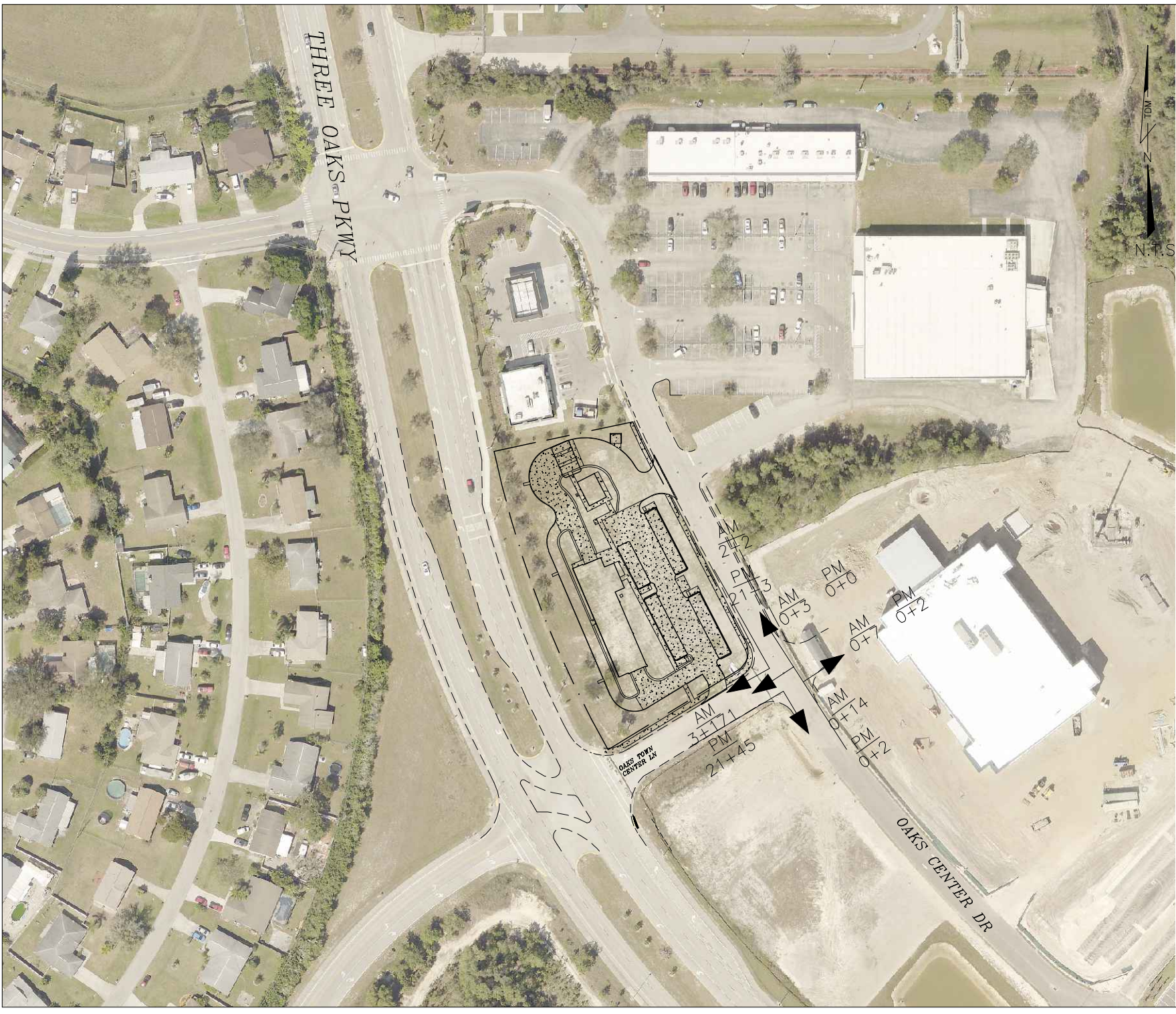


EXHIBIT 5
TRAFFIC IMPACT STATEMENT – CURRENT CONDITIONS
SITE GENERATION + BACKGROUND TRAFFIC DISTRIBUTION
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL
SOURCE: TDM, 02/24

CIVIL ENGINEERING

TDM

CONSULTING, INC.

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Fort Myers, FL 33907
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Fax: (239) 433-9632
Email: dean@tdmconsulting.com
Certificate of Authorization # 29086



EXHIBIT 6
TRAFFIC IMPACT STATEMENT – BUILD-OUT CONDITIONS
SITE GENERATION + BACKGROUND TRAFFIC DISTRIBUTION
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL
SOURCE: TDM, 02/24

CIVIL ENGINEERING

TDM

CONSULTING, INC.

43 Barkley Circle, Suite #200
Fort Myers, FL 33907
Phone: (239) 433-4231
Fax: (239) 433-9632
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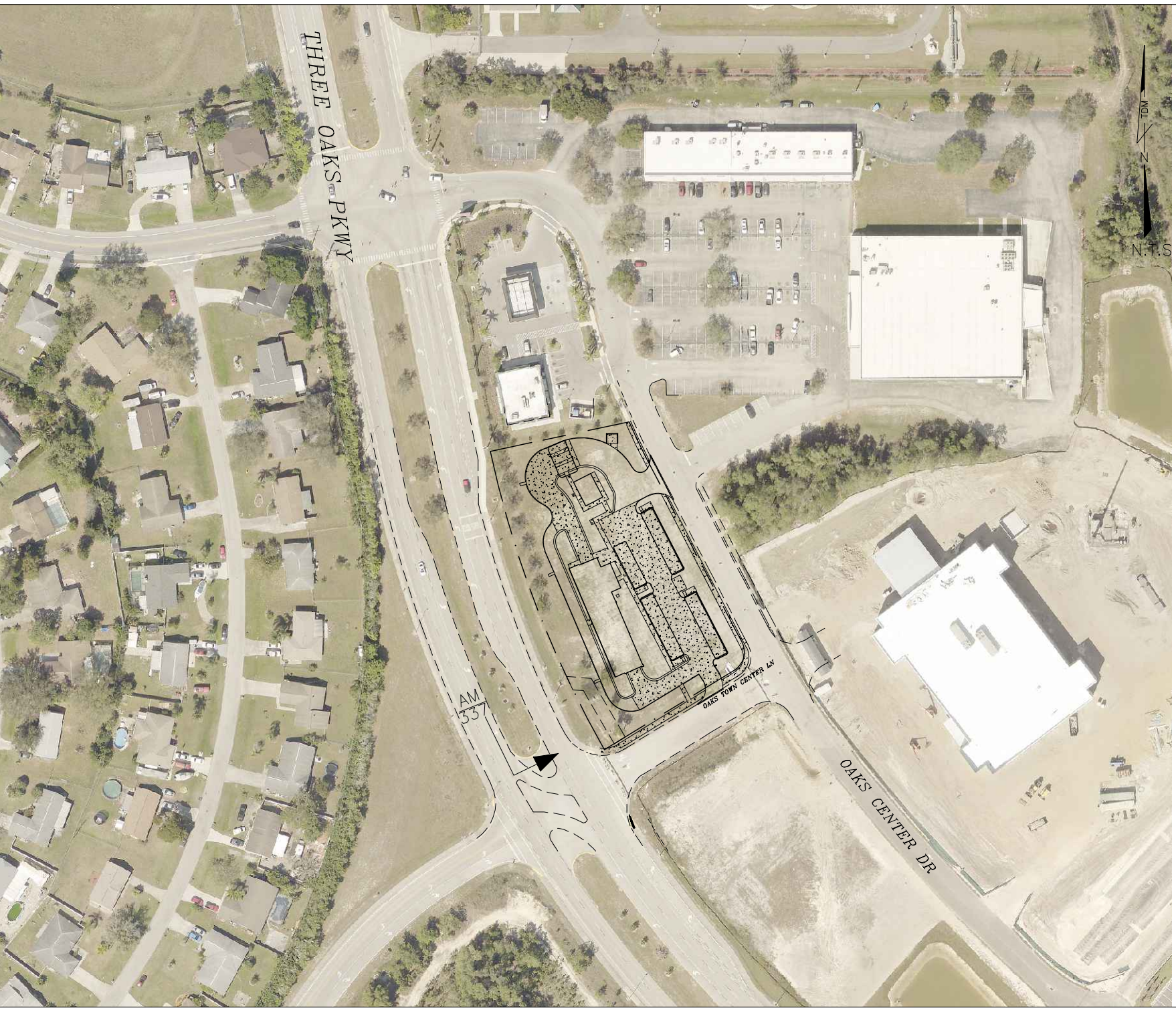


EXHIBIT 7
TRAFFIC IMPACT STATEMENT – BUILD-OUT CONDITIONS
SITE GENERATION + BACKGROUND TRAFFIC DISTRIBUTION
DOWNTOWN EXPRESS CAR WASH
FORT MYERS, FL
SOURCE: TDM, 02/24



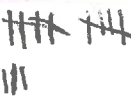
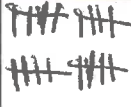
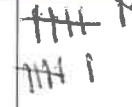
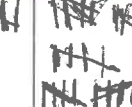
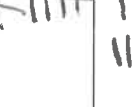
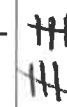
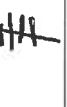
43 Barkley Circle, Suite #200
Fort Myers, FL 33907
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Fax: (239) 433-9632
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100TH HIGHEST HOUR LEVEL OF SERVICE CALCULATION THREE OAKS PARKWAY

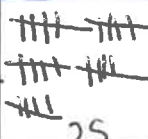
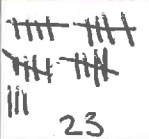
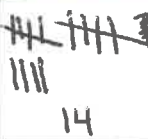
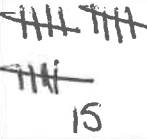
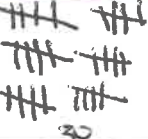
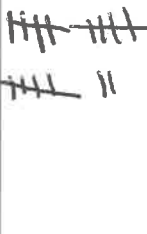
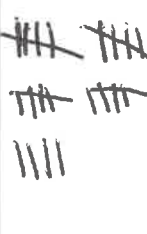
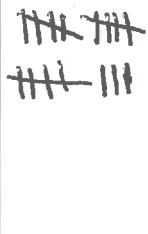
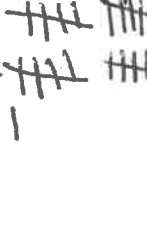
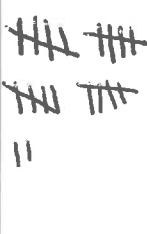
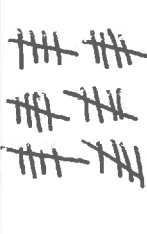
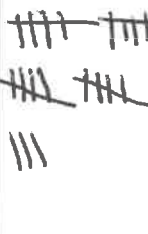
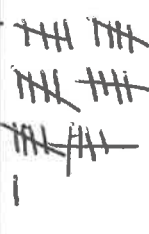
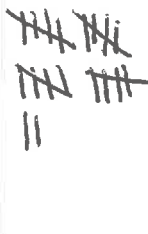
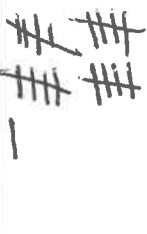
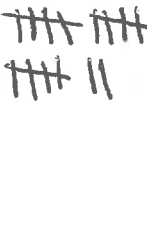
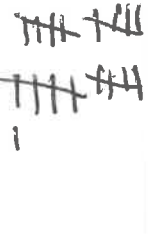
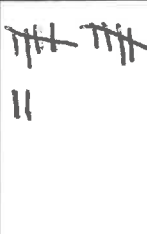
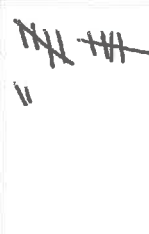
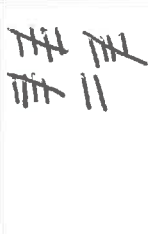
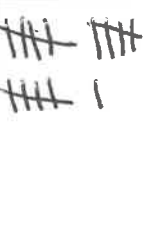
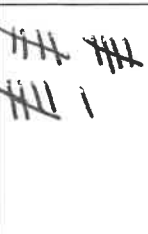
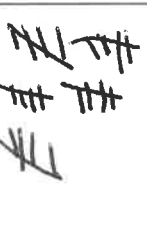
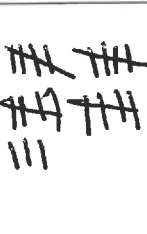
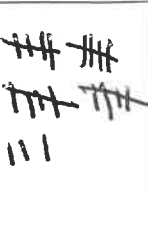
ENGINEER:	TDM Consulting, Inc. Dean Martin, P.E.
DATE:	May 26, 2023
PROJECT NAME:	Three Oaks Car Wash
PROJECT LOCATION:	North of Estero Parkway
PERMANENT COUNTING STATION NUMBER:	72
100TH HOUR V.P.H. (Year & Rate) =	2021 707
YEAR FOLLOWING PROJECT CONSTRUCTION:	2025
ADJUSTMENT FACTOR =	
Count & Yr _{min}	N/A 2009
Count & Yr _{max}	N/A 2018
Adjustment Factor =	(N/A / N/A ^{0.11}) ⁴ 1.000
ADJUSTED 100TH HOUR V.P.H. =	707 x 1.000 707
EXISTING LEVEL OF SERVICE =	B
PROJECT V.P.H. =	41 (P.M. Exiting) x 59% (North-Bound) 24
TOTAL V.P.H. =	707 + 24 731
LEVEL OF SERVICE =	B
COMMENTS:	Projection to Build-Out is Not Required

100TH HIGHEST HOUR LEVEL OF SERVICE CALCULATION THREE OAKS PARKWAY

ENGINEER:	TDM Consulting, Inc. Dean Martin, P.E.
DATE:	December 29, 2022
PROJECT NAME:	Three Oaks Car Wash
PROJECT LOCATION:	North of Estero Parkway
PERMANENT COUNTING STATION NUMBER:	72
100TH HOUR V.P.H. (Year & Rate) =	2020 855
YEAR FOLLOWING PROJECT CONSTRUCTION:	2025
ADJUSTMENT FACTOR =	
Count & Yr _{min}	N/A 2009
Count & Yr _{max}	N/A 2018
Adjustment Factor =	(N/A / N/A ^{0.11}) ⁵ 1.000
ADJUSTED 100TH HOUR V.P.H. =	855 x 1.000 855
EXISTING LEVEL OF SERVICE =	B
PROJECT V.P.H. =	42 (P.M. Exiting) x 62% (North-Bound) 26
TOTAL V.P.H. =	855 + 26 881
LEVEL OF SERVICE =	B
COMMENTS:	Projection to Build-Out is Not Required

	7:00-7:15	7:15-7:30	7:30-7:45	7:45-8:00	8:00-8:15	8:15-8:30	8:30-8:45	8:45-9:00
straight 	 13	 20	 16	 25	 9	 7	 10	 12
Right In 	 3	 6	 2	 9	 3	 6	 6	 2
Right Out 	 9	 14	 19	 19	 12	 10	 13	 9
Left In 	 8	 13	 15	 13	 10	 9	 1	 8
Left Out 	 6	 11	 19	 26	 11	 2	 2	 5
	39	64	71	92	45	34	32	36

OAKS Center Drive @ Three OAKS Parkway
Light
Friday
1-13-23

	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	5:00-5:15	5:15-5:30	5:30-5:45	5:45-6:00
Straight	 11	 20	 25	 23	 14	 15	 22	 30
Right In	 17	 24	 18	 16	 13	 20	 21	 15
Right Out	 22	 30	 23	 31	 22	 21	 17	 21
Left In	 12	 8	 10	 12	 17	 16	 29	 22
Left Out	 8	 8	 12	 16	 16	 25	 23	 23
	70	90	88	98	82	97	111	111

OAKS Center Drive @ Three OAKS Parkway

	7:00-7:15	7:15-7:30	7:30-7:45	7:45-8:00	8:00-8:15	8:15-8:30	8:30-8:45	8:45-9:00
STRAIGHT ○								
Right In			 	 				
	2	8	26	19	8	4	1	2
Right Out			 	 				
	5	4	24	56	15	5	1	1
Left In	 		 	 				
	12	10	56	43	7	2	1	0
Left Out ○								
	19	22	106	118	30	11	3	3

	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	5:00-5:15	5:15-5:30	5:30-5:45	5:45-6:00
straight 0								
Right In		 	 	 	 	 	 	
	4	7	12	10	6	10	10	8
Right Out								
	2	2	1	0	2	2	2	2
Left In								
	2	3	3	1	2	1	3	2
Left Out								
0								
	8	12	16	11	10	13	15	12

OAKS Town Center Lane @ Three OAKS Parkway

	7:00-7:15	7:15-7:30	7:30-7:45	7:45-8:00	8:00-8:15	8:15-8:30	8:30-8:45	8:45-9:00
straight ↩	0	6	1	0	0	1	0	0
Right In ↗	8	26	69	66	3	0	2	1
Right Out ↘	1	0	1	1	2	0	0	0
Left In ↙	0	3	8	2	2	2	1	0
Left Out ↖	1	0	1	0	0	0	0	0
	10	35	80	69	7	3	3	1

OAKS Center Drive @ OAKS Town Center Lane

Friday 1-27-23

	4:00-4:15	4:15-4:30	4:30-4:45	4:45-5:00	5:00-5:15	5:15-5:30	5:30-5:45	5:45-6:00
Straight	0	0	0	0	0	0	0	0
Right In	11	1111 1	111	11		1	1111	11
	2	6	3	2	0	1	4	2
Right Out		1				1	1	1
	0	1	0	0	0	1	1	1
Left In	1111	11111111	111111 111	1111 11	111111	111111 111	111111 1111	1111 1
	4	10	8	7	10	13	9	6
Left Out		11		11				
	0	2	0	2	0	0	0	0
	6	19	11	11	10	15	14	9

OAKS Center Drive @ OAKS Town Center Lane