



Village of Wellington, Florida

TRAFFIC OPERATIONAL MANAGEMENT PLAN

PREPARED FOR:

Wellington Lifestyle Partners
13421 South Shore Boulevard
Wellington, Florida 33414

JOB NO. 22-130D

DATE: 09/25/2023

Revised: 12/14/2023

Revised: 1/22/2024

Revised: 1/29/2024

Revised: 02/21/2024

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| <p>Bryan G. Kelley, Professional Engineer, State of Florida, License No. 74006</p> <p>This item has been digitally signed and sealed by Bryan G. Kelley, P.E., on 02/21/24.</p> <p>Printed Copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.</p> | |
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1.0 INTRODUCTION

The subject parcel is located on the north side of Gracida Street west of South Shore Boulevard in the Village of Wellington, Florida. The proposed plan of development consists of a new equestrian showgrounds facility on Pod F and will allow for a total of 6,000 combined attendees between spectators, exhibitors, staff, and vendors. Site access to the new showgrounds is existing via driveway connections on Pierson Road at Gene Mische Way and a driveway connection on Gracida Street at Gene Mische Way. Two new driveway connections are proposed for the showgrounds on Gracida Street. For additional information concerning site location and layout, please refer to the Site Plan prepared by Cotleur & Hearing.

The purpose of this report is to provide a Traffic Operational Management Plan detailing the proposed traffic operations and circulation for peak event traffic. It should be noted this document is intended for a maximum capacity peak event. However, maximum attendance events are likely to occur once or twice a season and the majority of events will be smaller. The operator of the facility will continue to monitor traffic and will make adjustments as necessary and based on anticipated demand for a given event.

2.0 OFFSITE TRAFFIC IMPACT

A comprehensive Traffic Impact Statement for the proposed overall Wellington South project dated May 8, 2023 has been prepared and details the offsite impacts of the proposed development. Note a Traffic Equivalency Statement dated December 7, 2023 has also been prepared which documents the reduction in traffic from the original 197 single family homes and 15,000 attendee peak equestrian event to the currently proposed 107 single family homes and 11,000 attendee peak equestrian event associated with the Wellington South Master Plan. Note as part of the proposed Compatibility Determination application, the peak equestrian event has been further reduced to 6,000 total attendees.

3.0 STAGGERED EVENT TIMES

As stated in the above referenced Traffic Impact Statement dated May 8, 2023, the new showgrounds and existing showground will not have peak events at the same time.

4.0 DELIVERIES

Food and other deliveries will occur in advance of events to minimize peak traffic volumes. Deliveries will generally utilize the entrance on Gene Mische Way at Gracida Street to access the facility.

5.0 PEDESTRIANS, GOLF CARTS & BRIDLE TRAILS

An extensive internal network is proposed in addition to the roadway network that includes sidewalks, golf carts, and bridle trails. The internal transportation network has been designed to minimize conflicts and provide for convenience for each type of user. During events and where trails, paths, or roadways intersect, staff members will be present to assist with traffic control. Please refer to the Traffic Circulation Plan prepared by Cotleur & Hearing for full details on the locations of each of these facilities.

6.0 ONSITE TRAFFIC OPERATIONS

Exhibitors, Vendors, and Staff

Exhibitors, vendors, and staff will arrive via Gene Mische Way from either Pierson Road or Gracida Street. Parking for these attendees will be located just east of Gene Mische Way at the new showgrounds area as shown in the Traffic Operational Management Plan Exhibit attached in Appendix A. Approximately 434 parking spaces are available for staff, vendors, production, and exhibitors. These attendees will generally arrive to the facility well in advance of major events to minimize traffic impacts. If additional parking is needed, general spectator spaces can be utilized or the overflow parking lot north of the VIP parking area.

General Admission Parking

General admission spectators will arrive via Gene Mische Way from either Pierson Road or Gracida Street. Note the existing gatehouse off Gracida Street has been moved from approximately 250 feet north of Gracida Street to approximately 750 feet north of Gracida Street to increase the internal stacking capacity. The 750 feet gatehouse setback from Gracida Street will allow for stacking of approximately 34 vehicles internal to the site. Note cones will be placed during events to block driveway access prior to the gate and maximize vehicular stacking capacity. The existing gatehouse on Pierson Road is located approximately 490 feet south of Pierson Road which allows for stacking of approximately 22 vehicles. Approximately 414 parking spaces are available at the new showgrounds facility just east of Gene Mische Way. However, additional non-paved rings and outdoor arenas will be used for general admission event parking as needed. An additional 1,563 spaces are available for event overflow parking for a total of 1,977 parking spaces for general admission as identified in the Traffic Operational Management Plan Exhibit in Appendix A. Parking Attendants will be located throughout the parking area and on the internal roadway network to assist and direct motorists. Wayfinding signage will also be used as needed.

VIP Parking

The VIP spectator parking will be located off Gracida Street utilizing the eastern two driveways. VIP parking will be purchased prior to the event and motorists arriving at the site will be required to show credentials to the VIP attendants. Once onsite and VIP parking credentials have been verified, they will be directed to park in the parking area to the east or south of the new stadium. The parking attendant will be located approximately 435 feet from Gracida Street to allow for vehicle stacking of 19 vehicles. A total of approximately 513 parking spaces is available for VIP parking. However, valet may utilize some of these spaces pending demand. The overflow lots will be available for VIP parking as well.

Valet Parking

Valet parking will be accessed off the middle entrance on Gracida Street and be located directly to the south of the International Arena. Staff members and wayfinding signage will be provided onsite to direct motorists to the correct location. The valet parking attendants will then park the vehicles in the adjacent designated parking area as shown in the Traffic Operational Management Exhibit. 108 parking spaces are designated for valet parking but the valet attendants may utilize the VIP parking if additional spaces are needed. The valet area is located approximately 290 feet from Gracida Street which will allow for 13 vehicles of stacking plus the amount being serviced in the valet drop off area.

Trained Staff Members

The new showgrounds will utilize off-duty police officer and numerous staff members during peak events to assist with traffic operations, circulation, and parking. Please refer to the Traffic Operational Management Plan Exhibit attached with this report for the staff locations and additional details. Note the number of staff members shown on the exhibits are not reflective of actual number of staff members assisting but shown to provide the general location of staffing.

VIP Parking Credentials Attendant

This staff member will be located at the eastern and central driveway connections to Gracida Street and will be responsible for verifying credentials of the VIP spectators. All VIP parking passes will be purchased ahead of the event which allow for a faster processing of vehicles. It is anticipated that multiple VIP credentials attendants will be utilized to assist with minimizing vehicle queuing.

General Admission Parking Attendant

The general admission parking attendants will be located on Gene Miche Way internal to the site. These staff members will collect parking fees (if used) for general admission parking. Several staff members will assist in the process to reduce vehicle queueing. Additionally, the facility is exploring other parking payment options such as prepayment or mobile parking plans to expedite the parking process. The operator may also not require parking fees for all events.

Parking Attendants

These staff members will be located throughout the showgrounds and parking areas to assist with parking and lot availability.

Valet Parking Attendants

The valet parking attendants will be located in the designated valet loading lane as shown in the Traffic Operational Management Plan Exhibit. These staff members will then valet the vehicles in the designated adjacent valet parking area. The number of valet staff members will vary pending anticipated event size and demand.

PBSO Traffic Control Personnel

Off-duty PBSO officers will be used to assist with traffic control on Pierson Road at Gene Miche Way and on Gracida Street at the eastern driveway connection. These off-duty officers will be present before and after events to ensure an efficient and safe ingress and egress from the facility. The officers will stop through traffic as necessary on Pierson Road and Gracida Street to allow motorists in and out of the facility. For peak events and if necessary, off-duty officers may also be used at the signalized intersections of South Shore Boulevard at Pierson Road and Gracida Street after events. The officers would utilize a "traffic pickle" to control the traffic signal to give additional green time to Gracida Street and Pierson Road to efficiently handle the increase in traffic demand.

After Event Traffic

After an event, general admission will be able exit the facility to Pierson Road or Gracida Street from both Gene Mische Way. VIP parking will exit the facility via both driveway connections to Gracida Street. Staff members will be located throughout the facility to assist with wayfinding and traffic control. Additionally, off-duty police officers will be located at the same locations as shown on the Traffic Operational Management Plan Exhibit to assist with egress traffic.

7.0 QUEUING CALCULATIONS

The queuing calculations were prepared based on the methodology outlined within the ITE Transportation and Land Development, Application of Queueing Analysis. Separate queuing calculations were provided for each of the driveway connections. It was assumed that each location would have at least 2 attendants assisting with parking credentials. The new driveway volumes based on the 6,000 total attendee event has been calculated and is included in Appendix "B". For the purposes of the queuing calculations, the volume demand was multiplied by 1.5 to be conservative and to consider condensed time frames of arrival. The results of the queuing analysis are provided in Appendix "B" attached to this report and may be summarized as follows:

Queue Analysis Summary

Gene Mische Way driveway from Pierson Road

- Stacking Capacity = 22 vehicles
- Queue = 14 vehicles
- Minimum Parking Credential Attendants = 3

Gene Mische Way driveway from Gracida Street

- Stacking Capacity = 34 vehicles
- Queue = 10 vehicles
- Minimum Parking Credential Attendants = 2

VIP Eastern driveway on Gracida Street

- Stacking Capacity = 19 vehicles
- Queue = 7 vehicles
- Minimum Parking Credential Attendants = 2

Valet (central) driveway on Gracida Street

- Stacking Capacity = 13 vehicles
- Queue = 8 vehicles
- Minimum Valet Attendants = 4

These calculations are based on the assumptions documented including the processing time of vehicles and the number of staff members present to assist with traffic management operations. The showgrounds will continuously monitor operations and adjust staffing levels and points of contact if necessary to ensure a safe and efficient process that minimizes disruptions to Gracida Street and Pierson Road.

8.0 PARKING CALCULATIONS

The parking calculations are provided on the Site Plan based on Village code requirements and may be summarized as follows:

Parking Code Requirements – Using Stadium Square Footage

| | |
|--|-----------------------|
| International Arena (102,000 S.F.) – 1 space/200 SF | = 510 spaces |
| Covered Arena (84,000 S.F.) – 1 space/200 SF | = 420 spaces |
| Office/Admin (10,000 S.F.) – 1 space/250 SF | = 40 spaces |
| Stalls (1,108 stalls) – 1 space/ 2 stalls (Includes barns, stables, and quarantine) | = 554 spaces |
| Restaurant (210 seats) – 1 space/ 3 seats | = 70 spaces |
| Retail (5,100 S.F.) – 1 space/250 SF | = 20 spaces |
| VIP Hospitality (1,500 Seats) – 1 space/ 3 seats | = 500 spaces |
| Special Event Pavilion (1,000 Seats) – 1 space/ 3 seats | = 333 spaces |
| Employee Parking (150 employees) – 1 space / employee | = 150 spaces |
| Vendor and Production (100 people) – 1 space / person | = 100 spaces |
| Total | = 2,697 spaces |

Parking Code Requirements – Using Stadium General Spectator Seats

| | |
|--|-----------------------|
| International Arena (3,000 Seats) – 1 space/3 Seats | = 1,000 spaces |
| Covered Arena (200 Seats) – 1 space/3 Seats | = 67 spaces |
| Office/Admin (10,000 S.F.) – 1 space/250 SF | = 40 spaces |
| Stalls (1,108 stalls) – 1 space/ 2 stalls (Includes barns, stables, and quarantine) | = 554 spaces |
| Restaurant (210 seats) – 1 space/ 3 seats | = 70 spaces |
| Retail (5,100 S.F.) – 1 space/250 SF | = 20 spaces |
| VIP Hospitality (1,500 Seats) – 1 space/ 3 seats | = 500 spaces |
| Special Event Pavilion (1,000 Seats) – 1 space/ 3 seats | = 333 spaces |
| Employee Parking (150 employees) – 1 space / employee | = 150 spaces |
| Vendor and Production (100 people) – 1 space / person | = 100 spaces |
| Total | = 2,834 spaces |

Standard Weekday, Non-Event Parking Calculation

| | |
|--|---------------------|
| Office/Admin (10,000 S.F.) – 1 space/250 SF | = 40 spaces |
| Stalls (1,108 stalls) – 1 space/ 2 stalls (Includes barns, stables, and quarantine) | = 554 spaces |
| Restaurant (210 seats) – 1 space/ 3 seats | = 70 spaces |
| Retail (5,100 S.F.) – 1 space/250 SF | = 20 spaces |
| Employee Parking (150 employees) – 1 space / employee | = 150 spaces |
| Total | = 834 spaces |

As shown in the Site Plan, a total of 1,458 parking spaces including standard spaces, golf cart spaces, and trailer parking are provided. The proposed 1,458 parking spaces will be sufficient for normal weekday operations as documented above. During large events, the showgrounds will utilize the overflow (non-paved parking) which total an additional 1,563 parking spaces available. Therefore, a total of 3,021 parking spaces will be available for peak event traffic which is greater than the anticipated and required parking.

9.0 INTERSECTION OPERATIONS

A traffic operational analysis was prepared for the intersection of Gracida Street at South Shore Boulevard based on the 6,000 attendee Saturday peak event outlined in this application. The peak hour factor (PHF) was adjusted to 0.70 for traffic movements from and to Gracida Street. The average vehicular delay for the intersection was determined to be 38.1 seconds per vehicle which is Level of Service D. The Synchro printouts are included in Appendix C attached to this report and the 95th percentile queues are summarized below:

Gracida Street at South Shore Boulevard – 95th Percentile Queues

| Turn Lane | 95 th Percentile Queue (ft) | Existing Storage Bay (ft) | Proposed Turn Lane Length (ft) |
|-------------------------|--|---------------------------|--------------------------------|
| Eastbound Left | 134 | 135 | 175 |
| Eastbound Through/Right | 178 | N/A | N/A |
| Northbound Left | 125 | 180 | N/A |
| Westbound Right | 392 | 270 | 425 |

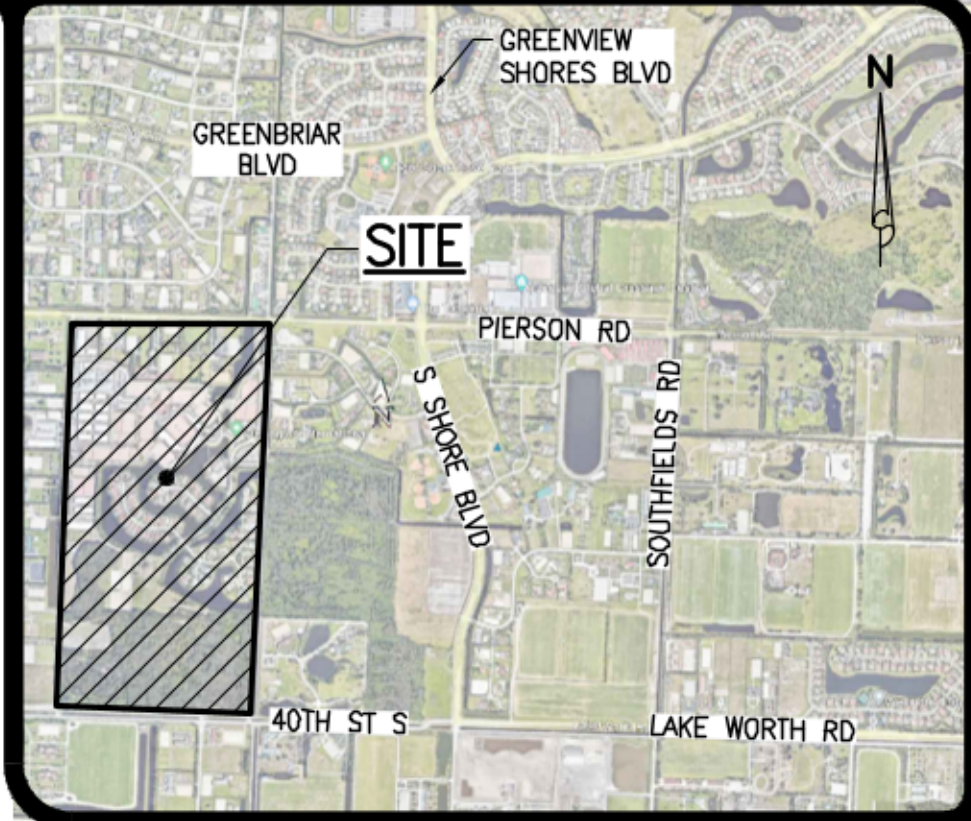
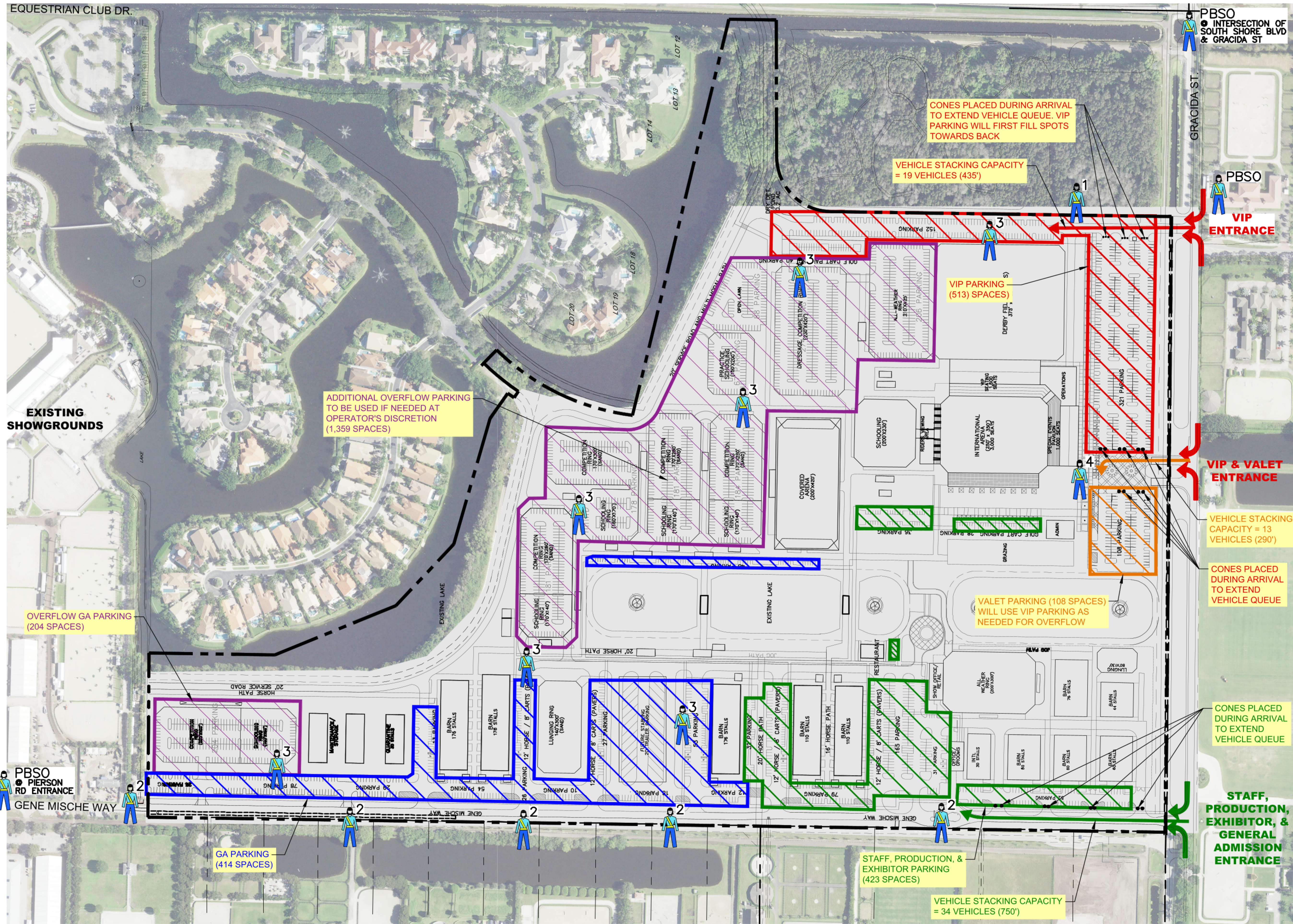
10.0 CONCLUSION

The Traffic Operational Management Plan documented within this report has been prepared for a peak event at the proposed facility to reduce and minimize offsite traffic impacts and provide for an efficient experience for spectators and exhibitors. The operator of the facility will continue to monitor traffic and will make adjustments as necessary based on anticipated demand for a given event.



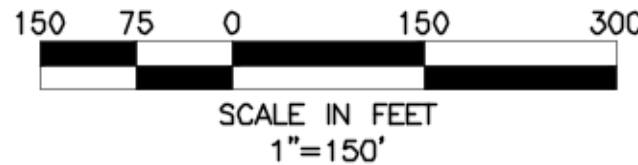
APPENDIX A

TRAFFIC OPERATIONAL MANAGEMENT PLAN EXHIBIT



LOCATION MAP

NOT TO SCALE



LEGEND

- General Admission (GA) Parking
- VIP Parking
- Exhibitor & Staff Parking
- Valet Parking
- Overflow Parking

PBSO
OFF-DUTY PBSO WILL BE LOCATED AT THE PIERSON ROAD AND GRACIDA STREET SPECTATOR ENTRANCES BEFORE AND AFTER EVENTS TO ASSIST WITH TRAFFIC OPERATIONS AND SAFETY.

- 1** VIP PARKING CREDENTIALS ATTENDANT. THIS STAFF MEMBER WILL VERIFY CREDENTIALS OF VIP PARKING.
- 2** GENERAL ADMISSION ATTENDANT. THESE STAFF MEMBERS WILL COLLECT PARKING FEES FOR GENERAL ADMISSION PARKING. SEVERAL STAFF MEMBERS WILL ASSIST IN THE PROCESS.
- 3** PARKING ATTENDANT. THESE STAFF MEMBERS WILL BE LOCATED THROUGHOUT THE SHOWGROUNDS AND PARKING AREAS TO ASSIST WITH PARKING AND LOT AVAILABILITY.
- 4** VALET PARKING ATTENDANT.

PARKING TOTALS:

- GENERAL ADMISSION W/ OVERFLOW = 1,977 SPACES
- STAFF, PRODUCTION, & EXHIBITOR PARKING = 423 SPACES
- VALET & VIP = 621 SPACES
- *TOTAL EVENT PARKING = 3,021 SPACES
- *INCLUDES STANDARD PARKING, GOLF CART PARKING, AND TRAILER PARKING.

2/21/2024

INGRESS PLAN



WELLINGTON INTERNATIONAL EXPANSION
SECTION 20, TOWNSHIP 44S., RANGE 41E.
VILLAGE OF WELLINGTON, FLORIDA
TRAFFIC OPERATIONAL MANAGEMENT PLAN

REVISIONS

| DESIGN | DRAWN | CHECKED | APPROVED | DATE |
|--------|-------|---------|----------|------|
| B.K. | B.L. | | | |

| JOB NO. | DRAWING NO. | SHEET | OF |
|---------|-------------|-------|----|
| 22-1300 | 22130(D)202 | 1 | 1 |

EQUESTRIAN CLUB DR.

EXISTING SHOWGROUNDS

OVERFLOW GA PARKING
(204 SPACES)

GA PARKING
(414 SPACES)

ADDITIONAL OVERFLOW PARKING
TO BE USED IF NEEDED AT
OPERATOR'S DISCRETION
(1,359 SPACES)

CONES PLACED DURING ARRIVAL
TO EXTEND VEHICLE QUEUE. VIP
PARKING WILL FIRST FILL SPOTS
TOWARDS BACK

VEHICLE STACKING CAPACITY
= 19 VEHICLES (435')

VALET PARKING (108 SPACES)
WILL USE VIP PARKING AS
NEEDED FOR OVERFLOW

STAFF, PRODUCTION, &
EXHIBITOR PARKING
(423 SPACES)

VEHICLE STACKING CAPACITY
= 34 VEHICLES (750')

STAFF,
PRODUCTION,
EXHIBITOR, &
GENERAL
ADMISSION
ENTRANCE

VIP
ENTRANCE

VIP & VALET
ENTRANCE

PBSO
● INTERSECTION OF
SOUTH SHORE BLVD
& GRACIDA ST

PBSO

PBSO

PBSO

LOCATION MAP

NOT TO SCALE

N

150 75 0 150 300
SCALE IN FEET
1"=150'

LEGEND

- GENERAL ADMISSION (GA) PARKING
- VIP PARKING
- EXHIBITOR & STAFF PARKING
- VALET PARKING
- OVERFLOW PARKING

PBSO

OFF-DUTY PBSO WILL BE LOCATED AT
THE PIERSON ROAD AND GRACIDA
STREET ENTRANCES TO ASSIST WITH
EGRESS AND VEHICLE CIRCULATION.

1

TRAFFIC CIRCULATION STAFF WILL BE
LOCATED THROUGHOUT THE FACILITY TO
ASSIST WITH VEHICLE EGRESS.

2

VALET PARKING ATTENDANT.

PARKING TOTALS:

- GENERAL ADMISSION W/ OVERFLOW = 1,977 SPACES
- STAFF, PRODUCTION, & EXHIBITOR PARKING = 423 SPACE
- VALET & VIP = 621 SPACES
- *TOTAL EVENT PARKING = 3,021 SPACES
- *INCLUDES STANDARD PARKING, GOLF CART PARKING,
AND TRAILER PARKING.

2/21/2024

EGRESS PLAN

SIMMONS & WHITE
2581 Metrocentre Blvd West, Ste 3 | West Palm Beach, FL 33407
Authorization # 3452 | 561.478.7848

WELLINGTON INTERNATIONAL EXPANSION
SECTION 20, TOWNSHIP 44S., RANGE 41E.
VILLAGE OF WELLINGTON, FLORIDA
TRAFFIC OPERATIONAL MANAGEMENT PLAN

REVISIONS

DESIGN B.K. DRAWN B.L. CHECKED APPROVED DATE

JOB NO. 22-1300 DRAWING NO. 22130(D)203 SHEET 1 OF 1



APPENDIX B

QUEUE CALCULATIONS

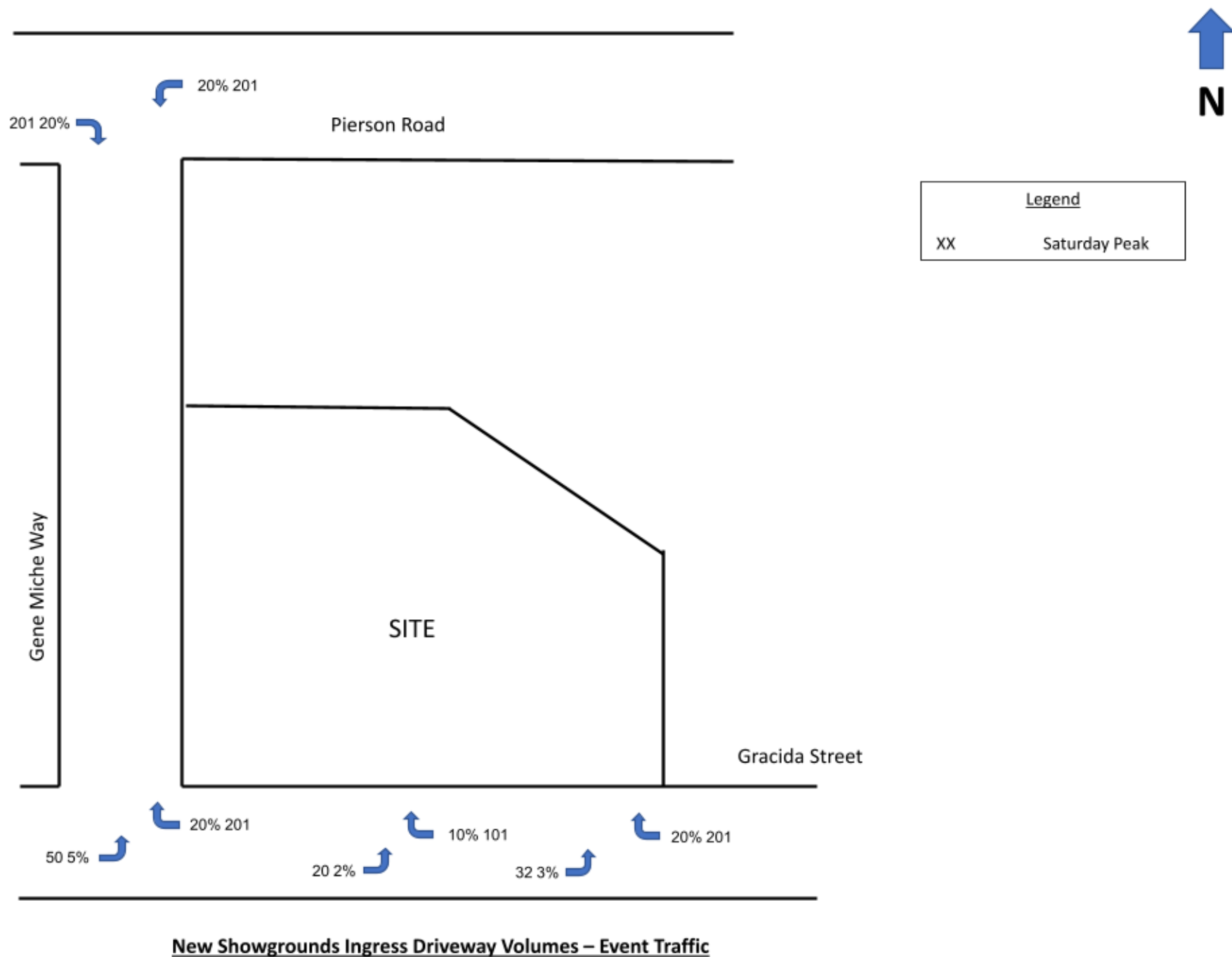


Figure 1 – Ingress Driveway Volumes – Event Traffic
 Pod F New Showgrounds
 Project # 22-130

Gene Mische Way at Gracida Street - Queuing Calculations

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho} \right] - 1$$

Q = 240 Processing rate (processes per hour)
 q = 377 Demand rate (vehicles per hour)
 N = 2 Service positions (attendants)
 ρ = 0.785 Utilization factor (q/(NQ))
 Q_m = 0.691 Table Value
 M = 9.88 10 Vehicle Queue

| | N = 1 | 2 | 3 | 4 | 6 | 8 | 10 |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 0.1 | 0.1000 | 0.1820 | 0.0037 | 0.0080 | 0.0000 | 0.0000 | 0.0000 |
| 0.2 | 0.2000 | 0.0666 | 0.0247 | 0.0096 | 0.0015 | 0.0002 | 0.0000 |
| 0.3 | 0.3000 | 0.1385 | 0.0700 | 0.0370 | 0.0111 | 0.0036 | 0.0011 |
| 0.4 | 0.4000 | 0.2286 | 0.1411 | 0.0907 | 0.0400 | 0.0185 | 0.0088 |
| 0.5 | 0.5000 | 0.3333 | 0.2368 | 0.1739 | 0.0991 | 0.0591 | 0.0360 |
| 0.6 | 0.6000 | 0.4501 | 0.3548 | 0.2870 | 0.1965 | 0.1395 | 0.1013 |
| 0.7 | 0.7000 | 0.5766 | 0.4923 | 0.4286 | 0.3359 | 0.2706 | 0.2218 |
| 0.8 | 0.8000 | 0.7111 | 0.6472 | 0.5964 | 0.5178 | 0.4576 | 0.4093 |
| 0.9 | 0.9000 | 0.8526 | 0.8172 | 0.7878 | 0.7401 | 0.7014 | 0.6687 |
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| | | |
|---------------|--------|--------|
| Interpolate | X | Y |
| Low Number = | 0.7000 | 0.5766 |
| High Number = | 0.8000 | 0.7111 |

Notes:

1. Driveway ingress trips multiplied by 1.5 to account for more condensed peak demand and to be conservative.
2. Processing rate estimated at 15 seconds per vehicle to confirm parking credentials.
3. Minimum of 2 attendants required.
4. Stacking capacity from gatehouse to Gracida Street = 34 vehicles

Gene Mische Way at Pierson Road - Queuing Calculations

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho} \right] - 1$$

Q = 240 Processing rate (processes per hour)
 q = 603 Demand rate (vehicles per hour)
 N = 3 Service positions (attendants)
 ρ = 0.838 Utilization factor (q/(NQ))
 Q_m = 0.711 Table Value
 M = 13.97 14 Vehicle Queue

| | N = 1 | 2 | 3 | 4 | 6 | 8 | 10 |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 0.1 | 0.1000 | 0.1820 | 0.0037 | 0.0080 | 0.0000 | 0.0000 | 0.0000 |
| 0.2 | 0.2000 | 0.0666 | 0.0247 | 0.0096 | 0.0015 | 0.0002 | 0.0000 |
| 0.3 | 0.3000 | 0.1385 | 0.0700 | 0.0370 | 0.0111 | 0.0036 | 0.0011 |
| 0.4 | 0.4000 | 0.2286 | 0.1411 | 0.0907 | 0.0400 | 0.0185 | 0.0088 |
| 0.5 | 0.5000 | 0.3333 | 0.2368 | 0.1739 | 0.0991 | 0.0591 | 0.0360 |
| 0.6 | 0.6000 | 0.4501 | 0.3548 | 0.2870 | 0.1965 | 0.1395 | 0.1013 |
| 0.7 | 0.7000 | 0.5766 | 0.4923 | 0.4286 | 0.3359 | 0.2706 | 0.2218 |
| 0.8 | 0.8000 | 0.7111 | 0.6472 | 0.5964 | 0.5178 | 0.4576 | 0.4093 |
| 0.9 | 0.9000 | 0.8526 | 0.8172 | 0.7878 | 0.7401 | 0.7014 | 0.6687 |
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| | | |
|---------------|--------|--------|
| Interpolate | X | Y |
| Low Number = | 0.8000 | 0.6472 |
| High Number = | 0.9000 | 0.8172 |

Notes:

1. Driveway ingress trips multiplied by 1.5 to account for more condensed peak demand and to be conservative.
2. Processing rate estimated at 15 seconds per vehicle to confirm parking credentials.
3. Minimum of 3 attendants required.
4. Stacking capacity from gatehouse to Pierson Street = 22 vehicles

Gracida Street at VIP Eastern Driveway - Queuing Calculations

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho} \right] - 1$$

Q = 240 Processing rate (processes per hour)
 q = 349.5 Demand rate (vehicles per hour)
 N = 2 Service positions (attendants)
 ρ = 0.728 Utilization factor (q/(NQ))
 Q_m = 0.614 Table Value
 M = 6.91 7 Vehicle Queue

| | N = 1 | 2 | 3 | 4 | 6 | 8 | 10 |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 0.1 | 0.1000 | 0.1820 | 0.0037 | 0.0080 | 0.0000 | 0.0000 | 0.0000 |
| 0.2 | 0.2000 | 0.0666 | 0.0247 | 0.0096 | 0.0015 | 0.0002 | 0.0000 |
| 0.3 | 0.3000 | 0.1385 | 0.0700 | 0.0370 | 0.0111 | 0.0036 | 0.0011 |
| 0.4 | 0.4000 | 0.2286 | 0.1411 | 0.0907 | 0.0400 | 0.0185 | 0.0088 |
| 0.5 | 0.5000 | 0.3333 | 0.2368 | 0.1739 | 0.0991 | 0.0591 | 0.0360 |
| 0.6 | 0.6000 | 0.4501 | 0.3548 | 0.2870 | 0.1965 | 0.1395 | 0.1013 |
| 0.7 | 0.7000 | 0.5766 | 0.4923 | 0.4286 | 0.3359 | 0.2706 | 0.2218 |
| 0.8 | 0.8000 | 0.7111 | 0.6472 | 0.5964 | 0.5178 | 0.4576 | 0.4093 |
| 0.9 | 0.9000 | 0.8526 | 0.8172 | 0.7878 | 0.7401 | 0.7014 | 0.6687 |
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| | | |
|---------------|--------|--------|
| Interpolate | X | Y |
| Low Number = | 0.7000 | 0.5766 |
| High Number = | 0.8000 | 0.7111 |

Notes:

1. Driveway ingress trips multiplied by 1.5 to account for more condensed peak demand and to be conservative.
2. Processing rate estimated at 15 seconds per vehicle to confirm parking credentials.
3. Minimum of 2 attendants required.
4. Stacking capacity from staff attendant to Gracida Street = 19 vehicles

Gracida Street at Valet Driveway - Queuing Calculations

$$M = \left[\frac{\ln P(x > M) - \ln Q_M}{\ln \rho} \right] - 1$$

Q = 60 Processing rate (processes per hour)
 q = 181.5 Demand rate (vehicles per hour)
 N = 4 Service positions (attendants)
 ρ = 0.756 Utilization factor (q/(NQ))
 Q_m = 0.523 Table Value
 M = 7.40 **8 Vehicle Queue**

| | N = 1 | 2 | 3 | 4 | 6 | 8 | 10 |
|-----|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 0.1 | 0.1000 | 0.1820 | 0.0037 | 0.0080 | 0.0000 | 0.0000 | 0.0000 |
| 0.2 | 0.2000 | 0.0666 | 0.0247 | 0.0096 | 0.0015 | 0.0002 | 0.0000 |
| 0.3 | 0.3000 | 0.1385 | 0.0700 | 0.0370 | 0.0111 | 0.0036 | 0.0011 |
| 0.4 | 0.4000 | 0.2286 | 0.1411 | 0.0907 | 0.0400 | 0.0185 | 0.0088 |
| 0.5 | 0.5000 | 0.3333 | 0.2368 | 0.1739 | 0.0991 | 0.0591 | 0.0360 |
| 0.6 | 0.6000 | 0.4501 | 0.3548 | 0.2870 | 0.1965 | 0.1395 | 0.1013 |
| 0.7 | 0.7000 | 0.5766 | 0.4923 | 0.4286 | 0.3359 | 0.2706 | 0.2218 |
| 0.8 | 0.8000 | 0.7111 | 0.6472 | 0.5964 | 0.5178 | 0.4576 | 0.4093 |
| 0.9 | 0.9000 | 0.8526 | 0.8172 | 0.7878 | 0.7401 | 0.7014 | 0.6687 |
| 1 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 |

| | | |
|---------------|--------|--------|
| Interpolate | X | Y |
| Low Number = | 0.7000 | 0.4286 |
| High Number = | 0.8000 | 0.5964 |

Notes:

1. Driveway ingress trips multiplied by 1.5 to account for more condensed peak demand and to be conservative.
2. Processing rate estimated at 60 seconds for the valet attendant to park car and return to stand.
3. Minimum of 4 attendants required.
4. Stacking capacity from Valet stand to Gracida Street = 13 vehicles



APPENDIX C

SOUTH SHORE BOULEVARD AT GRACIDA STREET INTERSECTION ANALYSIS

POD F NEW SHOWGROUNDS

12/14/2023
Revised: 01/16/2024

COMPATABILITY ANALYSIS - 6,000 TOTAL ATTENDEES

TABLE 1 - Saturday Peak Hour Traffic Generation

| Landuse | ITE Code | Intensity | Rate/Equation | Dir Split | | Gross Trips | | | Internalization | | | | External Trips | | | Pass-by | | Net Trips | | |
|------------------------|----------|-----------|----------------|-----------|------|--------------|------------|--------------|-----------------|-----------|-----------|-----------|----------------|------------|--------------|-----------|----------|--------------|------------|--------------|
| | | | | In | Out | In | Out | Total | % | In | Out | Total | In | Out | Total | % | Trips | In | Out | Total |
| Single Family Detached | 210 | 107 | Dwelling Units | 0.63 | 0.37 | 68 | 40 | 108 | 15.0% | 10 | 6 | 16 | 58 | 34 | 92 | 0% | 0 | 58 | 34 | 92 |
| Showgrounds | N/A | 6,000 | Attendees | 0.73 | 0.27 | 1,007 | 373 | 1,380 | 1.2% | 6 | 10 | 16 | 1,001 | 363 | 1,364 | 0% | 0 | 1001 | 363 | 1364 |
| Grand Totals: | | | | | | 1,075 | 413 | 1,488 | 2.2% | 16 | 16 | 32 | 1,059 | 397 | 1,456 | 0% | 0 | 1,059 | 397 | 1,456 |

Note:

See Traffic Impact Statement for more information on trip generation calculations and traffic analysis.

This trip generation can be considered conservative since the capacity is 6,000 attendees and not spectators. The trip generation rate is based on a spectator trip generation rate whereas many of the attendees such as staff, exhibitors, and vendors will arrive early.

SOUTH SHORE BOULEVARD AT LAKE WORTH ROAD

INPUT DATA

Growth Rate = 1.29% Peak Season = 1.00 Current Year = 2018 Buildout Year = 2027

Growth Rate = 1.29% Peak Season = 1.00 Current Year = 2018 Buildout Year = 2027

SATURDAY PEAK

INTERSECTION VOLUME DEVELOPMENT

| | | Northbound | | | Southbound | | | Eastbound | | | Westbound | | |
|--|--|------------|------|-------|------------|------|-------|-----------|------|-------|-----------|------|-------|
| | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| Existing Volume (2018) | | 5 | 220 | 33 | 355 | 145 | 37 | 68 | 27 | 4 | 13 | 16 | 416 |
| Peak Season Adjustment | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Background Traffic Growth (2018-2022 - 1%) | | 0 | 9 | 1 | 14 | 6 | 2 | 3 | 1 | 0 | 1 | 1 | 17 |
| Background Traffic Growth (2022-2027) | | 0 | 15 | 2 | 24 | 10 | 3 | 5 | 2 | 0 | 1 | 1 | 29 |
| 1.0% Background Growth | | 0 | 21 | 3 | 33 | 14 | 3 | 6 | 3 | 0 | 1 | 1 | 39 |
| Major Projects Traffic | | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 0 |
| Background Traffic Used | | 0 | 21 | 3 | 47 | 14 | 3 | 6 | 3 | 0 | 15 | 1 | 39 |
| Project Traffic - Residential | | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| Project Traffic - Showgrounds | | 150 | 0 | 0 | 0 | 0 | 50 | 18 | 54 | 54 | 0 | 150 | 0 |
| 2027 Background Traffic | | 5 | 241 | 36 | 402 | 159 | 40 | 74 | 30 | 4 | 28 | 17 | 455 |
| Wellington North | | 0 | 0 | 0 | -5 | 0 | -2 | 6 | 0 | 0 | 0 | 0 | 15 |
| Total | | 155 | 241 | 36 | 409 | 159 | 88 | 98 | 84 | 58 | 28 | 167 | 490 |
| Approach Total | | 432 | | | 656 | | | 240 | | | 686 | | |
| Critical Volume Analysis | | | | | | | | | | | | | |
| No. of Lanes | | 1 | 1 | < | 2 | 1 | < | 1 | 1 | < | > | 1 | 1 |
| Per Lane Volume | | 155 | 267 | | 205 | 237 | 0 | 98 | 132 | 0 | 0 | 196 | 490 |
| Right on Red | | 0 | | | | | 0 | 0 | | | 60 | | |
| Overlaps Left | | 0 | | | | | 0 | 0 | | | 205 | | |
| Adj. Per Lane Volume | | 155 | 267 | | 205 | 237 | 0 | 98 | 132 | 0 | 0 | 196 | 225 |
| Through/Right Volume | | 267 | | | | | 237 | 132 | | | 225 | | |
| Opposing Left Turns | | 205 | | | | | 155 | 0 | | | 98 | | |
| Critical Volume for Approach | | 471 | | | | | 393 | 132 | | | 324 | | |
| Critical Volume for Direction | | | | 471 | | | | | | 324 | | | |
| Intersection Critical Volume | | 795 | | | | | | | | | | | |
| STATUS? | | UNDER | | | | | | | | | | | |

RESIDENTIAL NET TRIPS

| | | |
|----|----|-----|
| | IN | OUT |
| AM | | |
| PM | 58 | 34 |

| | | |
|---|---|-----|
| 0 | 0 | 12 |
| 0 | 0 | 0 |
| | | OUT |
| | | 35% |

| | | | |
|-----|----|---|----|
| 35% | IN | 0 | 20 |
| | | 0 | 0 |
| | | 0 | 0 |

SHOWGROUNDS NET TRIPS

| | | |
|----|-------|-----|
| | IN | OUT |
| AM | | |
| PM | 1,001 | 363 |

| | | |
|----|---|---|
| 50 | 0 | 0 |
| 0 | 0 | 0 |
| IN | | |
| 5% | | |

| | | | |
|-----|----|---|-----|
| | | 0 | 0 |
| 15% | IN | 0 | 150 |
| | | 0 | 0 |

| | | | |
|----|---|-----|-----|
| 18 | 0 | OUT | 5% |
| 54 | 0 | OUT | 15% |
| 54 | 0 | OUT | 15% |

| | | |
|-----|---|---|
| 15% | | |
| IN | | |
| 0 | 0 | 0 |
| 150 | 0 | 0 |

Lanes, Volumes, Timings

9: Lake Worth Road & South Shore Blvd

01/16/2024















| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 98 | 84 | 58 | 28 | 167 | 490 | 155 | 241 | 36 | 409 | 159 | 88 |
| Future Volume (vph) | 98 | 84 | 58 | 28 | 167 | 490 | 155 | 241 | 36 | 409 | 159 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Fr't | 0.939 | | | | | 0.850 | | 0.980 | | | 0.935 | |
| Flt Protected | 0.950 | | | | 0.995 | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1719 | 1699 | 0 | 0 | 1806 | 1583 | 1719 | 1825 | 0 | 3433 | 1742 | 0 |
| Flt Permitted | 0.950 | | | | 0.943 | | 0.503 | | | 0.950 | | |
| Satd. Flow (perm) | 1719 | 1699 | 0 | 0 | 1712 | 1583 | 910 | 1825 | 0 | 3433 | 1742 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | *12 | | | | *100 | | *12 | | | *12 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 971 | | | 1489 | | | 801 | | | 3294 | |
| Travel Time (s) | | 22.1 | | | 33.8 | | | 18.2 | | | 74.9 | |
| Peak Hour Factor | 0.70 | 0.70 | 0.70 | 0.95 | 0.70 | 0.95 | 0.70 | 0.95 | 0.95 | 0.95 | 0.95 | 0.70 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 2% | 5% | 2% | 5% | 2% | 2% | 2% | 2% | 2% |
| Adj. Flow (vph) | 140 | 120 | 83 | 29 | 239 | 516 | 221 | 254 | 38 | 431 | 167 | 126 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 140 | 203 | 0 | 0 | 268 | 516 | 221 | 292 | 0 | 431 | 293 | 0 |
| Enter Blocked Intersection | No | No | No | No | No | No | No | No | No | No | No | No |
| Lane Alignment | Left | Left | Right | Left | Left | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft) | | 12 | | | 12 | | | 24 | | | 24 | |
| Link Offset(ft) | | 0 | | | 0 | | | 0 | | | 0 | |
| Crosswalk Width(ft) | | 16 | | | 16 | | | 16 | | | 16 | |
| Two way Left Turn Lane | | | | | | | | | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Turn Type | Split | NA | | Perm | NA | pm+ov | pm+pt | NA | | Prot | NA | |
| Protected Phases | 3 | 3 | | | 4 | 5 | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | 4 | | 4 | 6 | | | | | |
| Detector Phase | 3 | 3 | | 4 | 4 | 5 | 1 | 6 | | 5 | 2 | |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | 5.0 | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | | 5.0 | 5.0 | |
| Minimum Split (s) | 24.0 | 24.0 | | 24.0 | 24.0 | 11.0 | 11.0 | 24.0 | | 11.0 | 24.0 | |
| Total Split (s) | 27.0 | 27.0 | | 36.0 | 36.0 | 31.0 | 22.0 | 36.0 | | 31.0 | 45.0 | |
| Total Split (%) | 20.8% | 20.8% | | 27.7% | 27.7% | 23.8% | 16.9% | 27.7% | | 23.8% | 34.6% | |
| Maximum Green (s) | 21.0 | 21.0 | | 30.0 | 30.0 | 25.0 | 16.0 | 30.0 | | 25.0 | 39.0 | |
| Yellow Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | |
| All-Red Time (s) | 2.0 | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | | 2.0 | 2.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 6.0 | 6.0 | | | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Lead/Lag | Lead | Lead | | Lag | Lag | Lead | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | Yes | Yes | Yes | | Yes | Yes | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Recall Mode | None | None | | None | None | Min | None | None | | Min | Min | |
| Walk Time (s) | 7.0 | 7.0 | | 7.0 | 7.0 | | | 7.0 | | | 7.0 | |
| Flash Dont Walk (s) | 11.0 | 11.0 | | 11.0 | 11.0 | | | 11.0 | | | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | 0 | | 0 | 0 | | | 0 | | | 0 | |

Lanes, Volumes, Timings

9: Lake Worth Road & South Shore Blvd

01/16/2024

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Act Effect Green (s) | 16.8 | 16.8 | | | 21.8 | 47.6 | 35.2 | 21.7 | | 19.5 | 27.6 | |
| Actuated g/C Ratio | 0.16 | 0.16 | | | 0.21 | 0.45 | 0.34 | 0.21 | | 0.19 | 0.26 | |
| v/c Ratio | 0.51 | 0.72 | | | 0.75 | 0.67 | 0.54 | 0.76 | | 0.68 | 0.63 | |
| Control Delay | 51.4 | 58.0 | | | 55.7 | 23.5 | 25.4 | 53.0 | | 47.7 | 40.6 | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 51.4 | 58.0 | | | 55.7 | 23.5 | 25.4 | 53.0 | | 47.7 | 40.6 | |
| LOS | D | E | | | E | C | C | D | | D | D | |
| Approach Delay | | 55.3 | | | 34.5 | | | 41.1 | | | 44.8 | |
| Approach LOS | | E | | | C | | | D | | | D | |
| Queue Length 50th (ft) | 88 | 125 | | | 174 | 219 | 93 | 182 | | 143 | 172 | |
| Queue Length 95th (ft) | 134 | 178 | | | 225 | 392 | 125 | 320 | | 232 | 294 | |
| Internal Link Dist (ft) | | 891 | | | 1409 | | | 721 | | | 3214 | |
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | 361 | 366 | | | 514 | 867 | 463 | 556 | | 858 | 687 | |
| Starvation Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.39 | 0.55 | | | 0.52 | 0.60 | 0.48 | 0.53 | | 0.50 | 0.43 | |

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 104.9

Natural Cycle: 85

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 42.1

Intersection LOS: D







Intersection Capacity Utilization 68.2%

ICU Level of Service C

Analysis Period (min) 15

* User Entered Value





















Splits and Phases: 9: Lake Worth Road & South Shore Blvd

| | | | |
|--|--|--|--|
|  Ø1 |  Ø2 |  Ø3 |  Ø4 |
| 22 s | 45 s | 27 s | 36 s |
|  Ø5 |  Ø6 | | |
| 31 s | 36 s | | |

HCM Signalized Intersection Capacity Analysis

9: Lake Worth Road & South Shore Blvd

01/16/2024

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | | |  |  |  |  | |  |  | |
| Traffic Volume (vph) | 98 | 84 | 58 | 28 | 167 | 490 | 155 | 241 | 36 | 409 | 159 | 88 |
| Future Volume (vph) | 98 | 84 | 58 | 28 | 167 | 490 | 155 | 241 | 36 | 409 | 159 | 88 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 6.0 | 6.0 | | | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Lane Util. Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 0.97 | 1.00 | |
| Frt | 1.00 | 0.94 | | | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 0.94 | |
| Flt Protected | 0.95 | 1.00 | | | 0.99 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1719 | 1699 | | | 1805 | 1583 | 1719 | 1826 | | 3433 | 1743 | |
| Flt Permitted | 0.95 | 1.00 | | | 0.94 | 1.00 | 0.50 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1719 | 1699 | | | 1711 | 1583 | 910 | 1826 | | 3433 | 1743 | |
| Peak-hour factor, PHF | 0.70 | 0.70 | 0.70 | 0.95 | 0.70 | 0.95 | 0.70 | 0.95 | 0.95 | 0.95 | 0.95 | 0.70 |
| Adj. Flow (vph) | 140 | 120 | 83 | 29 | 239 | 516 | 221 | 254 | 38 | 431 | 167 | 126 |
| RTOR Reduction (vph) | 0 | 10 | 0 | 0 | 0 | 60 | 0 | 9 | 0 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 140 | 193 | 0 | 0 | 268 | 456 | 221 | 283 | 0 | 431 | 284 | 0 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 2% | 5% | 2% | 5% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Split | NA | | Perm | NA | pm+ov | pm+pt | NA | | Prot | NA | |
| Protected Phases | 3 | 3 | | | 4 | 5 | 1 | 6 | | 5 | 2 | |
| Permitted Phases | | | | 4 | | 4 | 6 | | | | | |
| Actuated Green, G (s) | 16.8 | 16.8 | | | 21.8 | 41.3 | 35.3 | 21.7 | | 19.5 | 27.6 | |
| Effective Green, g (s) | 16.8 | 16.8 | | | 21.8 | 41.3 | 35.3 | 21.7 | | 19.5 | 27.6 | |
| Actuated g/C Ratio | 0.16 | 0.16 | | | 0.21 | 0.40 | 0.34 | 0.21 | | 0.19 | 0.27 | |
| Clearance Time (s) | 6.0 | 6.0 | | | 6.0 | 6.0 | 6.0 | 6.0 | | 6.0 | 6.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | | 3.0 | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 278 | 274 | | | 359 | 721 | 415 | 381 | | 644 | 463 | |
| v/s Ratio Prot | 0.08 | c0.11 | | | | c0.12 | 0.07 | c0.15 | | 0.13 | c0.16 | |
| v/s Ratio Perm | | | | | c0.16 | 0.17 | 0.11 | | | | | |
| v/c Ratio | 0.50 | 0.70 | | | 0.75 | 0.63 | 0.53 | 0.74 | | 0.67 | 0.61 | |
| Uniform Delay, d1 | 39.7 | 41.1 | | | 38.4 | 25.1 | 26.0 | 38.4 | | 39.2 | 33.4 | |
| Progression Factor | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 1.4 | 8.0 | | | 8.2 | 1.8 | 1.3 | 7.6 | | 2.6 | 2.4 | |
| Delay (s) | 41.1 | 49.1 | | | 46.6 | 27.0 | 27.3 | 46.0 | | 41.8 | 35.8 | |
| Level of Service | D | D | | | D | C | C | D | | D | D | |
| Approach Delay (s) | | 45.9 | | | 33.7 | | | 37.9 | | | 39.4 | |
| Approach LOS | | D | | | C | | | D | | | D | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2000 Control Delay | | | 38.1 | | HCM 2000 Level of Service | | | | | D | | |
| HCM 2000 Volume to Capacity ratio | | | 0.73 | | | | | | | | | |
| Actuated Cycle Length (s) | | | 103.8 | | Sum of lost time (s) | | | | | 24.0 | | |
| Intersection Capacity Utilization | | | 68.2% | | ICU Level of Service | | | | | C | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |
| c Critical Lane Group | | | | | | | | | | | | |