

# **Traffic Impact Study**

## **Las Olas Walk**

S.E. 6<sup>th</sup> Avenue between S.E. 2<sup>nd</sup> Court & S.E. 1<sup>st</sup> Street  
Ft. Lauderdale, Florida



January 27, 2017  
Revised March 13, 2017  
Revised March 27, 2017



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Ft. Lauderdale, Florida

Prepared for  
**ZOM Florida**  
**Ft. Lauderdale, FL**

Prepared by  
**Tinter Traffic, LLC**  
**Ft. Lauderdale, Florida**



Tinter Traffic, LLC

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## **Introduction**

This office has completed a traffic impact study for the proposed residential development, known as Las Olas Walk, to be located on the east side of U.S. 1, between S.E. 2<sup>nd</sup> Court and S.E. 1<sup>st</sup> Street in the City of Ft. Lauderdale, Florida, with primary access on S.E. 2<sup>nd</sup> Street. The site is located as shown in Figure 1, with the currently proposed site plan (prepared by Flynn Engineering Services, Inc., dated January 27, 2017) detailed in Appendix A. Although a drop off lane will be provided to the northern portion of the site, between S.E. 2<sup>nd</sup> Street and S.E. 1<sup>st</sup> Street, all access to the parking facilities will occur on both S.E. 2<sup>nd</sup> Court and S.E. 2<sup>nd</sup> Street.

The site has no frontage directly onto Federal Highway (US 1), but does front onto the frontage road that connects Las Olas Boulevard to U.S. 1. No driveway is proposed onto that roadway facility.

The proposed development will include a 456 unit multi-story apartment building. In support of this development, the site will include a garage, to be located on the southern portion of the property connecting to both S.E. 2<sup>nd</sup> Court and S.E. 2<sup>nd</sup> Street.

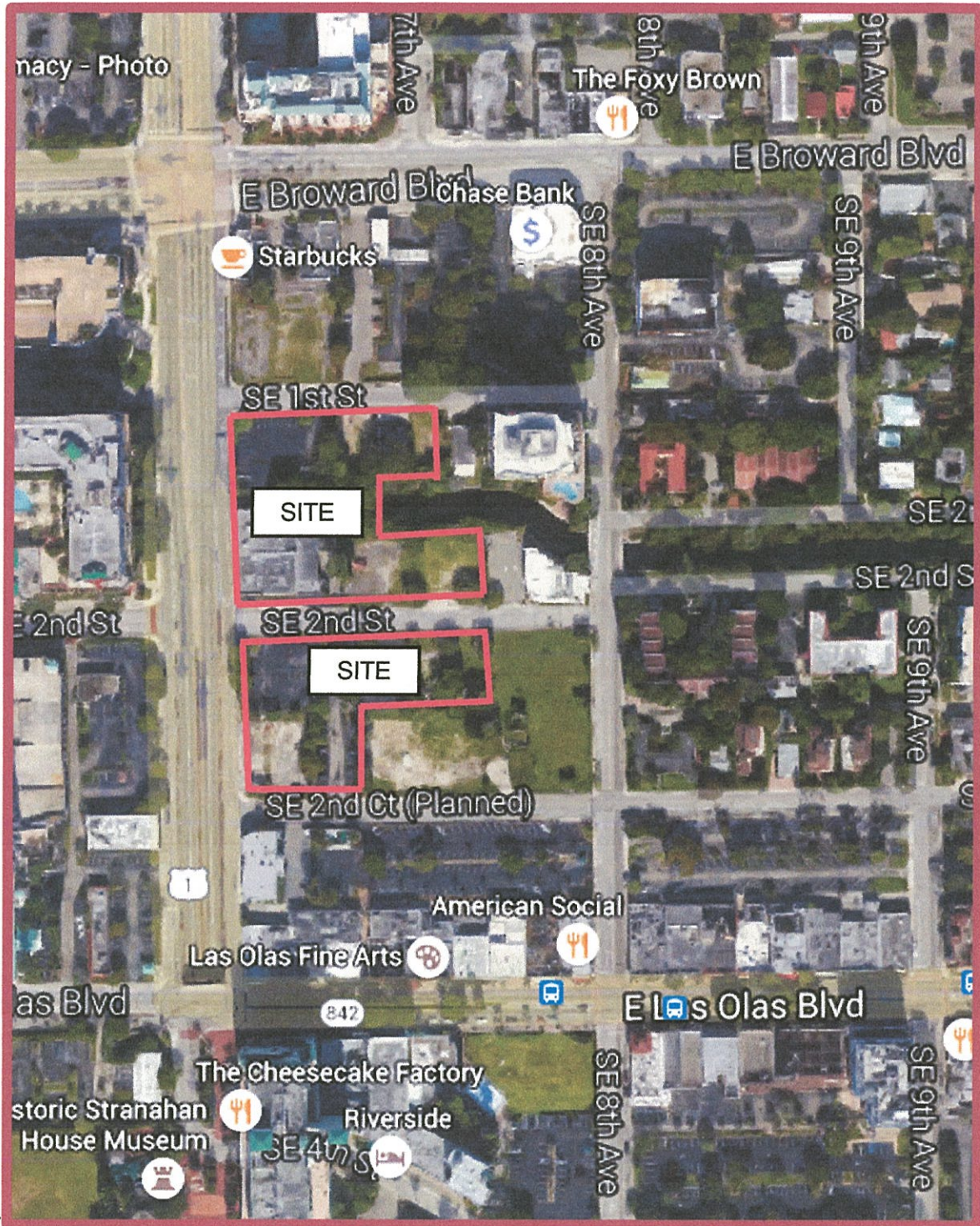
As this project is a re-development project, the amount of traffic expected to be generated by the proposed uses was compared to that which is generated by the existing uses and the net difference in traffic volumes was analyzed. The existing development on the property includes approximately 9,522 Square Feet of furniture store, supported by a 684 SF office.

A meeting was held with the staff of the City's Transportation & Mobility Department, including the assigned traffic engineering consultant to the City, on September 26, 2016, to discuss the study methodology. Minutes from that meeting were forwarded to the City for their approval. A copy of the agreed upon methodology memorandum is included as Appendix B. Additional comments were provided by the City staff and the traffic engineering consultant, with responses subsequently provided by this office.

This report includes the final response from the City's consultant, indicating that the methodology is acceptable.

As a result of this analysis, it is recommended that this project can be constructed without the need for any additional off-site roadway modifications. Traffic operating conditions on the surrounding roadways, after the traffic impacts from this development are realized, will be minimal and within acceptable levels.





**Figure 1**  
**Site Location**

**Las Olas Walk**

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## **Existing Traffic**

AM and PM Peak Hour traffic counts were completed at the following intersections on June 2, 2016:

- 1) Las Olas Boulevard @ S.E. 6<sup>th</sup> Avenue
- 2) Las Olas Boulevard @ S.E. 8<sup>th</sup> Avenue
- 3) Broward Boulevard @ Federal Highway (U.S. 1)
- 4) Broward Boulevard @ S.E. 8<sup>th</sup> Avenue

Additional counts were completed at the following intersections on November 2, 2016:

- 1) Las Olas Boulevard @ S.E. 9<sup>th</sup> Avenue
- 2) Las Olas Boulevard @ S.E. 15<sup>th</sup> Avenue
- 3) Broward Boulevard @ S.E. 15<sup>th</sup> Avenue

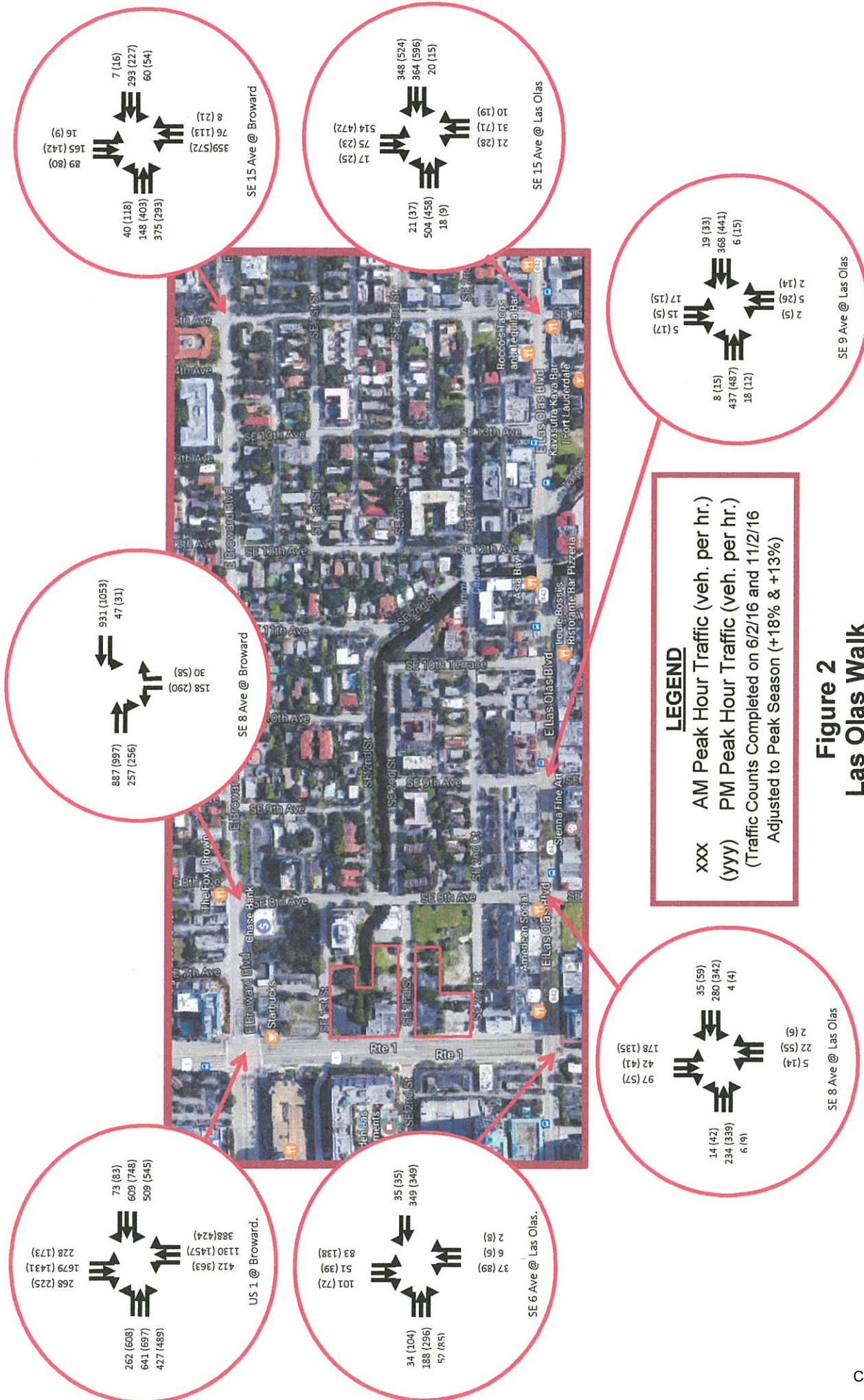
All counts were completed during the school year to ensure that they accounted for the influence of nearby schools. The intersection counts were completed between the hours of 7:00 and 9:00 AM, as well as 4:00 and 6:00 PM, the typical highway peak periods. The data for both peak periods is included in Appendix C. In addition, between September 2013 and April 2016, the City completed three (3) different traffic studies on and around S.E. 15<sup>th</sup> Avenue between Las Olas Boulevard and Broward Boulevard. These documents were reviewed to insure that the results of this analysis are not in conflict with the conclusions of those reports.

All traffic counts were then adjusted to Peak Season using FDOT Seasonal Adjustment Factors for 2015, in the area of Broward County between A1A and U.S. 1. The FDOT document, included in Appendix D, showed that counts completed in the first week of June could be adjusted to peak season by applying a 1.18 factor to the actual data collected, and counts completed in the first week of November could be adjusted by a factor of 1.13 to represent peak season conditions. “Figure 2 – Existing Traffic – Intersections” and “Figure 3 – Existing Traffic – Roadway Segments” summarize the AM and PM Peak Hour traffic volumes adjusted to peak season.

As can be seen, Las Olas Boulevard, a four-lane divided highway within the study area (although functioning as a two lane divided roadway due to permitted on-street parking within the two outside lanes of the roadway), carries between 646 and 1,760



vehicles per hour (vph) during the AM Peak Hour and 815 to 2,084 vph during the PM Peak Hour. During these same peak periods, Broward Boulevard, a four- and six-lane divided highway, carries 1,895 – 2,619 vph and 2,139 – 3,130 vph, respectively. Federal Highway (U.S. 1), also a six-lane divided highway, carries higher traffic volumes during both peak periods (3,640 – 4,545 vph in the AM Peak Hour and 3,977 – 4,709 vph in the PM). S.E. 8th Avenue and S.E. 15<sup>th</sup> Avenue between Las Olas Boulevard and Broward Boulevard are both two-lane undivided roadways. The former carries 388 – 492 vph in the AM Peak Hour and 389 – 635 vph during the PM Peak Hour, while the latter roadway carries 1,043 vph in the AM Peak Hour and 1,195 vph during the PM Peak Hour.



**Figure 2**  
**Las Olas Walk**  
**Existing Peak Hour Traffic Volumes – Intersections**



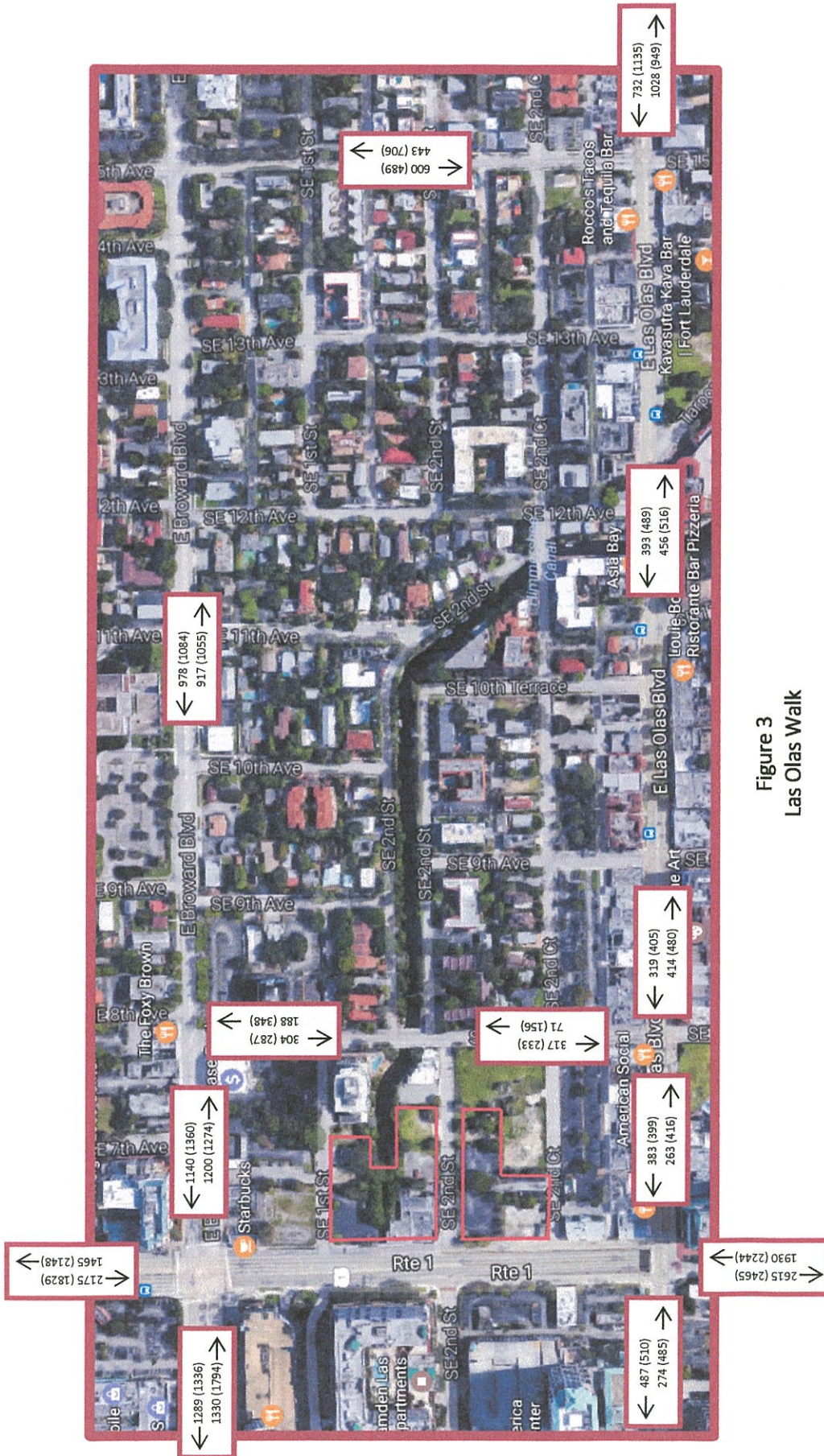


Figure 3  
Las Olas Walk

Existing Peak Hour Traffic Volumes – Roadway Segments

#### LEGEND

- xxx AM Peak Hour Traffic (veh. per hr.)
  - (yyy) PM Peak Hour Traffic (veh. per hr.)
- (Traffic Counts Completed on 6/2/16 and 11/2/16  
Adjusted to Peak Season (+18% & +13%))

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### Background Traffic (without Site Traffic)

It is anticipated that the proposed development will be completed in 2019. Two factors will affect traffic between now and when the project is expected to be completed:

- 1) Growth in traffic volumes. In order to estimate this phenomenon, a review was made of historic traffic volumes on nearby roadways. The Florida Department of Transportation (FDOT) maintains records of traffic volumes on most roadway segments throughout the State. For this analysis, four (4) nearby roadway segment counts were reviewed and annual growth rates were calculated based on the past 10 years of data. The historical data for these four locations was obtained from the FDOT website. The segments and the calculated annual average, compound growth rates for the period 2005 to 2015 are shown in Table 1, below.

| Table 1  |                        |        |        |                    |
|--|------------------------|--------|--------|--------------------|
| Las Olas Walk  |                        |        |        |                    |
| Annual Growth Rate (2005 - 2015) of Traffic on Surrounding Roaway Segments |                        |        |        |                    |
| Roadway  | Location               | ADT    |        | Annual Growth Rate |
|  |                        | 2005   | 2015   |                    |
| U.S. 1   | South of Broward Blvd. | 51,000 | 40,500 | -2.28%             |
|  | North of Broward Blvd. | 43,500 | 40,000 | -0.84%             |
| Broward Blvd.  | West of U.S. 1         | 36,500 | 38,500 | 0.53%              |
| Las Olas Blvd.   | East of S.E. 9 Ave.    | 18,000 | 16,000 | -1.17%             |
| AVERAGE GROWTH RATE  |                        |        |        | -0.94%             |

For the purposes of this analysis, and as agreed at the time of the Methodology meeting, it was assumed that the minimum growth rate would be **0.5%** annually through the build-out date, anticipated to be 2019.

- 2) Impact from other proposed, unbuilt developments in the area around the proposed development. Based on information obtained from City staff at the Methodology Meeting, it was determined that there are two planned developments within the area surrounding this site that will impact future traffic volumes on the surrounding roadway network: (a) the 790 Broward mixed use project to be located northeast of the Las Olas Walk project and (b) the Fairfield Inn & Suites to be located north of the proposed Las Olas Walk project. Adjustment to the existing traffic counts related to this additional development were obtained from the City, with excerpts from the Traffic Impact Studies for those projects included in Appendix E.

These two factors (growth and other proposed development traffic) were therefore applied to the existing traffic data, as collected and shown in Figures 2 and 3, to estimate the projected conditions that will be experienced when the site is developed. The growth adjustment factor applied was 0.5% growth over a three year period (2016 when the counts were collected to 2019 the outside time period for the expected completion date of the project) =  $1.005 \times 1.005 \times 1.005 = 1.015075$ .

Appendix F shows details of the intersection traffic volume projections, including all factors described above. That data is detailed in “Figure 4 – Background Peak Hour Traffic Volumes (w/o Site Traffic) – Intersections” and “Figure 5 – Background Peak Hour Traffic Volumes (w/o Site Traffic) – Roadway Segments”.





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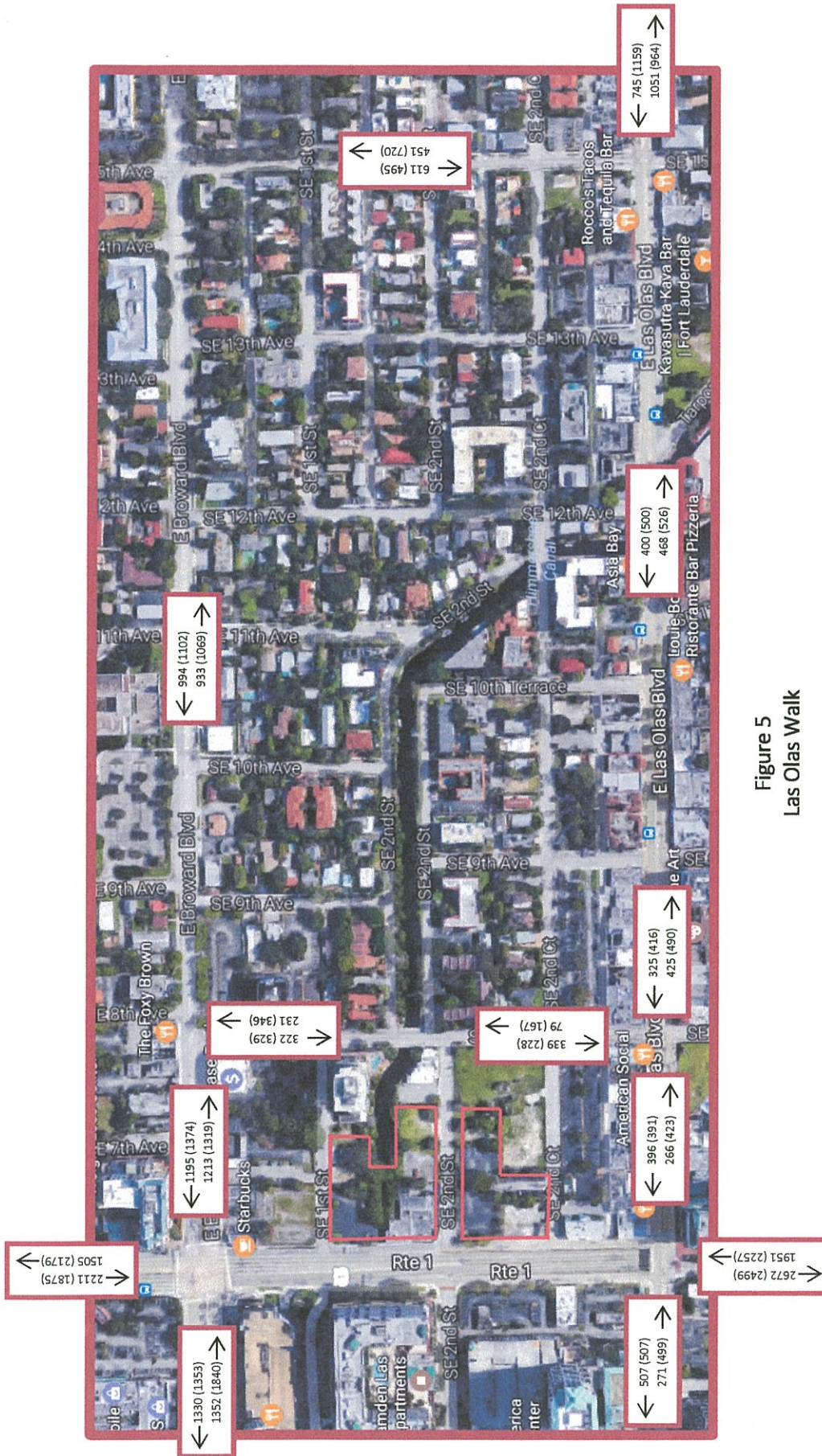


Figure 5  
Las Olas Walk

Background Peak Hour Traffic Volumes (w/o Site Traffic) – Roadway Segments

#### LEGEND

xxx AM Peak Hour Traffic (veh. per hr.)  
(yyy) PM Peak Hour Traffic (veh. per hr.)

(Existing Traffic Increased to Build-Out Year (2019) at  
0.5% Increase per Year, plus Approved, Unbuilt  
Development Traffic)

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## **Site Traffic Generation**

In order to estimate the future net change in traffic volumes anticipated to be generated by the proposed development, the Institute of Transportation Engineers (ITE) "Trip Generation Manual", 9<sup>th</sup> Edition, was consulted. That document includes trip generation rates for a variety of land use types, including:

ITE Land Use Code "710 – General Office"

ITE Land Use Code "890 – Furniture Store"

ITE Land Use Code "222 – High Rise Apartments"

These are the most appropriate ITE Land Use Codes for the developments, both existing and proposed. The trip generation rates (which were reviewed and approved as appropriate by the City's Transportation & Mobility Department prior to the completion of this study) for Daily, AM and PM Peak Hour are included in "Tables 2 – Trip Generation – Existing Development" and "Table 3 – Trip Generation – Proposed Development". These tables also include information relative to the amount of traffic that will be entering and exiting the site to/from the various components of the development, both existing and proposed. A certain proportion of the furniture store traffic will be captured from the existing streams of traffic on roadways surrounding the site. Information relative to the "Pass-By" phenomenon was obtained from the ITE "Trip Generation Handbook", 3<sup>rd</sup> Edition.

The trip generating characteristics of the existing development were compared with the proposed scenario to determine the expected change in traffic volumes on the area roadways anticipated as a result of this re-development project. The anticipated change in traffic volumes is shown on "Table 4 – Trip Generation – Increase/Decrease"

During the AM Peak Hour, it is expected that 24.3% of the project traffic will be entering and 75.7% will be exiting the site. During the PM Peak Hour, it is expected that 61.8% of the overall site traffic will be entering and 38.2% will be exiting the site.



Table 2

## Las Olas Walk

Based on Property Appraiser's Website

## Trip Generation - Existing Development

| <i>Daily</i>                       | ITE<br>LUC | Units   | Size          | Daily Trip<br>Generation Equation* | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|------------------------------------|------------|---------|---------------|------------------------------------|-----------------|-----------------------|----------------------|
| Furniture Store                    | 890        | 1000 sf | 9,522         | $T = 5.06 (X)$                     | 48              | 24                    | 24                   |
| Office                             | 710        | 1000 sf | 0,684         | $T = 11.03 (X)$                    | 8               | 4                     | 4                    |
| <b>Total Existing Trips</b>        |            |         |               |                                    | <b>56</b>       | <b>28</b>             | <b>28</b>            |
| <b>Pass-By (Furniture Store)**</b> |            |         | <b>53.00%</b> |                                    | <b>-26</b>      | <b>-13</b>            | <b>-13</b>           |
| <b>Total Net Existing Trips</b>    |            |         |               |                                    | <b>30</b>       | <b>15</b>             | <b>15</b>            |

| <i>A.M. Peak Hour</i>              | ITE<br>LUC | Units   | Size          | AM Peak Hour Trip<br>Generation Equation* | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|------------------------------------|------------|---------|---------------|---|-----------------|-----------------------|----------------------|
| Furniture Store                    | 890        | 1000 sf | 9,522         | $T = 0.17 (X)$                            | 2               | 1                     | 1                    |
| Office                             | 710        | 1000 sf | 0,684         | $T = 1.56 (X)$                            | 1               | 1                     | 0                    |
| <b>Total Existing Trips</b>        |            |         |               |   | <b>3</b>        | <b>2</b>              | <b>1</b>             |
| <b>Pass-By (Furniture Store)**</b> |            |         | <b>53.00%</b> |   | <b>-1</b>       | <b>-1</b>             | <b>0</b>             |
| <b>Total Net Existing Trips</b>    |            |         |               |   | <b>2</b>        | <b>1</b>              | <b>0</b>             |

| <i>P.M. Peak Hour</i>              | ITE<br>LUC | Units   | Size          | PM Peak Hour Trip<br>Generation Equation* | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|------------------------------------|------------|---------|---------------|---|-----------------|-----------------------|----------------------|
| Furniture Store                    | 890        | 1000 sf | 9,522         | $T = 0.45 (X)$                            | 4               | 2                     | 2                    |
| Office                             | 710        | 1000 sf | 0,684         | $T = 1.49 (X)$                            | 1               | 0                     | 1                    |
| <b>Total Existing Trips</b>        |            |         |               |   | <b>5</b>        | <b>2</b>              | <b>3</b>             |
| <b>Pass-By (Furniture Store)**</b> |            |         | <b>53.00%</b> |   | <b>-2</b>       | <b>-1</b>             | <b>-1</b>            |
| <b>Total Net Existing Trips</b>    |            |         |               |   | <b>3</b>        | <b>1</b>              | <b>2</b>             |

\* From Institute of Transportation Engineers "Trip Generation Manual", 9th Edition

\*\* From ITE "Trip Generation Handbook", 3rd Edition

**Table 3**

**Las Olas Walk**

Based on Site Plan Prepared by Flynn Engineering (9/07/2016)

**Trip Generation - Proposed Development**

| <i>Daily</i>                    | ITE<br>LUC | Units | Size | Daily Trip<br>Generation Equation*         | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|---------------------------------|------------|-------|------|--|-----------------|-----------------------|----------------------|
| Apartments                      | 222        | D.U.  | 456  | $\text{Ln}(T) = 0.83 \text{ Ln}(X) + 2.50$ | <i>vpd</i>      | <i>vpd</i>            | <i>vpd</i>           |
| <b>Total Proposed Net Trips</b> |            |       |      |  | <b>1,962</b>    | <b>981</b>            | <b>981</b>           |

| <i>A.M. Peak Hour</i>           | ITE<br>LUC | Units | Size | AM Peak Hour Trip<br>Generation Equation* | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|---------------------------------|------------|-------|------|---|-----------------|-----------------------|----------------------|
| Apartments                      | 222        | D.U.  | 456  | $T = 0.30 (X)$                            | <i>vph</i>      | <i>vph</i>            | <i>vph</i>           |
| <b>Total Proposed Net Trips</b> |            |       |      |   | <b>137</b>      | <b>34</b>             | <b>103</b>           |

| <i>P.M. Peak Hour</i>           | ITE<br>LUC | Units | Size | PM Peak Hour Trip<br>Generation Equation* | Site<br>Traffic | Site Traffic<br>Enter | Site Traffic<br>Exit |
|---------------------------------|------------|-------|------|---|-----------------|-----------------------|----------------------|
| Apartments                      | 222        | D.U.  | 456  | $T = 0.35 (X)$                            | <i>vph</i>      | <i>vph</i>            | <i>vph</i>           |
| <b>Total Proposed Net Trips</b> |            |       |      |   | <b>160</b>      | <b>97</b>             | <b>62</b>            |

\* From Institute of Transportation Engineers "Trip Generation Manual", 9th Edition



**Table 4**  
**790 Broward**  
Based on Survey & Site Plan

**Trip Generation - Increase/Decrease**

|              | Difference In Site Traffic |       |      |
|--------------|----------------------------|-------|------|
|              | Total                      | Enter | Exit |
| Daily        | 1,932                      | 966   | 966  |
| AM Peak Hour | 135                        | 33    | 102  |
| PM Peak Hour | 157                        | 96    | 60   |

### **Site Traffic Distribution and Assignment**

Consistent with the agreed upon methodology, it was assumed that traffic to/from the site would be distributed onto the area roadway network in the same ratios as the existing traffic volumes on the roadways around the site.

Existing two-way Daily traffic volumes on the surrounding roadways were obtained from the FDOT website for the latest year for which data is available (2015). The ratio of the individual link volume to the total link volumes was estimated to be the approximate distribution of the site traffic. In general, the estimated traffic distribution is:

| <u>To/From</u> | <u>Percentage of<br/>Site Traffic</u> |
|----------------|---------------------------------------|
| North          | 20.83%                                |
| South          | 42.97%                                |
| East           | 8.33%                                 |
| West           | 27.87%                                |

This is shown in “Figure 6 – Site Traffic Distribution”.

Using the net change in site traffic volumes previously calculated and the distribution of site traffic identified in “Figure 6 – Site Traffic Distribution”, site traffic volumes for both the AM and PM Peak Hours were calculated for each of the impacted intersections within the study area, as well as at each roadway link around the site. Consideration was given to turn restrictions at the proposed access points, as shown on the latest Site Plan, and limitations on traffic movements at intersections around the site. Appendix G includes details of the percentage distribution of both the entering and exiting traffic assignment for the proposed development. The assigned net change in traffic volumes resulting from this proposed re-development of the site are shown in “Figure 7 – Additional Site Traffic – Intersections” and “Figure 8 – Additional Site Traffic – Roadway Segments”.



**LEGEND**

xx,xxx      Daily Traffic\*

xx.xx%    Percent of Total

\*From FDOT Website

**Figure 6**  
**Site Traffic Distribution**  
**Las Olas Walk**

**Tinter Traffic, LLC**





**Figure 7**  
**Las Olas Walk**  
**Additional Site Traffic Volumes – Intersections**

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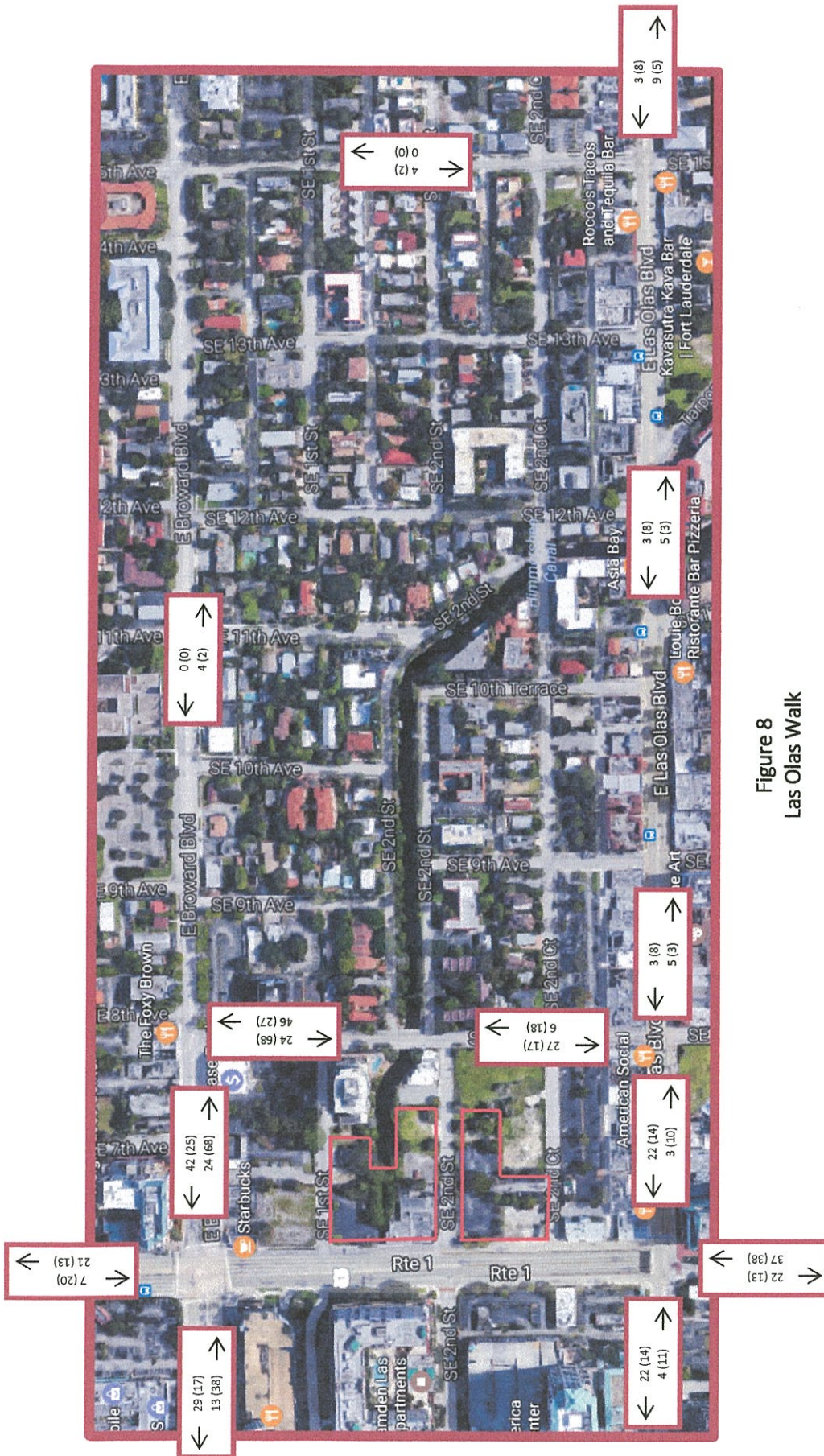


Figure 8  
Las Olas Walk

### Additional Site Traffic Volumes – Roadway Segments

#### LEGEND

- xxx AM Peak Hour Traffic (veh. per hr.)
- (yyy) PM Peak Hour Traffic (veh. per hr.)

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### **Future Traffic (with Site Traffic)**

Combining the Peak Hour site traffic volumes (Figure 7 & 8) with the Background (2019) Peak Hour traffic volumes on the surrounding roadway network (Figure 4 & 5) yields the total future Peak Hour traffic volumes anticipated at the time of the build-out of the Las Olas Walk project. This is depicted on “Figure 9 – Future Peak Hour Traffic Volumes (w/ Site Traffic) – Intersections” and “Figure 10 – Future Peak Hour Traffic Volumes (w/ Site Traffic) – Roadway Segments”.





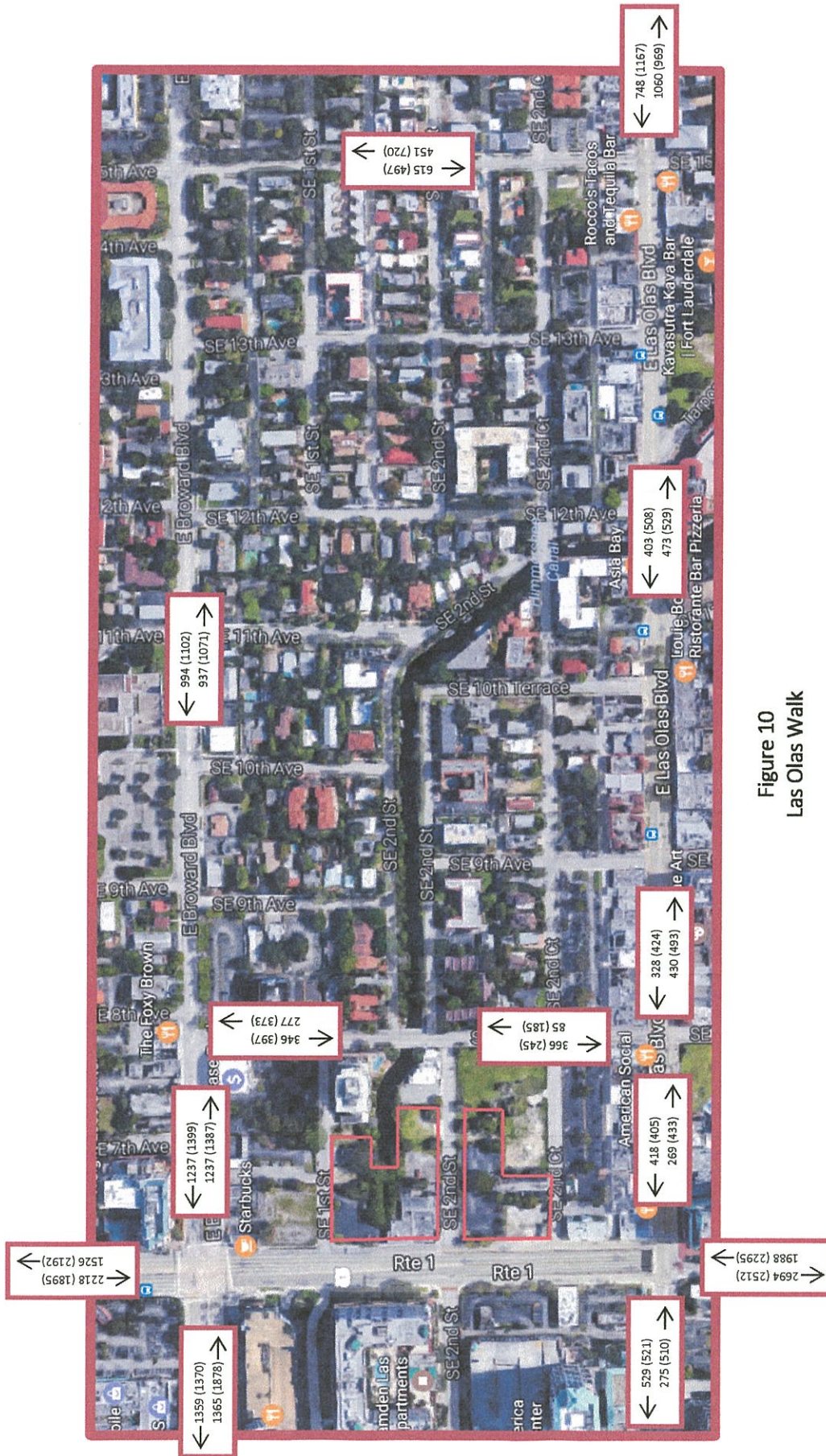


Figure 10  
Las Olas Walk

Future Peak Hour Traffic Volumes (w/ Site Traffic) – Roadway Segments

#### LEGEND

- xxx AM Peak Hour Traffic (veh. per hr.)
- (yyy) PM Peak Hour Traffic (veh. per hr.)
- (Background Traffic plus Additional Site Traffic)

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## Analysis – Intersections

Intersection analyses were completed for all seven signalized intersections within the study area:

- (1) Las Olas Boulevard @ S.E. 6<sup>th</sup> Avenue
- (2) Las Olas Boulevard @ S.E. 8<sup>th</sup> Avenue
- (3) Las Olas Boulevard @ S.E. 9<sup>th</sup> Avenue
- (4) Las Olas Boulevard @ S.E. 15<sup>th</sup> Avenue
- (5) Broward Boulevard @ U.S. 1 (S.E. 6<sup>th</sup> Avenue)
- (6) Broward Boulevard @ S.E. 8<sup>th</sup> Avenue
- (7) Broward Boulevard @ S.E. 15<sup>th</sup> Avenue

The analyses were done using the Highway Capacity Manual 2010 (HCM 2010) module of the Synchro software (Version 8.0). Signal timing plans were obtained from Broward County Traffic Engineering for use in completing these analyses (see Appendix H). Six different analyses were done at each of the seven intersections: AM and PM for existing, background and future traffic conditions. The summary sheets for these analyses are included as Appendix I (Existing), J (Background –2019, w/o site traffic) and K (Future – 2019, with site traffic), with a summary of the overall intersection operating characteristics shown on Table 5.

As can be seen in this table, the operating characteristics, expressed as average delay per vehicle, at the seven signalized intersections will remain relatively unchanged from background (without site traffic) to future (with site traffic) conditions, although average delay per vehicle will increase very slightly. In 2019, the average delay at the impacted intersections will, as a result of this redevelopment, increase as follows:

| <u>Intersection</u>         | <u>Average Delay (Seconds per Vehicle)/Level of Service</u> |             |                |              |
|-----------------------------|---|-------------|----------------|--------------|
|                             | <u>Pk Hr</u>  | <u>2019</u> | <u>w/ Site</u> | <u>Incr.</u> |
| Las Olas @ 6 <sup>th</sup>  | AM  | 19.2/B      | 19.3/B         | 0.1          |
|                             | PM  | 23.9/C      | 24.6/C         | 0.7          |
| Las Olas @ 8 <sup>th</sup>  | AM  | 16.6/B      | 17.2/B         | 0.6          |
|                             | PM  | 13.9/B      | 14.2/B         | 0.3          |
| Las Olas @ 9 <sup>th</sup>  | AM  | 14.4/B      | 14.4/B         | 0.0          |
|                             | PM  | 14.9/B      | 14.9/B         | 0.0          |
| Las Olas @ 15 <sup>th</sup> | AM  | 168.8/F     | 170.9/F        | 2.1          |
|                             | PM  | 119.8/F     | 121.7/F        | 1.9          |



| <u>Intersection</u>        | <u>Pk Hr</u> | <u>Average Delay (Seconds per Vehicle)/Level of Service</u> |                |              |
|----------------------------|--------------|---|----------------|--------------|
|                            |              | <u>2019</u>   | <u>w/ Site</u> | <u>Incr.</u> |
| Broward @ US 1             | AM           | 104.7/F   | 108.0/F        | 3.3          |
|                            | PM           | 116.2/F   | 122.1/F        | 5.9          |
| Broward @ 8 <sup>th</sup>  | AM           | 11.6/B  | 12.9/B         | 1.3          |
|                            | PM           | 13.4/B  | 14.1/B         | 0.7          |
| Broward @ 15 <sup>th</sup> | AM           | 35.8/D  | 35.9/D         | 0.1          |
|                            | PM           | 108.5/F   | 108.5/F        | 0.0          |

As can be seen in both Table 5 and the above summary table, future operating characteristics, as defined by Level of Service (LOS), will not be altered as a result of the Las Olas Walk project. In 2019, the LOS at each intersection remains unchanged from the Background w/o Site Traffic condition to Future w/ Site Traffic scenario.

The following intersections will operate in all three study scenarios (existing, background and future) at LOS “F”:

- 1) Las Olas Boulevard @ S.E. 15<sup>th</sup> Avenue during AM & PM Peak Hours
- 2) Broward Boulevard @ U.S. 1 during AM & PM Peak Hours
- 3) Broward Boulevard @ S.E. 15<sup>th</sup> Avenue during the PM Peak Hour

It is important to note, however, that this condition will exist regardless of the development of Las Olas Walk project. Even though these intersections will experience minor increases in traffic volumes as a result of this redevelopment project, the average delay per vehicle at these locations will be minimally impacted by the project in the future, varying from 0.0 to 5.9 seconds per vehicle. The potential modification of these intersections is restricted as a result of right-of-way constraints. As a result, Broward County addresses these conditions through the Transit Oriented Concurrency program, i.e. improvements to operating conditions are developed through improvements to the County’s transit system.



| <b>Table 5</b><br><b>Las Olas Walk</b><br><b>Peak Hour Intersection Analysis</b> |    |                             |                  |                  |                  |                   |                     |                  |                   |
|--|----|-----------------------------|------------------|------------------|------------------|-------------------|---------------------|------------------|-------------------|
|  |    | Las Olas Boulevard @        |                  |                  |                  |                   | Broward Boulevard @ |                  |                   |
|  |    | SE 6 Ave                    | SE 8 Ave         | SE 9 Ave         | SE 15 Ave        | US 1              | SE 8 Ave            | SE 15 Ave        |                   |
| 2016 Existing  | AM | Delay<br>LOS<br>B           | 19.0<br>B        | 16.1<br>B        | 14.3<br>B        | 162.4<br>F        | 99.0<br>F           | 10.1<br>B        | 34.0<br>C         |
|  | PM | Delay<br>LOS<br>C           | 23.8<br>C        | 14.0<br>B        | 14.8<br>B        | 116.7<br>F        | 108.8<br>F          | 13.3<br>B        | 103.4<br>F        |
| 2019 Background  | AM | Delay<br>LOS<br>B           | 19.2<br>B        | 16.6<br>B        | 14.4<br>B        | 168.8<br>F        | 104.7<br>F          | 11.6<br>B        | 35.8<br>D         |
|  | PM | Delay<br>LOS<br>C           | 23.9<br>C        | 13.9<br>B        | 14.9<br>B        | 119.8<br>F        | 116.2<br>F          | 13.4<br>B        | 108.5<br>F        |
| 2019 Future  | AM | Delay<br>Delay Incr.<br>LOS | 19.3<br>0.1<br>B | 17.2<br>0.6<br>B | 14.4<br>0.0<br>B | 170.9<br>2.1<br>F | 108.0<br>3.3<br>F   | 12.9<br>1.3<br>B | 35.9<br>0.1<br>D  |
|  | PM | Delay<br>Delay Incr.<br>LOS | 24.6<br>0.7<br>C | 14.2<br>0.3<br>B | 14.9<br>0.0<br>B | 121.7<br>1.9<br>F | 122.1<br>5.9<br>F   | 14.1<br>0.7<br>B | 108.5<br>0.0<br>F |

Note: Delay is Average Delay per Vehicle, Measured in Seconds

## **Analysis – Roadway Segments**

Directional roadway segment traffic volumes for Existing (Figure 3), Background (2019, without the site, Figure 5) and Future (2019, with the site, Figure 10) were compared with capacity figures for the roadway segments surrounding the proposed development. The capacities of the roadways were obtained from the FDOT “2013 Quality/Level of Service Handbook”. Table 7 of that document shows Generalized Peak Hour Directional Volumes for Florida’s Urbanized Areas (see Appendix L for a copy of that table,) the appropriate table for use in these roadway link analyses.

Las Olas Boulevard from west of S.E. 6<sup>th</sup> Avenue to east of S.E. 15<sup>th</sup> Avenue, a 4-lane divided (functioning as a two lane divided highway, as parking is permitted along both the north and south curblines within the study area) City Collector (according to the MPO’s map entitled “Broward Highway Functional Classifications”), with a posted speed limit of 25 MPH, has, according to the FDOT table, a directional capacity at Level of Service (LOS) “C” and “D” of 657 and 1,467 vph, respectively, west of S.E. 15<sup>th</sup> Avenue. East of that location, the capacities at LOS “C” and “D” increase to 730 and 1,630 vph, respectively.

Broward Boulevard, west of U.S. 1 is a 6-lane divided highway, with a posted Speed Limit of 35 MPH, has directional capacities at LOS “C” and “D” of 1,170 and 2,520 vph, respectively. East of U.S. 1, Broward Boulevard becomes a 4-lane undivided roadway. The LOS “C” and “D” capacities for this section of the roadway are 657 and 1,467 vph, respectively.

U.S. 1/S.E. 6<sup>th</sup> Avenue is a 6-lane divided highway with posted speed limit of 35 MPH. This highway has directional capacities of 1,170 and 2,520 vph at LOS “C” and “D”, respectively.

Both S.E. 8<sup>th</sup> Avenue and S.E. 15<sup>th</sup> Avenue are north/south oriented roadways between Las Olas Boulevard and Broward Boulevard, with posted speed limits of 25

MPH. Peak hour directional capacities of both of these City roadways are of 333 and 675 vph at LOS “C” and “D”, respectively.

Existing, Background (2019 without the site) and Future with the site AM and PM Peak Hour traffic volumes were compared to the capacities identified above. The results of these comparisons are detailed in “Table 6 – Peak Hour Link Analysis (Directional)”. To be consistent with studies completed for other nearby proposed developments (those included in the background traffic calculations), it was deemed appropriate to use directional capacities for this analysis.

As can be seen from this table, with the exception of southbound U.S. 1, south of Broward Boulevard, at no time will the Level of Service exceed LOS “D”, a Level of Service that is considered acceptable in the City of Ft. Lauderdale. In one instances, S.E. 8<sup>th</sup> Avenue southbound between S.E. 2<sup>nd</sup> Street and Broward Boulevard during both the AM & PM Peak Hour, the directional LOS is expected to slightly decrease from a LOS “C” to LOS “D”. The referenced portion of U.S. 1, while experiencing a low LOS in all three scenarios, will only be minimally impacted by the project traffic, not enough to change the LOS on that roadway segment.

As indicated above, the LOS for all Future conditions (w/ site traffic) is within the range that the City of Ft. Lauderdale considers acceptable. These roadway segments where the anticipated LOS will change with the addition of the net site traffic change are highlighted in yellow on Table 6.

Traffic volumes on all but four roadway segments around the development will consume less than 2.86% of each of the roadway segments’ directional capacities. A comparison of the site traffic to the capacities is shown on Table 6. Only three roadway segments within the study area will carry site related traffic that exceeds 3% of those roadways’ directional capacities (highlighted in orange in Table 6). This is important to note, as 3% of a roadway’s capacity is the level of traffic impact that is considered significant by the Broward County Planning Council. It is therefore demonstrated by the data contained within Table 6 that traffic impacts anticipated



from the development of Las Olas Walk project, with the exception of Broward Boulevard between U.S. 1 and two segments of S.E. 8<sup>th</sup> Avenue between Las Olas Boulevard and Broward Boulevard, are not expected to be significant. However, as noted above, the Level of Service on those roadway segments will remain at an acceptable LOS in 2019, including the net change in site related traffic.

In the recent past, the City of Ft. Lauderdale has conducted a number of traffic studies on portions of S.E. 15<sup>th</sup> Avenue between Las Olas Boulevard and Broward Boulevard. The most recent of those studies were completed in late 2015 and early 2016. The impacts from the net change in site related traffic is expected to be minimal on the roadways analyzed in those studies. It is anticipated that the following minor changes in traffic volumes will result because of the Las Olas Walk redevelopment project:

|  | <u>Peak Hour Site Traffic Change</u> |                |                 |                |
|--|--------------------------------------|----------------|-----------------|----------------|
|  | <u>AM (vph)</u>                      |                | <u>PM (vph)</u> |                |
|  | <u>E/N'bnd</u>                       | <u>W/S'bnd</u> | <u>E/N'bnd</u>  | <u>W/S'bnd</u> |
| Las Olas Blvd.                                   |                                      |                |                 |                |
| West of S.E. 15 <sup>th</sup> Ave.               | 5                                    | 3              | 3               | 8              |
| East of S.E. 15 <sup>th</sup> Ave.               | 9                                    | 3              | 5               | 8              |
| Broward Blvd. West of S.E. 15 <sup>th</sup> Ave  | 4                                    | 0              | 2               | 0              |
| S.E. 15 <sup>th</sup> Ave. btwn Las Olas/Broward | 0                                    | 4              | 0               | 2              |

Therefore, the redevelopment of the Las Olas Walk site will not impact the proposed modifications recommended in the previous studies of traffic within the S.E. 15<sup>th</sup> Avenue corridor.

| Roadway            | Location                | Direction  | Capacity<br>@ LOS C/D | Existing Traffic |     |              |     | Background (2019) Traffic (w/o Site) |     |              |     | Future (2019) Traffic (w/ Site) |     |              |     |
|--------------------|-------------------------|------------|-----------------------|------------------|-----|--------------|-----|--------------------------------------|-----|--------------|-----|---------------------------------|-----|--------------|-----|
|                    |                         |            |                       | AM Peak Hour     |     | PM Peak Hour |     | AM Peak Hour                         |     | PM Peak Hour |     | AM Peak Hour                    |     | PM Peak Hour |     |
|                    |                         |            |                       | Volume           | LOS | Volume       | LOS | Volume                               | LOS | Volume       | LOS | Volume                          | LOS | Volume       | LOS |
| Las Olas Boulevard | West of SE 6 Ave        | Eastbound  | 657/1,467             | 274              | C   | 485          | C   | 271                                  | C   | 499          | C   | 275                             | C   | 510          | C   |
|                    | SE 6 Ave to SE 8 Ave    | Westbound  | 1,467                 | 487              | C   | 510          | C   | 507                                  | C   | 507          | C   | 529                             | C   | 521          | C   |
|                    | SE 8 Ave to SE 9 Ave    | Eastbound  | 1,467                 | 263              | C   | 416          | C   | 266                                  | C   | 423          | C   | 269                             | C   | 433          | C   |
|                    | SE 9 Ave to SE 15 Ave   | Westbound  | 1,467                 | 383              | C   | 399          | C   | 396                                  | C   | 391          | C   | 418                             | C   | 405          | C   |
|                    | East of SE 15 Ave       | Eastbound  | 1,467                 | 414              | C   | 480          | C   | 425                                  | C   | 490          | C   | 430                             | C   | 493          | C   |
|                    |                         | Westbound  | 1,467                 | 319              | C   | 405          | C   | 325                                  | C   | 416          | C   | 328                             | C   | 424          | C   |
|                    |                         | Eastbound  | 1,467                 | 456              | C   | 516          | C   | 468                                  | C   | 526          | C   | 473                             | C   | 529          | C   |
| Broward Boulevard  | West of US 1            | Westbound  | 1,467                 | 393              | C   | 489          | C   | 400                                  | C   | 500          | C   | 403                             | C   | 508          | C   |
|                    | US 1 to SE 8 Ave        | Eastbound  | 730/1,630             | 1,028            | D   | 949          | D   | 1,051                                | D   | 964          | D   | 1,060                           | D   | 969          | D   |
|                    | SE 8 Ave to SE 15 Ave   | Westbound  | 1,630                 | 949              | D   | 1,135        | D   | 745                                  | D   | 1,159        | D   | 748                             | D   | 1,167        | D   |
|                    |                         | Eastbound  | 1,170/2,520           | 1,330            | D   | 1,794        | D   | 1,352                                | D   | 1,840        | D   | 1,355                           | D   | 1,878        | D   |
|                    |                         | Westbound  | 2,520                 | 1,289            | D   | 1,336        | D   | 1,330                                | D   | 1,353        | D   | 1,359                           | D   | 1,370        | D   |
|                    |                         | Eastbound  | 657/1,467             | 1,200            | D   | 1,274        | D   | 1,213                                | D   | 1,319        | D   | 1,237                           | D   | 1,387        | D   |
|                    |                         | Westbound  | 1,467                 | 1,140            | D   | 1,360        | D   | 1,195                                | D   | 1,374        | D   | 1,237                           | D   | 1,399        | D   |
| US 1               | South of Broward        | Eastbound  | 1,467                 | 917              | D   | 1,055        | D   | 933                                  | D   | 1,069        | D   | 937                             | D   | 1,071        | D   |
|                    | North of Broward Blvd   | Westbound  | 1,467                 | 978              | D   | 1,084        | D   | 994                                  | D   | 1,102        | D   | 994                             | D   | 1,102        | D   |
|                    |                         | Northbound | 1,170/2,520           | 1,930            | D   | 2,244        | D   | 1,951                                | D   | 2,257        | D   | 1,988                           | D   | 2,295        | D   |
|                    |                         | Southbound | 2,520                 | 2,615            | F   | 2,465        | F   | 2,672                                | F   | 2,499        | F   | 2,694                           | F   | 2,512        | D   |
|                    |                         | Northbound | 2,520                 | 1,465            | D   | 2,148        | D   | 1,505                                | D   | 2,179        | D   | 1,526                           | D   | 2,192        | D   |
|                    |                         | Southbound | 2,520                 | 2,148            | D   | 1,829        | D   | 2,211                                | D   | 1,875        | D   | 2,218                           | D   | 1,895        | D   |
|                    |                         | Northbound | 333/675               | 71               | C   | 156          | C   | 79                                   | C   | 167          | C   | 85                              | C   | 185          | C   |
| S.E. 8th Avenue    | Las Olas to SE 2 St     | Southbound | 675                   | 317              | C   | 233          | C   | 339                                  | C   | 228          | C   | 366                             | C   | 245          | C   |
|                    | SE 2 St to Broward Blvd | Northbound | 675                   | 188              | C   | 348          | D   | 231                                  | C   | 346          | D   | 277                             | C   | 373          | D   |
|                    |                         | Southbound | 675                   | 304              | C   | 287          | C   | 322                                  | C   | 329          | C   | 346                             | D   | 397          | D   |
| S.E. 15th Avenue   | Las Olas to Broward     | Northbound | 333/675               | 443              | D   | 706          | F   | 451                                  | D   | 720          | F   | 451                             | D   | 720          | F   |
|                    |                         | Southbound | 675                   | 600              | D   | 489          | D   | 611                                  | D   | 495          | D   | 615                             | D   | 497          | D   |

Note: (1) Capacity from "Roadway Capacity and Level of Service", 2013 and 2035, Metropolitan Planning Organization (MPO)

(2) Level of Service (LOS) based on Table 7 from "2013 Quality/Level of Service Handbook", FDOT

(3) Existing Volume = As Counted on June 2 and November 2, 2016, Adjusted to Peak Season (+18% and +13%)

 = Segment where Site Traffic > 3.00% of capacity @ LOS "D"  
 = Segment where LOS changes from Background to Future Traffic conditions

## **Recommendations**

As demonstrated in the previous section of this Traffic Impact Study, the roadway system surrounding Las Olas Walk can adequately accommodate the additional traffic from this proposed redevelopment without any significant negative impacts. Therefore, no off-site roadway or signal modifications are necessary or recommended to accommodate the expected site traffic.



## **Conclusions**

Tinter Traffic, LLC has completed a detailed review and traffic analysis of anticipated traffic impacts associated with the redevelopment of the property located east of U.S. 1, between S.E. 2<sup>nd</sup> Court and S.E. 1<sup>st</sup> Street. This redevelopment will include the demolition of the existing furniture store and office building on the site and the construction of a 456 unit multi-family residential development. Key points of our analysis are summarized as follows:

- The proposed redevelopment is expected to generate an additional 1,932 vehicles per day, 135 vehicles per hour during the AM Peak Hour and 157 vehicles per hour during the PM Peak Hour. Although the net change in average daily traffic is expected to increase more than the amount of traffic specified in the City Code that requires the completion of this Traffic Impact Study, the actual impact during the Peak Periods will be minimal and will, therefore, have negligible impact on the operating characteristics on the surrounding roadways during those Peak Periods.
- Las Olas Boulevard, Broward Boulevard, U.S. 1 and S.E. 8<sup>th</sup> Avenue are all operating at acceptable Levels of Service and are expected to do so after the construction of Las Olas Walk project.
- Because of the anticipated change in southbound traffic on a portion of S.E. 8<sup>th</sup> Avenue, during both the AM & PM Peak Hour, the LOS on this roadway will be reduced from LOS "C" or "D". This change in LOS is, however, within acceptable levels.
- The impacts on the seven closest signalized intersections will be minimal. The average delay per vehicle will increase only minimally, causing no change in LOS at any of these locations
- The impact of the proposed redevelopment project will not affect the Level of Service being experienced at the seven intersections included in this study.
- Certain movements within the intersection of Broward Boulevard and Federal Highway are experiencing and will continue to experience low LOS during Peak Periods. Saturated traffic conditions will continue to exist in the future, with or without the proposed development. This intersection is an expanded

intersection of two Broward County major arterials. As a result, Broward County addresses these conditions through the Transit Oriented Concurrency program, i.e. improvements to operating conditions are developed through improvements to the County's transit system.

- No off-site roadway or signal modifications are required to accommodate the site generated traffic.

Based on the traffic analyses conducted and detailed in this report, it has been determined that the change in traffic expected to be generated by the redevelopment of the Las Olas Walk site will not have a significant effect on the operational performance of the surrounding roadway network.