

June 13, 2019

Mr. Tony Spinrad  
Irwindale Partners II  
1618 Yeager Avenue  
La Verne, CA 91750

**SUBJECT: THE PARK @ LIVE OAK SUPPLEMENTAL TRAFFIC ASSESSMENT**

Dear Mr. Tony Spinrad:

Urban Crossroads, Inc. is pleased to submit this letter report to document the Supplemental Traffic Assessment performed for The Park @ Live Oak development (referred to as “Project”). The proposed Project is located west of the I-605 Freeway between Arrow Highway and Live Oak Avenue in the City of Irwindale. Specifically, the purpose of this assessment is to determine if the traffic generated by the proposed United Rock Quarry project will result in additional impacts beyond those identified in The Park @ Live Oak Traffic Impact Analysis (December 2018, Urban Crossroads, Inc., referred to hereafter as “2018 Traffic Study”).

## **SUMMARY OF FINDINGS**

The United Rock Quarry project is located north of Meridian Street and west of Buena Vista Street in the City of Irwindale, as shown on Exhibit 1. Based on the trip distribution from the United Rock Quarry No. 3 Project Traffic Study Report, prepared by LIN Consulting, Inc (dated September 2017), only 20 study area intersections and 22 study area roadway segments from the 2018 Traffic Study area are affected by the proposed quarry. As such, only the intersections and roadway segments that are affected by the proposed quarry have been evaluated for the purposes of this supplemental traffic assessment. The study area is shown on Exhibit 1.

Compared to the 2018 Traffic Study, there are no additional intersections or roadway segments anticipated to operate at an unacceptable LOS with the addition of traffic generated by the United Rock Quarry. As such, there are no additional deficiencies or improvements required, beyond those already identified in the 2018 Traffic Study.

## **TRIP GENERATION**

The trip generation for the proposed United Rock Quarry project (shown previously on Exhibit 1) has been obtained from the United Rock Quarry No. 3 Project Traffic Study Report. The trip generation (in passenger car equivalents or PCE) is shown on Table 1. As shown in Table 1, the United Rock Quarry project is anticipated to generate a net total of 1,610 PCE trip-ends per day with 205 PCE AM peak hour trips and 210 PCE PM peak hour trips.

## TRIP DISTRIBUTION

Trip distribution is the process of identifying the probable destinations, directions or traffic routes that will be utilized by traffic. The trip distribution for the proposed United Rock Quarry project has been obtained from the United Rock Quarry No. 3 Project Traffic Study Report. Exhibit 2 shows the trip distribution patterns for the quarry project.

As shown in Exhibit 2, the quarry project does not affect all study area intersections analyzed in the 2018 Traffic Study. As such, only intersections that are affected by the quarry project have been evaluated for the purposes of this supplemental assessment.

## OPENING YEAR CUMULATIVE (2020) CONDITIONS

The traffic generated by the United Rock Quarry project has been added to the Opening Year Cumulative (2020) Without Project traffic volumes from the 2018 Traffic Study. The resulting Average Daily Traffic (ADT) and peak hour AM and PM traffic volumes are shown on Exhibit 3 and Exhibit 4, respectively. The ADT and peak hour AM and PM traffic volumes generated by the United Rock Quarry, plus the Opening Year Cumulative (2020) Without Project traffic volumes from the 2018 Traffic Study, plus Project volumes are illustrated on Exhibit 5 and Exhibit 6, respectively.

As shown in Table 2, there are no additional study area intersections anticipated to operate at an unacceptable LOS compared to the 2018 Traffic Study with the addition of traffic generated from the United Rock Quarry project, under both Opening Year Cumulative (2020) Without Project and With Project traffic conditions. Intersection operations worksheets for Opening Year Cumulative (2020) Without Project and With Project traffic conditions are provided in Attachment A and Attachment B, respectively.

As shown in Table 3, there are no additional study area roadway segments anticipated to operate at an unacceptable LOS compared to the 2018 Traffic Study with the addition of traffic generated from the United Rock Quarry project, under both Opening Year Cumulative (2020) Without Project and With Project traffic conditions.

Table 4 shows the recommended intersection improvements for Opening Year Cumulative (2020) traffic conditions. As shown in Table 4, the improvement recommendations are consistent with the 2018 Traffic Study, with the exception of the following improvement:

### ***Avenida Barbosa/Private Drive A & Arrow Highway (#15)***

- Add a 2<sup>nd</sup> eastbound left turn lane.

It should be noted this improvement is consistent with the improvements recommended for Horizon Year (2040) traffic conditions in the 2018 Traffic Study. In other words, there are no additional

improvements required with the addition of traffic generated by the United Rock Quarry, but the one improvement above is required under Opening Year Cumulative (2020) traffic conditions instead of Horizon Year (2040) traffic conditions. Intersection operations worksheets for Opening Year Cumulative (2020) With Project traffic conditions, with improvements, are provided in Attachment C.

Table 5 shows the recommended roadway segment improvements for Opening Year Cumulative (2020) traffic conditions. As shown in Table 5, the improvement recommendations are consistent with the 2018 Traffic Study and no additional improvements are necessary.

## **HORIZON YEAR (2040) CONDITIONS**

The traffic generated by the United Rock Quarry project has been added to the Horizon Year (2040) Without Project traffic volumes from the 2018 Traffic Study. The resulting ADT and peak hour AM and PM traffic volumes are shown on Exhibit 7 and Exhibit 8, respectively. The ADT and peak hour AM and PM traffic generated by the United Rock Quarry, plus the Horizon Year (2040) Without Project traffic volumes from the 2018 Traffic Study, plus Project volumes, are shown on Exhibit 9 and Exhibit 10, respectively.

As shown in Table 6, there are no additional study area intersections anticipated to operate at an unacceptable LOS compared to the 2018 Traffic Study with the addition of traffic generated from the United Rock Quarry project, under both Horizon Year (2040) Without Project and With Project traffic conditions. Intersection operations worksheets for Horizon Year (2040) Without Project and With Project traffic conditions are provided in Attachment D and Attachment E, respectively.

As shown in Table 7, there are no additional study area roadway segments anticipated to operate at an unacceptable LOS compared to the 2018 Traffic Study with the addition of traffic generated from the United Rock Quarry project, under both Horizon Year (2040) Without Project and With Project traffic conditions.

Table 8 shows the recommended intersection improvements for Horizon Year (2040) traffic conditions. As shown in Table 8, the improvement recommendations are consistent with the 2018 Traffic Study and no additional improvements are necessary. Intersection operations worksheets for Horizon Year (2040) With Project traffic conditions, with improvements, are provided in Attachment F.

Table 9 shows the recommended roadway segment improvements for Horizon Year (2040) traffic conditions. As shown in Table 9, the improvement recommendations are consistent with the 2018 Traffic Study and no additional improvements are necessary.

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## CONCLUSION

Consistent with the 2018 Traffic Study, there are no additional intersections or roadway segments anticipated to operate at an unacceptable LOS with the addition of traffic generated by the United Rock Quarry. As such, there are no additional improvements required, beyond those improvements already recommended by the 2018 Traffic Study.

If you have any questions, please contact me directly at (949) 660-5982.

Respectfully submitted,

URBAN CROSSROADS, INC.



Charlene So, PE  
Associate Principal

EXHIBIT 1: LOCATION MAP



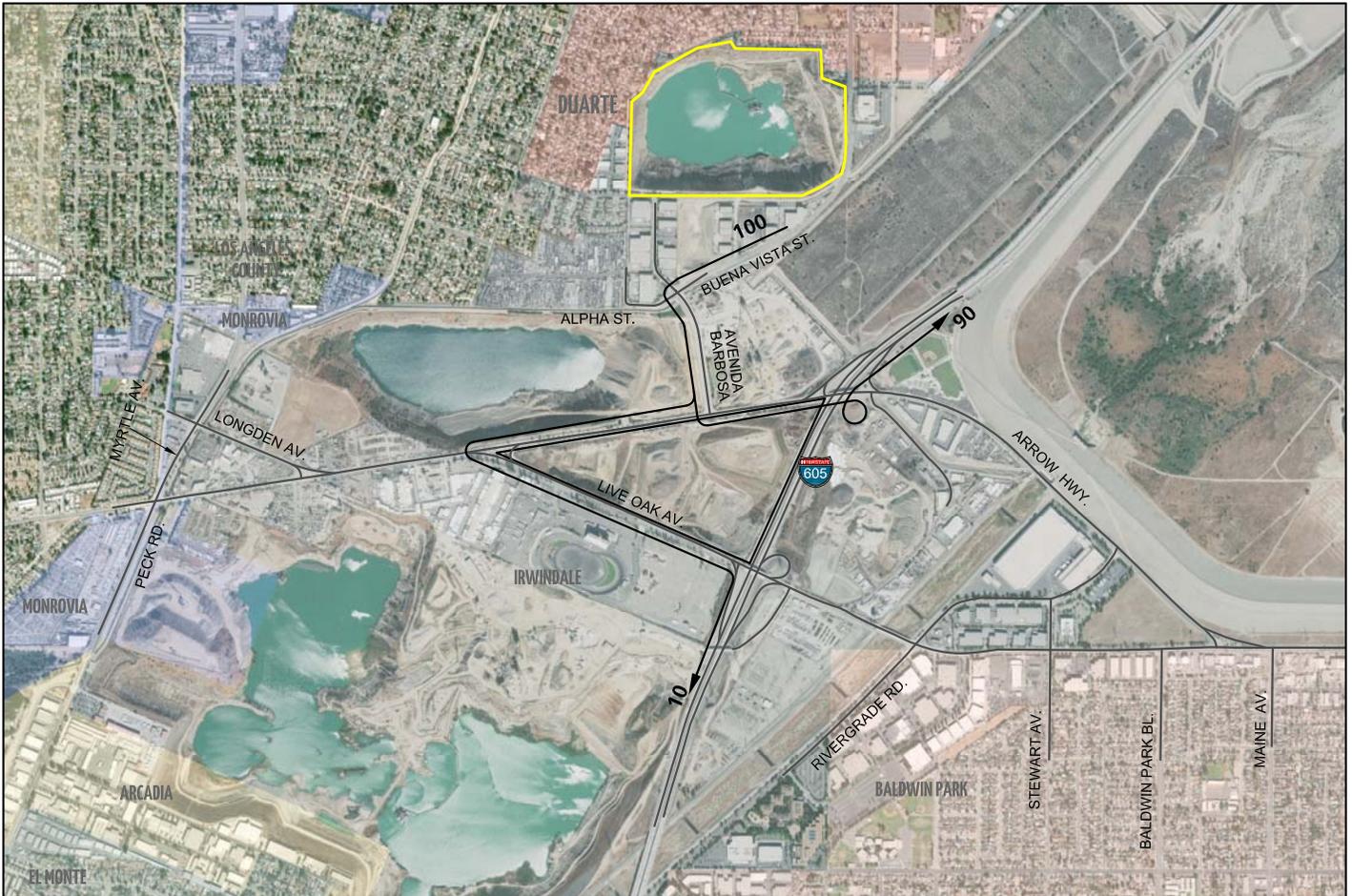
INSET



LEGEND:

-  = EXISTING INTERSECTION ANALYSIS LOCATION
-  = FUTURE INTERSECTION ANALYSIS LOCATION
-  = UNITED ROCK QUARRY SITE

### EXHIBIT 2: UNITED ROCK QUARRY TRIP DISTRIBUTION



#### LEGEND:

10 ■ PERCENT TO/FROM PROJECT





**EXHIBIT 4: OPENING YEAR CUMULATIVE (2020) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)**

<p><b>4</b> Live Oak Av. (West) &amp; Arrow Hwy.</p> <p style="text-align: center;">←1931(866) ←301(694)</p> <p>539(807) → 740(1990) →</p> <p style="text-align: center;">↑1090(905) ↑324(409)</p>	<p><b>5</b> Dwy. 1 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>6</b> Dwy. 2 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>7</b> Speeway Driveway &amp; Live Oak Av.</p> <p style="text-align: center;">←1384(1203) ←70(116)</p> <p>1013(2640) → 74(114) →</p> <p style="text-align: center;">↑30(111) ↑46(170)</p>	<p><b>8</b> Dwy. 3 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>9</b> Dwy. 4 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>
<p><b>10</b> Dwy. 5 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>11</b> Private Drive B/ Driveway &amp; Arrow Hwy.</p> <p style="text-align: center;">↓10(1) ←20(1) ←2222(1559)</p> <p>863(1215) →</p>	<p><b>12</b> Dwy. 6 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>13</b> Dwy. 7/Speedway Dr. &amp; Live Oak Av.</p> <p style="text-align: center;">←1422(1206) ←92(177)</p> <p>971(2586) → 88(223) →</p> <p style="text-align: center;">↑32(203) ↑33(249)</p>	<p><b>14</b> Avenida Barbosa &amp; Alpha St./ Buena Vista St.</p> <p style="text-align: center;">↓7(6) ↓110(428) ↓2(11) ←19(16) ←6(10) ←301(647)</p> <p>2(4) → 2(16) → 9(88) →</p> <p style="text-align: center;">↑56(10) ↑342(165) ↑748(471)</p>	<p><b>15</b> Avenida Barbosa/ Private Drive A &amp; Arrow Hwy.</p> <p style="text-align: center;">↓204(459) ↓310(797) ←793(343) ←2038(1102)</p> <p>345(261) → 518(954) →</p>
<p><b>16</b> Private Drive A &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>17</b> Dwy. 8 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>18</b> Dwy. 9 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>19</b> Dwy. 10 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>20</b> I-605 SB Off-Ramp &amp; Arrow Hwy.</p> <p style="text-align: center;">↓948(423) ↓489(306) ←1882(812)</p> <p>828(1751) →</p>	<p><b>21</b> I-605 SB On-Ramp &amp; Live Oak Av.</p> <p style="text-align: center;">←1543(1286) ←725(699)</p> <p>366(1310) → 615(1269) →</p>
<p><b>22</b> I-605 NB On-Ramp/ Live Oak Ln. &amp; Arrow Hwy.</p> <p style="text-align: center;">←436(315) ←1882(812)</p> <p>838(1584) → 20(24) →</p> <p style="text-align: center;">↑13(46)</p>	<p><b>23</b> I-605 NB Off-Ramps &amp; Live Oak Av.</p> <p style="text-align: center;">↓701(819) ←1568(1165)</p> <p>366(1310) →</p> <p style="text-align: center;">↑666(705)</p>				

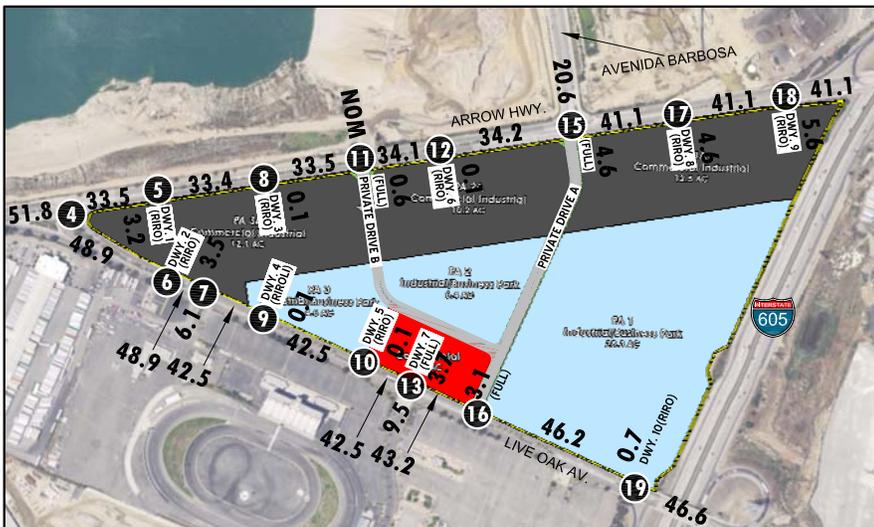
**LEGEND:**

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

**EXHIBIT 5: OPENING YEAR CUMULATIVE (2020) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)**



**INSET**



**LEGEND:**

- 10.0** = VEHICLES PER DAY (1000'S)
- NOM** = NOMINAL, LESS THAN 50 VEHICLES PER DAY



**EXHIBIT 6: OPENING YEAR CUMULATIVE (2020) WITH PROJECT TRAFFIC VOLUMES (IN PCE)**

<p><b>4</b> Live Oak Av. (West) &amp; Arrow Hwy.</p> <p>←1933(878) ←301(694)</p> <p>596(852)→ 740(1990)→</p> <p>1154(1006)↑ 326(420)→</p>	<p><b>5</b> Dwy. 1 &amp; Arrow Hwy.</p> <p>←2233(1572)</p> <p>804(1156)→ 118(115)→</p> <p>93(119)→</p>	<p><b>6</b> Dwy. 2 &amp; Live Oak Av.</p> <p>←116(137)</p> <p>←125(125) ←1364(1289)</p> <p>1143(2799)→</p>	<p><b>7</b> Speedway Driveway &amp; Live Oak Av.</p> <p>←1459(1303) ←70(116)</p> <p>1069(2685)→ 74(114)→</p> <p>30(111)↑ 46(170)→</p>	<p><b>8</b> Dwy. 3 &amp; Arrow Hwy.</p> <p>←2233(1572)</p> <p>894(1274)→ 3(2)→</p> <p>4(19)→</p>	<p><b>9</b> Dwy. 4 &amp; Live Oak Av.</p> <p>←1(6) ←9(5) ←1528(1413)</p> <p>4(2)↑ 1112(2852)→</p>
<p><b>10</b> Dwy. 5 &amp; Live Oak Av.</p> <p>←1(5) ←3(2) ←1536(1412)</p> <p>1112(2852)→</p>	<p><b>11</b> Private Drive B/ Driveway &amp; Arrow Hwy.</p> <p>←10(1) ←0(0) ←0(0)</p> <p>←20(1) ←2223(1565) ←48(21)</p> <p>0(0)→ 897(1292)→ 1(0)→</p> <p>1(6)↑ 0(0)↑ 6(32)→</p>	<p><b>12</b> Dwy. 6 &amp; Arrow Hwy.</p> <p>←2291(1587)</p> <p>902(1324)→ 0(0)→</p> <p>3(13)→</p>	<p><b>13</b> Dwy. 7/Speedway Dr. &amp; Live Oak Av.</p> <p>←30(58) ←0(0) ←52(99)</p> <p>←78(85) ←1476(1243) ←92(177)</p> <p>46(71)↑ 977(2558)→ 88(223)→</p> <p>32(203)↑ 0(0)↑ 33(249)→</p>	<p><b>14</b> Avenida Barbosa &amp; Alpha St./ Buena Vista St.</p> <p>←7(6) ←142(453) ←2(11)</p> <p>←19(16) ←6(10) ←301(647)</p> <p>2(4)→ 2(16)→ 9(88)→</p> <p>56(10)↑ 360(200)↑ 748(471)→</p>	<p><b>15</b> Avenida Barbosa/ Private Drive A &amp; Arrow Hwy.</p> <p>←204(459) ←9(6) ←333(816)</p> <p>←793(343) ←2086(1123) ←307(225)</p> <p>360(281)↑ 544(1056)→ 1(0)→</p> <p>1(6)↑ 3(16)↑ 101(269)→</p>
<p><b>16</b> Private Drive A &amp; Live Oak Av.</p> <p>←2(11) ←44(249) ←173(130) ←1645(1404)</p> <p>6(4)→ 1056(2902)→</p>	<p><b>17</b> Dwy. 8 &amp; Arrow Hwy.</p> <p>←3187(1690)</p> <p>941(2090)→ 202(191)→</p> <p>163(193)→</p>	<p><b>18</b> Dwy. 9 &amp; Arrow Hwy.</p> <p>←3187(1690)</p> <p>860(2052)→ 244(231)→</p> <p>197(232)→</p>	<p><b>19</b> Dwy. 10 &amp; Live Oak Av.</p> <p>←5(30) ←65(41) ←1841(1497)</p> <p>1076(3167)→</p>	<p><b>20</b> I-605 SB Off-Ramp &amp; Arrow Hwy.</p> <p>←1237(616) ←489(306)</p> <p>←1949(865)</p> <p>1058(2284)→</p>	<p><b>21</b> I-605 SB On-Ramp &amp; Live Oak Av.</p> <p>←1907(1539) ←751(741)</p> <p>368(1322)→ 709(1573)→</p>
<p><b>22</b> I-605 NB On-Ramp/ Live Oak Ln. &amp; Arrow Hwy.</p> <p>←436(315) ←1949(865)</p> <p>945(1768)→ 143(373)→</p> <p>13(46)→</p>	<p><b>23</b> I-605 NB Off-Ramps &amp; Live Oak Av.</p> <p>←986(1009) ←1672(1270)</p> <p>368(1322)→</p> <p>666(705)→</p>	<p><b>LEGEND:</b></p> <p>10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES</p>			

**EXHIBIT 7: HORIZON YEAR (2040) WITHOUT PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)**



**INSET**



**LEGEND:**

- 10.0 = VEHICLES PER DAY (1000'S)
- NOM = NOMINAL, LESS THAN 50 VEHICLES PER DAY

**EXHIBIT 8: HORIZON YEAR (2040) WITHOUT PROJECT TRAFFIC VOLUMES (IN PCE)**

<p><b>4</b> Live Oak Av. (West) &amp; Arrow Hwy.</p> <p style="text-align: center;">←2049(920) ←311(724)</p> <p>572(855) → 786(2114) →</p> <p style="text-align: center;">↑1155(958) ↑341(419)</p>	<p><b>5</b> Dwy. 1 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>6</b> Dwy. 2 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>7</b> Speeway Driveway &amp; Live Oak Av.</p> <p style="text-align: center;">←1465(1265) ←71(119)</p> <p>1067(2793) → 76(115) →</p> <p style="text-align: center;">↑31(112) ↑48(174)</p>	<p><b>8</b> Dwy. 3 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>9</b> Dwy. 4 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>
<p><b>10</b> Dwy. 5 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>11</b> Private Drive B/ Driveway &amp; Arrow Hwy.</p> <p style="text-align: center;">↓10(1) ←21(1) ←2349(1642)</p> <p>913(1273) →</p>	<p><b>12</b> Dwy. 6 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>13</b> Dwy. 7/Speedway Dr. &amp; Live Oak Av.</p> <p style="text-align: center;">←1504(1270) ←93(177)</p> <p>1027(2743) → 88(223) →</p> <p style="text-align: center;">↑32(203) ↑33(249)</p>	<p><b>14</b> Avenida Barbosa &amp; Alpha St./ Buena Vista St.</p> <p style="text-align: center;">↓8(7) ↓117(454) ↓2(12)</p> <p>←20(17) ←7(10) ←313(680)</p> <p>2(5) → 2(17) → 10(94) →</p> <p style="text-align: center;">↑59(11) ↑362(174) ↑788(494)</p>	<p><b>15</b> Avenida Barbosa/ Private Drive A &amp; Arrow Hwy.</p> <p style="text-align: center;">↓216(486) ↓323(840)</p> <p>←836(358) ←2155(1157)</p> <p>366(276) → 547(997) →</p>
<p><b>16</b> Private Drive A &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>17</b> Dwy. 8 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>18</b> Dwy. 9 &amp; Arrow Hwy.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>19</b> Dwy. 10 &amp; Live Oak Av.</p> <p style="text-align: center;">Future Intersection</p>	<p><b>20</b> I-605 SB Off-Ramp &amp; Arrow Hwy.</p> <p style="text-align: center;">↓991(444) ↓518(324)</p> <p>←1999(862)</p> <p>870(1837) →</p>	<p><b>21</b> I-605 SB On-Ramp &amp; Live Oak Av.</p> <p style="text-align: center;">←1626(1351) ←769(740)</p> <p>387(1388) → 649(1348) →</p>
<p><b>22</b> I-605 NB On-Ramp/ Live Oak Ln. &amp; Arrow Hwy.</p> <p style="text-align: center;">←462(334) ←1999(862)</p> <p>888(1682) → 21(25) →</p> <p style="text-align: center;">↑14(48)</p>	<p><b>23</b> I-605 NB Off-Ramps &amp; Live Oak Av.</p> <p style="text-align: center;">↓734(857) ←1662(1232)</p> <p>387(1388) →</p> <p style="text-align: center;">↑705(748)</p>				

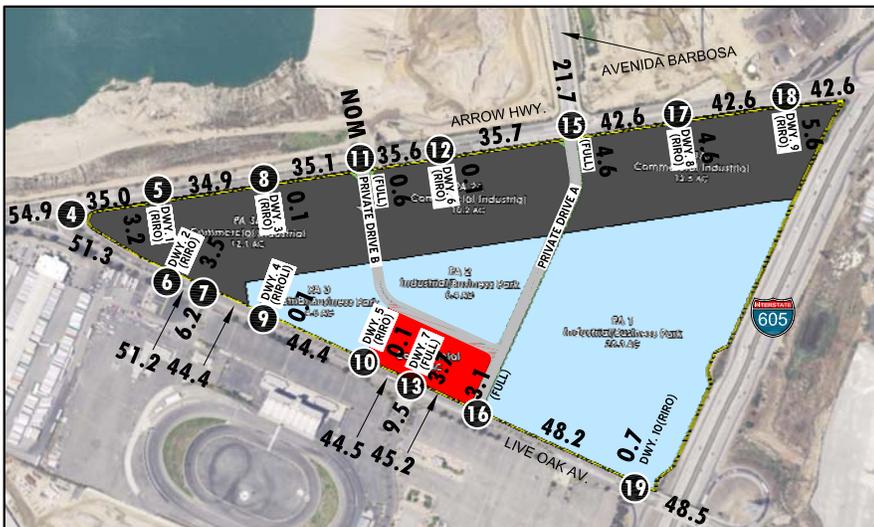
**LEGEND:**

10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES

**EXHIBIT 9: HORIZON YEAR (2040) WITH PROJECT AVERAGE DAILY TRAFFIC (ADT) (IN PCE)**



**INSET**



**LEGEND:**

- 10.0** = VEHICLES PER DAY (1000'S)
- NOM** = NOMINAL, LESS THAN 50 VEHICLES PER DAY



**EXHIBIT 10: HORIZON YEAR (2040) WITH PROJECT TRAFFIC VOLUMES (IN PCE)**

<p><b>4</b> Live Oak Av. (West) &amp; Arrow Hwy.</p> <p>←2051(932) ←311(724)</p> <p>629(900)→ 786(2114)→</p> <p>1219(1059)→ 343(430)→</p>	<p><b>5</b> Dwy. 1 &amp; Arrow Hwy.</p> <p>←2361(1655)</p> <p>854(1214)→ 118(115)→</p> <p>93(119)→</p>	<p><b>6</b> Dwy. 2 &amp; Live Oak Av.</p> <p>←116(137)</p> <p>←125(125) ←1445(1352)</p> <p>1199(2953)→</p>	<p><b>7</b> Speeway Driveway &amp; Live Oak Av.</p> <p>←1540(1365) ←71(119)</p> <p>1123(2838)→ 76(115)→</p> <p>31(112)→ 48(174)→</p>	<p><b>8</b> Dwy. 3 &amp; Arrow Hwy.</p> <p>←2361(1655)</p> <p>944(1332)→ 3(2)→</p> <p>4(19)→</p>	<p><b>9</b> Dwy. 4 &amp; Live Oak Av.</p> <p>←1(6) ←9(5) ←1610(1478)</p> <p>1168(3009)→ 4(2)→</p>
<p><b>10</b> Dwy. 5 &amp; Live Oak Av.</p> <p>←1(5) ←3(2) ←1618(1477)</p> <p>1168(3009)→</p>	<p><b>11</b> Private Drive B/ Driveway &amp; Arrow Hwy.</p> <p>←10(1) ←0(0) ←0(0)</p> <p>←21(1) ←2350(1648) ←48(21)</p> <p>947(1350)→ 0(0)→ 1(0)→</p> <p>1(6)→ 0(0)→ 6(32)→</p>	<p><b>12</b> Dwy. 6 &amp; Arrow Hwy.</p> <p>←2419(1670)</p> <p>952(1382)→ 0(0)→</p> <p>3(13)→</p>	<p><b>13</b> Dwy. 7/Speedway Dr. &amp; Live Oak Av.</p> <p>←30(58) ←0(0) ←52(99)</p> <p>←78(85) ←1558(1307) ←93(177)</p> <p>46(71)→ 1033(2715)→ 88(223)→</p> <p>32(203)→ 0(0)→ 33(249)→</p>	<p><b>14</b> Avenida Barbosa &amp; Alpha St./ Buena Vista St.</p> <p>←8(7) ←149(479) ←2(12)</p> <p>←20(17) ←7(10) ←313(680)</p> <p>2(5)→ 2(17)→ 10(94)→</p> <p>59(11)→ 380(209)→ 788(494)→</p>	<p><b>15</b> Avenida Barbosa/ Private Drive A &amp; Arrow Hwy.</p> <p>←216(486) ←9(6) ←346(859)</p> <p>←836(358) ←2203(1178) ←307(225)</p> <p>381(296)→ 573(1099)→ 1(0)→</p> <p>1(6)→ 3(16)→ 101(269)→</p>
<p><b>16</b> Private Drive A &amp; Live Oak Av.</p> <p>←2(11) ←44(249) ←173(130) ←1728(1469)</p> <p>6(4)→ 1112(3059)→</p>	<p><b>17</b> Dwy. 8 &amp; Arrow Hwy.</p> <p>←3346(1761)</p> <p>983(2176)→ 202(191)→</p> <p>163(193)→</p>	<p><b>18</b> Dwy. 9 &amp; Arrow Hwy.</p> <p>←3346(1761)</p> <p>902(2138)→ 244(231)→</p> <p>197(232)→</p>	<p><b>19</b> Dwy. 10 &amp; Live Oak Av.</p> <p>←5(30) ←65(41) ←1924(1562)</p> <p>1132(3324)→</p>	<p><b>20</b> I-605 SB Off-Ramp &amp; Arrow Hwy.</p> <p>←1280(637) ←518(324)</p> <p>←2066(915)</p> <p>1100(2370)→</p>	<p><b>21</b> I-605 SB On-Ramp &amp; Live Oak Av.</p> <p>←1990(1604) ←795(782)</p> <p>389(1400)→ 743(1652)→</p>
<p><b>22</b> I-605 NB On-Ramp/ Live Oak Ln. &amp; Arrow Hwy.</p> <p>←462(334) ←2066(915)</p> <p>995(1866)→ 144(374)→</p> <p>14(48)→</p>	<p><b>23</b> I-605 NB Off-Ramps &amp; Live Oak Av.</p> <p>←1019(1047) ←1766(1337)</p> <p>389(1400)→</p> <p>705(748)→</p>	<p><b>LEGEND:</b></p> <p>10(10) = AM(PM) PEAK HOUR INTERSECTION VOLUMES</p>			

**Table 1**

**United Rock Quarry Trip Generation Summary (PCE)**

Land Use	AM Peak Hour			PM Peak Hour			Daily
	In	Out	Total	In	Out	Total	
United Rock Quarry <sup>1</sup>							
Passenger Cars:	5	0	5	0	5	5	10
Truck Trips:	50	50	100	50	50	100	800
<b>Total PCE:</b>	<b>105</b>	<b>100</b>	<b>205</b>	<b>100</b>	<b>110</b>	<b>210</b>	<b>1,610</b>

<sup>1</sup> Trip Generation Source: United Rock Quarry No. 3 Project Traffic Study Report, truck trips are converted to PCE at the rate of 2.0 PCE per truck.

Table 2

Intersection Analysis for Opening Year Cumulative (2020) Conditions

#	Intersection	Traffic Control <sup>3</sup>	2020 Without Project								2020 With Project							
			HCM Delay <sup>1</sup> (secs.)		Level of Service		ICU <sup>2</sup> (v/c)		Level of Service		HCM Delay <sup>1</sup> (secs.)		Level of Service		ICU <sup>2</sup> (v/c)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4	Live Oak Av. & Arrow Hwy. (West)	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	1.04	1.82	F	F	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	1.07	1.85	F	F
5	Dwy. 1 & Arrow Hwy.	<u>CSS</u>	Future Intersection								15.5	22.3	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
6	Dwy. 2 & Live Oak Av.	<u>CSS</u>	Future Intersection								27.8	28.4	D	D	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
7	Speedway Dwy. & Live Oak Av.	CSS	70.8	>100.0	F	F	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	46.0	>100.0	E	F	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
8	Dwy. 3 & Arrow Hwy.	<u>CSS</u>	Future Intersection								13.0	16.5	B	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
9	Dwy. 4 & Live Oak Av.	<u>CSS</u>	Future Intersection								24.7	21.8	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
10	Dwy. 5 & Live Oak Av.	<u>CSS</u>	Future Intersection								18.4	17.3	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
11	Driveway/Private Drive B & Arrow Hwy.	CSS	30.9	17.8	D	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	30.9	22.2	D	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
12	Dwy. 6 & Arrow Hwy.	<u>CSS</u>	Future Intersection								13.0	16.7	B	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
13	Dwy. 7/Speedway Dr. & Live Oak Av.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.42	0.79	A	C	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.52	0.89	A	D
14	Avenida Barbosa & Alpha St./Buena Vista St.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.52	0.74	A	C	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.55	0.78	A	C
15	Avenida Barbosa/Private Drive A & Arrow Hwy.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	1.08	0.87	F	D	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	1.17	1.06	F	F
16	Private Drive A & Live Oak Av.	<u>TS</u>	Future Intersection								-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.51	0.84	A	D
17	Dwy. 8 & Arrow Hwy.	<u>CSS</u>	Future Intersection								11.6	25.2	B	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
18	Dwy. 9 & Arrow Hwy.	<u>CSS</u>	Future Intersection								11.6	29.3	B	D	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
19	Dwy. 10 & Live Oak Av.	<u>CSS</u>	Future Intersection								20.9	17.7	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
20	I-605 SB Off-Ramp & Arrow Hwy.	TS	23.5	8.9	C	A	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	25.2	10.3	C	B	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
21	I-605 SB On-Ramp & Live Oak Av.	TS	7.6	19.7	A	B	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	9.2	21.5	A	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
22	I-605 NB On-Ramp/Live Oak Ln. & Arrow Hwy.	CSS	11.6	18.2	B	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	12.2	20.8	B	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
23	I-605 NB Off-Ramp & Live Oak Av.	CSS	>100.0	>100.0	F	F	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	>100.0	>100.0	F	F	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>

<sup>1</sup> **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).  
<sup>2</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.  
<sup>3</sup> Intersection capacity utilization (ICU) methodology results are presented as a volume-to-capacity ratio.  
<sup>4</sup> TS = Traffic Signal; CSS = Cross-street Stop  
<sup>5</sup> ICU not reported for intersections without a signal.  
<sup>6</sup> HCM not reported for signalized intersections.

Table 3

Roadway Segment Analysis for Opening Year Cumulative (2020) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity <sup>1</sup>	2020 Without Project	V/C <sup>2</sup>	LOS <sup>3</sup>	2020 With Project	V/C <sup>2</sup>	LOS <sup>3</sup>
4	Arrow Hwy.	Live Oak Av. to Dwy. 1	4D	30,000	32,793	<b>1.09</b>	F	33,453	<b>1.12</b>	F
5		Dwy. 1 to Dwy. 3	4D	30,000	32,793	<b>1.09</b>	F	33,383	<b>1.11</b>	F
6		Dwy. 3 to Driveway/Private Drive B	4D	30,000	32,793	<b>1.09</b>	F	33,506	<b>1.12</b>	F
7		Driveway/Private Drive B to Dwy. 6	5D	37,500	32,793	<b>0.87</b>	D	34,046	<b>0.91</b>	E
8		Dwy. 6 to Avenida Barbosa/Private Drive A	5D	37,500	32,793	<b>0.87</b>	D	34,164	<b>0.91</b>	E
9		Avenida Barbosa/Private Drive A to Dwy. 8	4D	30,000	33,608	<b>1.12</b>	F	39,395	<b>1.31</b>	F
10		Dwy. 8 to Dwy. 9	4D	30,000	33,608	<b>1.12</b>	F	41,058	<b>1.37</b>	F
11		Dwy. 9 to I-605 SB Off-Ramp	4D	30,000	33,608	<b>1.12</b>	F	41,059	<b>1.37</b>	F
12	I-605 SB Off-Ramp to I-605 NB On-Ramp/Live Oak Ln.	4D	30,000	31,938	<b>1.06</b>	F	36,839	<b>1.23</b>	F	
15	Private Drive B	South of Arrow Hwy.	2U	10,000	Future Segment			622	0.06	A
16	Avenida Barbosa	Alpha St./Buena Vista St. to Arrow Hwy.	4D	20,000	19,449	<b>0.97</b>	E	20,047	<b>1.00</b>	E
17	Private Drive A	South of Arrow Hwy.	2U	10,000	Future Segment			4,635	0.46	A
18		North of Live Oak Av.	2U	10,000	Future Segment			3,097	0.31	A
19	Live Oak Av.	Live Oak Av./Arrow Hwy. to Dwy. 2	5D	46,700	47,170	<b>1.01</b>	F	48,781	<b>1.04</b>	F
20		Dwy. 2 to Speedway Dwy.	5D	46,700	47,332	<b>1.01</b>	F	48,850	<b>1.05</b>	F
21		Speedway Dwy. to Dwy. 4	5D	46,700	40,941	<b>0.88</b>	D	42,459	<b>0.91</b>	E
22		Dwy. 4 to Dwy. 5	5D	46,700	40,941	<b>0.88</b>	D	42,468	<b>0.91</b>	E
23		Dwy. 5 to Dwy. 7	5D	46,700	40,941	<b>0.88</b>	D	42,468	<b>0.91</b>	E
24		Dwy. 7 to Private Drive A	5D	46,700	41,032	<b>0.88</b>	D	43,206	<b>0.93</b>	E
25		Private Drive A to Dwy. 10	5D	46,700	40,751	<b>0.87</b>	D	45,838	<b>0.98</b>	E
26		Dwy. 10 to I-605 SB On-Ramp	5D	46,700	40,943	<b>0.88</b>	D	46,376	<b>0.99</b>	E
27		I-605 SB On-Ramp to I-605 NB Off-Ramps	4D	40,400	38,018	<b>0.94</b>	E	41,767	<b>1.03</b>	F

**BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

<sup>1</sup> These maximum roadway capacities have been obtained from the City of Irwindale General Plan Update (Table 4-10).

<sup>2</sup> V/C = Volume to Capacity Ratio

<sup>3</sup> LOS = Level of Service

**Table 4**

**Intersection Analysis for Opening Year Cumulative (2020) Conditions With Improvements**

#	Intersection	Traffic Control <sup>4</sup>	Intersection Approach Lanes <sup>1</sup>												Delay <sup>2</sup> (secs.)		Level of Service		ICU <sup>3</sup> (v/c)		Level of Service		
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM	AM	PM	AM	PM	
			L	T	R	L	T	R	L	T	R	L	T	R									
4	Live Oak Av. & Arrow Hwy. (West)																						
	- 2020 Without Project	TS	2	0	1>>	0	0	0	0	2	1>>	2	2	0	--	--	--	--	<b>1.044</b>	<b>1.819</b>	F	F	
	- 2020 With Project	TS	2	0	1>>	0	0	0	0	2	1>>	2	2	0	--	--	--	--	<b>1.065</b>	<b>1.851</b>	F	F	
	- With Improvements	TS	2	0	1>>	0	0	0	0	<u>3</u>	1>>	2	<u>3</u>	0	--	--	--	--	0.863	0.898	D	D	
7	Speedway Dwy. & Live Oak Av.																						
	- 2020 Without Project	CSS	0	1	0	0	0	0	0	3	0	1	2	0	<b>70.8</b>	<b>&gt;100.0</b>	F	F	--	--	--	--	
	- 2020 With Project	CSS	0	1	0	0	0	0	0	3	0	1	2	0	<b>46.0</b>	<b>&gt;100.0</b>	E	F	--	--	--	--	
	- With Improvements	<u>TS</u>	1	0	d	0	0	0	0	3	0	1	<u>3</u>	0	--	--	--	--	0.433	0.862	A	D	
15	Avenida Barbosa/Private Drive A & Arrow Hwy.																						
	- 2020 Without Project	TS	0	0	0	2	0	1	1	2	0	0	2	1	--	--	--	--	<b>1.080</b>	0.870	F	D	
	- 2020 With Project	TS	0	0	0	2	0	1	1	2	0	0	2	1	--	--	--	--	<b>1.173</b>	<b>1.061</b>	F	F	
	- With Improvements	TS	<u>1</u>	<u>1</u>	<u>1</u>	2	<u>1</u>	1	<u>2</u>	<u>3</u>	0	<u>1</u>	<u>3</u>	1	--	--	--	--	0.875	0.884	D	D	
23	I-605 NB Off-Ramp & Live Oak Av.																						
	- 2020 Without Project	CSS	0	0	1	0	0	1	0	2	0	0	2	0	<b>&gt;100.0</b>	<b>&gt;100.0</b>	F	F	--	--	--	--	
	- 2020 With Project	CSS	0	0	1	0	0	1	0	2	0	0	2	0	<b>&gt;100.0</b>	<b>&gt;100.0</b>	F	F	--	--	--	--	
	- With Improvements	<u>TS</u>	0	0	1	0	0	1	0	2	0	0	2	0	0.9	1.0	A	A	--	--	--	--	

<sup>1</sup> When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.  
L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d= Defacto Right Turn Lane; 1 = Improvement

<sup>2</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> Intersection capacity utilization (ICU) methodology results are presented as a volume-to-capacity ratio. ICU not reported for unsignalized intersections or at Caltrans facilities.

<sup>4</sup> TS = Traffic Signal; CSS = Cross-Street Stop; TS = Improvement

Table 5

Roadway Segment Analysis for Opening Year Cumulative (2020) Conditions With Improvements

#	Roadway	Segment Limits	Roadway Section	LOS Capacity <sup>1</sup>	2020 Without Project	V/C <sup>2</sup>	LOS <sup>3</sup>	2020 With Project	V/C <sup>2</sup>	LOS <sup>3</sup>
4	Arrow Hwy.	Live Oak Av. to Dwy. 1	<b>6D</b>	<b>53,000</b>	32,793	0.62	B	33,453	0.63	B
5		Dwy. 1 to Dwy. 3	<b>6D</b>	<b>53,000</b>	32,793	0.62	B	33,383	0.63	B
6		Dwy. 3 to Driveway/Private Drive B	<b>6D</b>	<b>53,000</b>	32,793	0.62	B	33,506	0.63	B
7		Driveway/Private Drive B to Dwy. 6	<b>6D</b>	<b>53,000</b>	32,793	0.62	B	34,046	0.64	B
8		Dwy. 6 to Avenida Barbosa/Private Drive A	<b>6D</b>	<b>53,000</b>	32,793	0.62	B	34,164	0.64	B
9		Avenida Barbosa/Private Drive A to Dwy. 8	<b>6D</b>	<b>53,000</b>	33,608	0.63	B	39,395	0.74	C
10		Dwy. 8 to Dwy. 9	<b>6D</b>	<b>53,000</b>	33,608	0.63	B	41,058	0.77	C
11		Dwy. 9 to I-605 SB Off-Ramp	<b>6D</b>	<b>53,000</b>	33,608	0.63	B	41,059	0.77	C
12		I-605 SB Off-Ramp to I-605 NB On-Ramp/Live Oak Ln.	4D	30,000	31,938	<b>1.06</b>	<b>F</b>	36,839	<b>1.23</b>	<b>F</b>
15	Private Drive B	South of Arrow Hwy.	2U	10,000	Future Segment			622	0.06	A
16	Avenida Barbosa	Alpha St./Buena Vista St. to Arrow Hwy.	4D	20,000	19,449	<b>0.97</b>	<b>E</b>	20,047	<b>1.00</b>	<b>E</b>
17	Private Drive A	South of Arrow Hwy.	2U	10,000	Future Segment			4,635	0.46	A
18		North of Live Oak Av.	2U	10,000	Future Segment			3,097	0.31	A
19	Live Oak Av.	Live Oak Av./Arrow Hwy. to Dwy. 2	<b>6D</b>	<b>53,000</b>	47,170	<b>0.89</b>	<b>D</b>	48,781	<b>0.92</b>	<b>D</b>
20		Dwy. 2 to Speedway Dwy.	<b>6D</b>	<b>53,000</b>	47,332	<b>0.89</b>	<b>D</b>	48,850	<b>0.92</b>	<b>E</b>
21		Speedway Dwy. to Dwy. 4	<b>6D</b>	<b>53,000</b>	40,941	0.77	C	42,459	0.80	C
22		Dwy. 4 to Dwy. 5	<b>6D</b>	<b>53,000</b>	40,941	0.77	C	42,468	0.80	C
23		Dwy. 5 to Dwy. 7	<b>6D</b>	<b>53,000</b>	40,941	0.77	C	42,468	0.80	C
24		Dwy. 7 to Private Drive A	<b>6D</b>	<b>53,000</b>	41,032	0.77	C	43,206	<b>0.82</b>	<b>D</b>
25		Private Drive A to Dwy. 10	<b>6D</b>	<b>53,000</b>	40,751	0.77	C	45,838	<b>0.86</b>	<b>D</b>
26		Dwy. 10 to I-605 SB On-Ramp	<b>6D</b>	<b>53,000</b>	40,943	0.77	C	46,376	<b>0.88</b>	<b>D</b>
27			I-605 SB On-Ramp to I-605 NB Off-Ramps	4D	40,400	38,018	<b>0.94</b>	<b>E</b>	41,767	<b>1.03</b>

**BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

**5D** = Improvement

<sup>1</sup> These maximum roadway capacities have been obtained from the City of Irwindale General Plan Update (Table 4-10).

<sup>2</sup> V/C = Volume to Capacity Ratio

<sup>3</sup> LOS = Level of Service

Table 6

Intersection Analysis for Horizon Year (2040) Conditions

#	Intersection	Traffic Control <sup>3</sup>	2040 Without Project								2040 With Project							
			HCM Delay <sup>1</sup> (secs.)		Level of Service		ICU <sup>2</sup> (v/c)		Level of Service		HCM Delay <sup>1</sup> (secs.)		Level of Service		ICU <sup>2</sup> (v/c)		Level of Service	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
4	Live Oak Av. & Arrow Hwy. (West)	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	<b>1.10</b>	0.89	F	D	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	<b>1.12</b>	<b>0.94</b>	F	E
5	Dwy. 1 & Arrow Hwy.	<u>CSS</u>	Future Intersection								16.0	23.7	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
6	Dwy. 2 & Live Oak Av.	<u>CSS</u>	Future Intersection								30.7	30.8	D	D	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
7	Speedway Dwy. & Live Oak Av.	CSS	<b>95.3</b>	<b>&gt;100.0</b>	F	F	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	<b>57.0</b>	<b>&gt;100.0</b>	F	F	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
8	Dwy. 3 & Arrow Hwy.	<u>CSS</u>	Future Intersection								13.3	17.1	B	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
9	Dwy. 4 & Live Oak Av.	<u>CSS</u>	Future Intersection								26.9	23.2	D	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
10	Dwy. 5 & Live Oak Av.	<u>CSS</u>	Future Intersection								19.3	18.0	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
11	Driveway/Private Drive B & Arrow Hwy.	CSS	34.0	18.6	D	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	34.0	23.6	D	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
12	Dwy. 6 & Arrow Hwy.	<u>CSS</u>	Future Intersection								13.4	17.3	B	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
13	Dwy. 7/Speedway Dr. & Live Oak Av.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.43	<b>0.98</b>	A	E	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.54	<b>1.08</b>	A	F
14	Avenida Barbosa & Alpha St./Buena Vista St.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.54	0.78	A	C	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.57	0.82	A	D
15	Avenida Barbosa/Private Drive A & Arrow Hwy.	TS	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	<b>1.14</b>	<b>0.94</b>	F	E	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	<b>1.23</b>	<b>1.13</b>	F	F
16	Private Drive A & Live Oak Av.	<u>TS</u>	Future Intersection								-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	-- <sup>6</sup>	0.53	0.89	A	D
17	Dwy. 8 & Arrow Hwy.	<u>CSS</u>	Future Intersection								11.8	27.4	B	D	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
18	Dwy. 9 & Arrow Hwy.	<u>CSS</u>	Future Intersection								11.8	32.6	B	D	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
19	Dwy. 10 & Live Oak Av.	<u>CSS</u>	Future Intersection								22.0	18.6	C	C	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>	-- <sup>4</sup>
20	I-605 SB Off-Ramp & Arrow Hwy.	TS	33.3	9.5	C	A	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	37.3	11.3	D	B	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
21	I-605 SB On-Ramp & Live Oak Av.	TS	8.2	24.9	A	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	9.7	27.5	A	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
22	I-605 NB On-Ramp/Live Oak Ln. & Arrow Hwy.	CSS	11.9	19.6	B	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	12.6	22.4	B	C	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>
23	I-605 NB Off-Ramp & Live Oak Av.	CSS	<b>&gt;100.0</b>	<b>&gt;100.0</b>	F	F	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	<b>&gt;100.0</b>	<b>&gt;100.0</b>	F	F	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>	-- <sup>5</sup>

<sup>1</sup> **BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

<sup>2</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> Intersection capacity utilization (ICU) methodology results are presented as a volume-to-capacity ratio.

<sup>4</sup> TS = Traffic Signal; CSS = Cross-street Stop

<sup>5</sup> ICU not reported for intersections without a signal.

<sup>6</sup> ICU not reported for intersections under Caltrans' jurisdiction.

<sup>7</sup> HCM not reported for signalized intersections.

Table 7

Roadway Segment Analysis for Horizon Year (2040) Conditions

#	Roadway	Segment Limits	Roadway Section	LOS Capacity <sup>1</sup>	2040 Without Project	V/C <sup>2</sup>	LOS <sup>3</sup>	2040 With Project	V/C <sup>2</sup>	LOS <sup>3</sup>
4	Arrow Hwy.	Live Oak Av. to Dwy. 1	4D	30,000	34,313	<b>1.14</b>	F	34,973	<b>1.17</b>	F
5		Dwy. 1 to Dwy. 3	4D	30,000	34,313	<b>1.14</b>	F	34,903	<b>1.16</b>	F
6		Dwy. 3 to Driveway/Private Drive B	4D	30,000	34,313	<b>1.14</b>	F	35,026	<b>1.17</b>	F
7		Driveway/Private Drive B to Dwy. 6	5D	37,500	34,313	<b>0.92</b>	E	35,566	<b>0.95</b>	E
8		Dwy. 6 to Avenida Barbosa/Private Drive A	5D	37,500	34,313	<b>0.92</b>	E	35,684	<b>0.95</b>	E
9		Avenida Barbosa/Private Drive A to Dwy. 8	4D	30,000	35,110	<b>1.17</b>	F	40,897	<b>1.36</b>	F
10		Dwy. 8 to Dwy. 9	4D	30,000	35,110	<b>1.17</b>	F	42,560	<b>1.42</b>	F
11		Dwy. 9 to I-605 SB Off-Ramp	4D	30,000	35,110	<b>1.17</b>	F	42,561	<b>1.42</b>	F
12	I-605 SB Off-Ramp to I-605 NB On-Ramp/Live Oak Ln.	4D	30,000	33,584	<b>1.12</b>	F	38,485	<b>1.28</b>	F	
15	Private Drive B	South of Arrow Hwy.	2U	10,000	Future Segment			622	0.06	A
16	Avenida Barbosa	Alpha St./Buena Vista St. to Arrow Hwy.	4D	20,000	20,491	<b>1.02</b>	F	21,089	<b>1.05</b>	F
17	Private Drive A	South of Arrow Hwy.	2U	10,000	Future Segment			4,635	0.46	A
18		North of Live Oak Av.	2U	10,000	Future Segment			3,097	0.31	A
19	Live Oak Av.	Live Oak Av./Arrow Hwy. to Dwy. 2	5D	46,700	49,486	<b>1.06</b>	F	51,097	<b>1.09</b>	F
20		Dwy. 2 to Speedway Dwy.	5D	46,700	49,648	<b>1.06</b>	F	51,166	<b>1.10</b>	F
21		Speedway Dwy. to Dwy. 4	5D	46,700	42,875	<b>0.92</b>	E	44,393	<b>0.95</b>	E
22		Dwy. 4 to Dwy. 5	5D	46,700	42,875	<b>0.92</b>	E	44,402	<b>0.95</b>	E
23		Dwy. 5 to Dwy. 7	5D	46,700	42,875	<b>0.92</b>	E	44,402	<b>0.95</b>	E
24		Dwy. 7 to Private Drive A	5D	46,700	42,966	<b>0.92</b>	E	45,140	<b>0.97</b>	E
25		Private Drive A to Dwy. 10	5D	46,700	42,685	<b>0.91</b>	E	47,772	<b>1.02</b>	F
26		Dwy. 10 to I-605 SB On-Ramp	5D	46,700	42,877	<b>0.92</b>	E	48,310	<b>1.03</b>	F
27		I-605 SB On-Ramp to I-605 NB Off-Ramps	4D	40,400	39,973	<b>0.99</b>	E	43,722	<b>1.08</b>	F

**BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

<sup>1</sup> These maximum roadway capacities have been obtained from the City of Irwindale General Plan Update (Table 4-10).

<sup>2</sup> V/C = Volume to Capacity Ratio

<sup>3</sup> LOS = Level of Service

**Table 8**

**Intersection Analysis for Horizon Year (2040) Conditions With Improvements**

#	Intersection	Traffic Control <sup>4</sup>	Intersection Approach Lanes <sup>1</sup>												Delay <sup>2</sup> (secs.)		Level of Service		ICU <sup>3</sup> (v/c)		Level of Service		
			Northbound			Southbound			Eastbound			Westbound			AM	PM	AM	PM	AM	PM	AM	PM	
			L	T	R	L	T	R	L	T	R	L	T	R									
4	Live Oak Av. & Arrow Hwy. (West)																						
	- 2040 Without Project	TS	2	0	1>>	0	0	0	0	2	1>>	2	2	0	--	--	--	--	<b>1.101</b>	0.893	F	D	
	- 2040 With Project	TS	2	0	1>>	0	0	0	0	2	1>>	2	2	0	--	--	--	--	<b>1.122</b>	<b>0.938</b>	F	E	
	- With Improvements	TS	2	0	1>>	0	0	0	0	<u>3</u>	1>>	2	<u>3</u>	0	--	--	--	--	<b>0.908</b>	0.845	E	D	
7	Speedway Dwy. & Live Oak Av.																						
	- 2040 Without Project	CSS	1	0	d	0	0	0	0	3	0	1	2	0	<b>95.3</b>	> <b>100.0</b>	F	F	--	--	--	--	
	- 2040 With Project	CSS	1	0	d	0	0	0	0	3	0	1	2	0	<b>57.0</b>	> <b>100.0</b>	F	F	--	--	--	--	
	- With Improvements	<u>TS</u>	1	0	d	0	0	0	0	3	0	1	<u>3</u>	0	--	--	--	--	0.451	0.898	A	D	
13	Dwy. 7/Speedway Dr. & Live Oak Av.																						
	- 2040 Without Project	TS	2	0	1	0	0	0	0	3	0	1	2	0	--	--	--	--	0.434	<b>0.984</b>	A	E	
	- 2040 With Project	TS	2	0	1	0	<u>1</u>	0	0	3	0	1	<u>3</u>	0	--	--	--	--	0.541	<b>1.076</b>	A	F	
	- With Improvements	TS	2	0	1	<u>1</u>	<u>1</u>	0	0	3	<u>1</u>	1	<u>3</u>	0	--	--	--	--	0.523	<b>0.994</b>	A	E	
15	Avenida Barbosa/Private Drive A & Arrow Hwy.																						
	- 2040 Without Project	TS	0	0	0	2	0	1	1	2	0	0	2	1	--	--	--	--	<b>1.137</b>	<b>0.938</b>	F	E	
	- 2040 With Project	TS	0	0	0	2	0	1	1	2	0	0	2	1	--	--	--	--	<b>1.230</b>	<b>1.129</b>	F	F	
	- With Improvements	TS	<u>1</u>	<u>1</u>	<u>1</u>	2	<u>1</u>	1	<u>2</u>	<u>3</u>	0	<u>1</u>	<u>3</u>	<u>1</u> >	--	--	--	--	<b>0.913</b>	<b>0.906</b>	E	E	
23	I-605 NB Off-Ramp & Live Oak Av.																						
	- 2040 Without Project	CSS	0	0	1	0	0	1	0	2	0	0	2	0	> <b>100.0</b>	> <b>100.0</b>	F	F	--	--	--	--	
	- 2040 With Project	CSS	0	0	1	0	0	1	0	2	0	0	2	0	> <b>100.0</b>	> <b>100.0</b>	F	F	--	--	--	--	
	- With Improvements	<u>TS</u>	0	0	1	0	0	1	0	2	0	0	2	0	1.0	1.0	A	A	--	--	--	--	

<sup>1</sup> When a right turn is designated, the lane can either be striped or unstriped. To function as a right turn lane there must be sufficient width for right turning vehicles to travel outside the through lanes.

L = Left; T = Through; R = Right; > = Right-Turn Overlap Phasing; >> = Free Right Turn Lane; d= Defacto Right Turn Lane; 1 = Improvement

<sup>2</sup> Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown.

<sup>3</sup> Intersection capacity utilization (ICU) methodology results are presented as a volume-to-capacity ratio. ICU not reported for unsignalized intersections or at Caltrans facilities.

<sup>4</sup> TS = Traffic Signal; CSS = Cross-Street Stop; TS = Improvement

Table 9

Roadway Segment Analysis for Horizon Year (2040) Conditions With Improvements

#	Roadway	Segment Limits	Roadway Section	LOS Capacity <sup>1</sup>	2040 Without Project	V/C <sup>2</sup>	LOS <sup>3</sup>	2040 With Project	V/C <sup>2</sup>	LOS <sup>3</sup>
4	Arrow Hwy.	Live Oak Av. to Dwy. 1	<b>6D</b>	<b>53,000</b>	34,313	0.65	B	34,973	0.66	B
5		Dwy. 1 to Dwy. 3	<b>6D</b>	<b>53,000</b>	34,313	0.65	B	34,903	0.66	B
6		Dwy. 3 to Driveway/Private Drive B	<b>6D</b>	<b>53,000</b>	34,313	0.65	B	35,026	0.66	B
7		Driveway/Private Drive B to Dwy. 6	<b>6D</b>	<b>53,000</b>	34,313	0.65	B	35,566	0.67	B
8		Dwy. 6 to Avenida Barbosa/Private Drive A	<b>6D</b>	<b>53,000</b>	34,313	0.65	B	35,684	0.67	B
9		Avenida Barbosa/Private Drive A to Dwy. 8	<b>6D</b>	<b>53,000</b>	35,110	0.66	B	40,897	0.77	C
10		Dwy. 8 to Dwy. 9	<b>6D</b>	<b>53,000</b>	35,110	0.66	B	42,560	0.80	C
11		Dwy. 9 to I-605 SB Off-Ramp	<b>6D</b>	<b>53,000</b>	35,110	0.66	B	42,561	0.80	C
12	I-605 SB Off-Ramp to I-605 NB On-Ramp/Live Oak Ln.	4D	30,000	33,584	<b>1.12</b>	<b>F</b>	38,485	<b>1.28</b>	<b>F</b>	
15	Private Drive B	South of Arrow Hwy.	2U	10,000	Future Segment			622	0.06	A
16	Avenida Barbosa	Alpha St./Buena Vista St. to Arrow Hwy.	4D	20,000	20,491	<b>1.02</b>	<b>F</b>	21,089	<b>1.05</b>	<b>F</b>
17	Private Drive A	South of Arrow Hwy.	2U	10,000	Future Segment			4,635	0.46	A
18		North of Live Oak Av.	2U	10,000	Future Segment			3,097	0.31	A
19	Live Oak Av.	Live Oak Av./Arrow Hwy. to Dwy. 2	<b>6D</b>	<b>53,000</b>	49,486	<b>0.93</b>	<b>E</b>	51,097	<b>0.96</b>	<b>E</b>
20		Dwy. 2 to Speedway Dwy.	<b>6D</b>	<b>53,000</b>	49,648	<b>0.94</b>	<b>E</b>	51,166	<b>0.97</b>	<b>E</b>
21		Speedway Dwy. to Dwy. 4	<b>6D</b>	<b>53,000</b>	42,875	<b>0.81</b>	<b>D</b>	44,393	<b>0.84</b>	<b>D</b>
22		Dwy. 4 to Dwy. 5	<b>6D</b>	<b>53,000</b>	42,875	<b>0.81</b>	<b>D</b>	44,402	<b>0.84</b>	<b>D</b>
23		Dwy. 5 to Dwy. 7	<b>6D</b>	<b>53,000</b>	42,875	<b>0.81</b>	<b>D</b>	44,402	<b>0.84</b>	<b>D</b>
24		Dwy. 7 to Private Drive A	<b>6D</b>	<b>53,000</b>	42,966	<b>0.81</b>	<b>D</b>	45,140	<b>0.85</b>	<b>D</b>
25		Private Drive A to Dwy. 10	<b>6D</b>	<b>53,000</b>	42,685	<b>0.81</b>	<b>D</b>	47,772	<b>0.90</b>	<b>E</b>
26		Dwy. 10 to I-605 SB On-Ramp	<b>6D</b>	<b>53,000</b>	42,877	<b>0.81</b>	<b>D</b>	48,310	<b>0.91</b>	<b>E</b>
27		I-605 SB On-Ramp to I-605 NB Off-Ramps	4D	40,400	39,973	<b>0.99</b>	<b>E</b>	43,722	<b>1.08</b>	<b>F</b>

**BOLD** = LOS does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

**5D** = Improvement

<sup>1</sup> These maximum roadway capacities have been obtained from the City of Irwindale General Plan Update (Table 4-10).

<sup>2</sup> V/C = Volume to Capacity Ratio

<sup>3</sup> LOS = Level of Service

**ATTACHMENT A:  
OPENING YEAR CUMULATIVE (2020) WITHOUT PROJECT CONDITIONS INTERSECTION  
ANALYSIS WORKSHEETS**

The Park @ Live Oak (JN 11110)
OYC 2020 NP
AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.044
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves.

\*\*\*\*\*

Intersection						
Int Delay, s/veh	2.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1013	74	70	1384	30	46
Future Vol, veh/h	1013	74	70	1384	30	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1044	76	72	1427	31	47

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1120	0	1940
Stage 1	-	-	-	-	1082
Stage 2	-	-	-	-	858
Critical Hdwy	-	-	5.3	-	6.25
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	3.1	-	3.65
Pot Cap-1 Maneuver	-	-	348	-	78
Stage 1	-	-	-	-	223
Stage 2	-	-	-	-	371
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	348	-	62
Mov Cap-2 Maneuver	-	-	-	-	62
Stage 1	-	-	-	-	223
Stage 2	-	-	-	-	294

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	70.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	127	-	-	348	-
HCM Lane V/C Ratio	0.617	-	-	0.207	-
HCM Control Delay (s)	70.8	-	-	18	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	3.2	-	-	0.8	-

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑							↑
Traffic Vol, veh/h	0	863	0	0	2222	20	0	0	0	0	0	10
Future Vol, veh/h	0	863	0	0	2222	20	0	0	0	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	938	0	0	2415	22	0	0	0	0	0	11

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	-	-	-	0	-	-	1219	
Stage 1	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	
Pot Cap-1 Maneuver	0	-	0	0	-	-	-	0	0	150
Stage 1	0	-	0	0	-	-	-	0	0	-
Stage 2	0	-	0	0	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	0	150
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.9
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	150
HCM Lane V/C Ratio	-	-	-	0.072
HCM Control Delay (s)	-	-	-	30.9
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.2

The Park @ Live Oak (JN 11110)
OYC 2020 NP
AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.417
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 29 Level Of Service: A
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module: Table with columns for Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with columns for Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns for Vol/Sat, Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)
OYC 2020 NP
AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.518
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 34 Level Of Service: A
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume, OvlAdjVol.

Saturation Flow Module: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Vol/Sat, OvlAdjV/S, Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)
OYC 2020 NP
AM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.080
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module:

Table with 12 columns representing different volume metrics and 12 rows for various adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Saturation Flow Module:

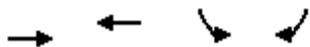
Table with 12 columns for saturation flow metrics and 4 rows for Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module:

Table with 12 columns for capacity analysis metrics and 2 rows for Vol/Sat and Crit Moves.

\*\*\*\*\*

Timings  
20: Arrow Hwy. & I-605 SB Off-Ramp

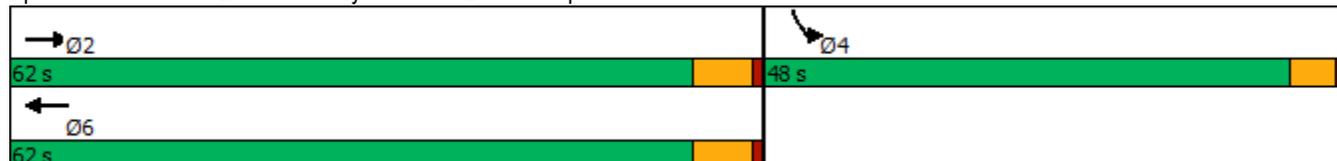


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↘	↗
Traffic Volume (vph)	828	1882	489	948
Future Volume (vph)	828	1882	489	948
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 99.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

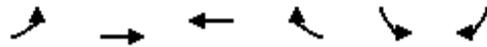
Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↘	↗
Traffic Volume (veh/h)	0	828	1882	0	489	948
Future Volume (veh/h)	0	828	1882	0	489	948
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	854	1940	0	504	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3021	2103	0	553	
Arrive On Green	0.00	0.58	0.58	0.00	0.31	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	854	1940	0	504	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	7.7	45.5	0.0	25.1	0.0
Cycle Q Clear(g_c), s	0.0	7.7	45.5	0.0	25.1	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3021	2103	0	553	
V/C Ratio(X)	0.00	0.28	0.92	0.00	0.91	
Avail Cap(c_a), veh/h	0	3109	2163	0	836	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.8	17.7	0.0	31.3	0.0
Incr Delay (d2), s/veh	0.0	0.1	7.1	0.0	10.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5	17.4	0.0	12.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	9.8	24.8	0.0	41.4	0.0
LnGrp LOS	A	A	C	A	D	
Approach Vol, veh/h		854	1940		504	A
Approach Delay, s/veh		9.8	24.8		41.4	
Approach LOS		A	C		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		60.4		33.4		60.4
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		9.7		27.1		47.5
Green Ext Time (p_c), s		6.4		1.5		7.1

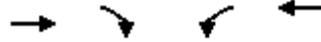
Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.

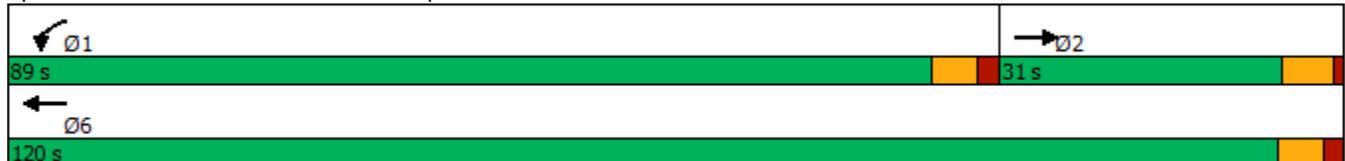


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	366	615	725	1543
Future Volume (vph)	366	615	725	1543
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	31.0		89.0	120.0
Total Split (%)	25.8%		74.2%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

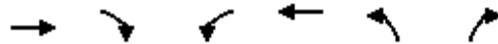
Cycle Length: 120  
 Actuated Cycle Length: 60.4  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	366	615	725	1543	0	0
Future Volume (veh/h)	366	615	725	1543	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	385	0	763	1624		
Peak Hour Factor	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1064		934	3268		
Arrive On Green	0.29	0.00	0.52	0.91		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	385	0	763	1624		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	5.4	0.0	22.7	5.0		
Cycle Q Clear(g_c), s	5.4	0.0	22.7	5.0		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1064		934	3268		
V/C Ratio(X)	0.36		0.82	0.50		
Avail Cap(c_a), veh/h	1412		2328	6380		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	17.9	0.0	13.1	0.5		
Incr Delay (d2), s/veh	0.1	0.0	3.8	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.0	0.0	7.7	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.0	0.0	16.9	0.8		
LnGrp LOS	B		B	A		
Approach Vol, veh/h	385	A		2387		
Approach Delay, s/veh	18.0			5.9		
Approach LOS	B			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	39.3	25.1			64.4	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	82.9	* 25			113.9	
Max Q Clear Time (g_c+I1), s	24.7	7.4			7.0	
Green Ext Time (p_c), s	8.5	1.3			51.4	

Intersection Summary

HCM 6th Ctrl Delay			7.6			
HCM 6th LOS			A			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	838	20	0	1882	436	0	0	13	0	0	0
Future Vol, veh/h	0	838	20	0	1882	436	0	0	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	911	22	0	2046	474	0	0	14	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	557	-	-	-	-
HCM Lane V/C Ratio	0.025	-	-	-	-
HCM Control Delay (s)	11.6	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

**Intersection**

Int Delay, s/veh 86.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	366	0	0	1568	0	0	0	666	0	0	701
Future Vol, veh/h	0	366	0	0	1568	0	0	0	666	0	0	701
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	398	0	0	1704	0	0	0	724	0	0	762

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	881
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	881
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	24.8	\$ 382.8
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	881	-	-	428
HCM Lane V/C Ratio	0.822	-	-	1.78
HCM Control Delay (s)	24.8	-	-	\$ 382.8
HCM Lane LOS	C	-	-	F
HCM 95th %tile Q(veh)	9.4	-	-	47.7

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

The Park @ Live Oak (JN 11110)
OYC 2020 NP
PM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.819
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module: Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Table with columns: Vol/Sat, Crit Moves.

\*\*\*\*\*

Intersection						
Int Delay, s/veh	80.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	2640	114	116	1203	111	170
Future Vol, veh/h	2640	114	116	1203	111	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2750	119	121	1253	116	177

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	2869	0	3679 1435
Stage 1	-	-	-	-	2810 -
Stage 2	-	-	-	-	869 -
Critical Hdwy	-	-	5.3	-	6.25 7.1
Critical Hdwy Stg 1	-	-	-	-	6.6 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	-	-	3.1	-	3.65 3.9
Pot Cap-1 Maneuver	-	-	~ 46	-	~ 6 ~ 107
Stage 1	-	-	-	-	~ 17 -
Stage 2	-	-	-	-	366 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 46	-	0 ~ 107
Mov Cap-2 Maneuver	-	-	-	-	0 -
Stage 1	-	-	-	-	~ 17 -
Stage 2	-	-	-	-	0 -

Approach	EB	WB	NB
HCM Control Delay, s	0	81.4	\$ 869.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	107	-	-	~ 46	-
HCM Lane V/C Ratio	2.736	-	-	2.627	-
HCM Control Delay (s)	\$ 869.5	-	-	\$ 925.2	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	27.2	-	-	12.9	-

Notes  
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑							↑
Traffic Vol, veh/h	0	1215	0	0	1559	1	0	0	0	0	0	1
Future Vol, veh/h	0	1215	0	0	1559	1	0	0	0	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1253	0	0	1607	1	0	0	0	0	0	1

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	-	-	-	0	-	-	804	
Stage 1	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	
Pot Cap-1 Maneuver	0	-	0	0	-	-	-	0	0	283
Stage 1	0	-	0	0	-	-	-	0	0	-
Stage 2	0	-	0	0	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	0	283
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	283
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	17.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

The Park @ Live Oak (JN 11110)
OYC 2020 NP
PM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.794
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 65 Level Of Service: C
\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module: Vol/Sat, Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)
OYC 2020 NP
PM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.741
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 56 Level Of Service: C
\*\*\*\*\*

Table with columns for Approach (North Bound, South Bound, East Bound, West Bound) and Movement (L, T, R). Rows include Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table showing Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, Final Volume, and OvlAdjVol.

Saturation Flow Module: Table showing Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table showing Vol/Sat, OvlAdjV/S, and Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)
OYC 2020 NP
PM

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.870
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 87 Level Of Service: D
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

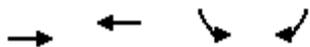
Volume Module table with 12 columns representing different traffic volumes and adjustment factors.

Saturation Flow Module table with 12 columns representing saturation flow rates and adjustments.

Capacity Analysis Module table with 12 columns representing volume to saturation ratios and critical moves.

\*\*\*\*\*

Timings  
20: Arrow Hwy. & I-605 SB Off-Ramp

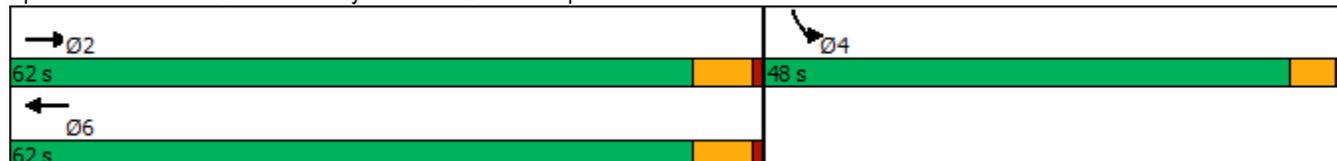


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↵	↶
Traffic Volume (vph)	1751	812	306	423
Future Volume (vph)	1751	812	306	423
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

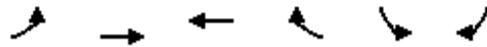
Cycle Length: 110  
 Actuated Cycle Length: 67.4  
 Natural Cycle: 50  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↘	↗
Traffic Volume (veh/h)	0	1751	812	0	306	423
Future Volume (veh/h)	0	1751	812	0	306	423
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	1824	846	0	319	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3075	2140	0	398	
Arrive On Green	0.00	0.59	0.59	0.00	0.22	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	1824	846	0	319	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	12.4	7.0	0.0	9.4	0.0
Cycle Q Clear(g_c), s	0.0	12.4	7.0	0.0	9.4	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3075	2140	0	398	
V/C Ratio(X)	0.00	0.59	0.40	0.00	0.80	
Avail Cap(c_a), veh/h	0	5197	3617	0	1397	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	7.2	6.1	0.0	20.7	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	1.6	0.0	4.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.4	6.2	0.0	24.5	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h		1824	846		319	A
Approach Delay, s/veh		7.4	6.2		24.5	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		39.0		17.0		39.0
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		14.4		11.4		9.0
Green Ext Time (p_c), s		18.9		1.0		6.3

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.

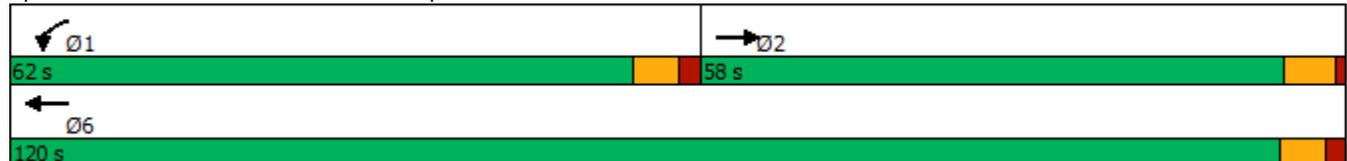


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	1310	1269	699	1286
Future Volume (vph)	1310	1269	699	1286
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	58.0		62.0	120.0
Total Split (%)	48.3%		51.7%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 106.5  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	1310	1269	699	1286	0	0
Future Volume (veh/h)	1310	1269	699	1286	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	1365	0	728	1340		
Peak Hour Factor	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1543		812	3387		
Arrive On Green	0.43	0.00	0.45	0.94		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	1365	0	728	1340		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	34.4	0.0	36.6	3.6		
Cycle Q Clear(g_c), s	34.4	0.0	36.6	3.6		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1543		812	3387		
V/C Ratio(X)	0.88		0.90	0.40		
Avail Cap(c_a), veh/h	1910		1025	4167		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	26.0	0.0	25.1	0.3		
Incr Delay (d2), s/veh	4.0	0.0	10.7	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	14.2	0.0	16.5	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.0	0.0	35.8	0.5		
LnGrp LOS	C		D	A		
Approach Vol, veh/h	1365	A		2068		
Approach Delay, s/veh	30.0			12.9		
Approach LOS	C			B		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	50.4	48.3			98.7	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	55.9	* 52			113.9	
Max Q Clear Time (g_c+I1), s	38.6	36.4			5.6	
Green Ext Time (p_c), s	5.7	5.8			34.5	

Intersection Summary

HCM 6th Ctrl Delay		19.7				
HCM 6th LOS			B			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	1584	24	0	812	315	0	0	46	0	0	0
Future Vol, veh/h	0	1584	24	0	812	315	0	0	46	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1650	25	0	846	328	0	0	48	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	320	-	-	-	-
HCM Lane V/C Ratio	0.15	-	-	-	-
HCM Control Delay (s)	18.2	-	-	-	-
HCM Lane LOS	C	-	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-	-

Intersection												
Int Delay, s/veh	88.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	1310	0	0	1165	0	0	0	705	0	0	819
Future Vol, veh/h	0	1310	0	0	1165	0	0	0	705	0	0	819
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1351	0	0	1201	0	0	0	727	0	0	844

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	-	0	-	-	-	0	-	-	676	-	-	601
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	5.5	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	~ 521	0	0	~ 566
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	~ 521	-	-	~ 566
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	211.4	250.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	521	-	-	566
HCM Lane V/C Ratio	1.395	-	-	1.492
HCM Control Delay (s)	211.4	-	-	250.5
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	33.8	-	-	42.3

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**ATTACHMENT B:  
OPENING YEAR CUMULATIVE (2020) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS  
WORKSHEETS**

-----  
 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 AM Peak Hour  
 -----

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.065  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	2	0	0

Volume Module:

Base Vol:	1090	0	313	0	0	0	0	539	0	291	1931	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1090	0	313	0	0	0	0	539	0	291	1931	0
Added Vol:	64	0	12	0	0	0	0	57	0	10	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1154	0	325	0	0	0	0	596	0	301	1933	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1154	0	325	0	0	0	0	596	0	301	1933	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1154	0	325	0	0	0	0	596	0	301	1933	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1154	0	325	0	0	0	0	596	0	301	1933	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.36	0.00	0.20	0.00	0.00	0.00	0.00	0.19	0.00	0.09	0.60	0.00
Crit Moves:	****						****			****		

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Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	804	118	0	2233	0	93
Future Vol, veh/h	804	118	0	2233	0	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	874	128	0	2427	0	101

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	501
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	445
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	445
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	445	-	-	-
HCM Lane V/C Ratio	0.227	-	-	-
HCM Control Delay (s)	15.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.9	-	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1143	1364	125	0	116
Future Vol, veh/h	0	1143	1364	125	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1242	1483	136	0	126

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 810
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.9
Pot Cap-1 Maneuver	0	-	-	-	0 281
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 281
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	27.8
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	281
HCM Lane V/C Ratio	-	-	-	0.449
HCM Control Delay (s)	-	-	-	27.8
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.2

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↘	
Traffic Vol, veh/h	1069	74	70	1459	30	46
Future Vol, veh/h	1069	74	70	1459	30	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1102	76	72	1504	31	47

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1178	0	1886
Stage 1	-	-	-	-	1140
Stage 2	-	-	-	-	746
Critical Hdwy	-	-	5.3	-	5.7
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	6
Follow-up Hdwy	-	-	3.1	-	3.8
Pot Cap-1 Maneuver	-	-	326	-	110
Stage 1	-	-	-	-	201
Stage 2	-	-	-	-	395
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	326	-	86
Mov Cap-2 Maneuver	-	-	-	-	86
Stage 1	-	-	-	-	201
Stage 2	-	-	-	-	308

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	46
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	163	-	-	326	-
HCM Lane V/C Ratio	0.481	-	-	0.221	-
HCM Control Delay (s)	46	-	-	19.2	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	2.3	-	-	0.8	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	894	3	0	2233	0	4
Future Vol, veh/h	894	3	0	2233	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	972	3	0	2427	0	4

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	488
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	-	0	454
Stage 1	-	0	-	0	-
Stage 2	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	454
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	454	-	-	-
HCM Lane V/C Ratio	0.01	-	-	-
HCM Control Delay (s)	13	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑			↗
Traffic Vol, veh/h	4	1112	1528	9	0	1
Future Vol, veh/h	4	1112	1528	9	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	1209	1661	10	0	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1671	0	-	0	- 836
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	5.3	-	-	-	- 7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	3.1	-	-	-	- 3.9
Pot Cap-1 Maneuver	187	-	-	-	0 270
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	187	-	-	-	- 270
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	187	-	-	-	270
HCM Lane V/C Ratio	0.023	-	-	-	0.004
HCM Control Delay (s)	24.7	-	-	-	18.4
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1112	1536	3	0	1
Future Vol, veh/h	0	1112	1536	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1209	1670	3	0	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	837
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	269
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	269
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.4
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	269
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	18.4
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↑↑↑			↖ ↑↑↑				↕			↕	
Traffic Vol, veh/h	0	897	1	48	2223	20	1	0	6	0	0	10
Future Vol, veh/h	0	897	1	48	2223	20	1	0	6	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	975	1	52	2416	22	1	0	7	0	0	11

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	2438	0	0	976	0	0	2046	3518	488	2921	3507	1219
Stage 1	-	-	-	-	-	-	976	976	-	2531	2531	-
Stage 2	-	-	-	-	-	-	1070	2542	-	390	976	-
Critical Hdwy	5.3	-	-	5.3	-	-	6.4	6.5	7.1	6.4	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.7	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	77	-	-	408	-	-	61	6	454	17	6	150
Stage 1	-	-	-	-	-	-	210	332	-	16	56	-
Stage 2	-	-	-	-	-	-	216	56	-	559	332	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	77	-	-	408	-	-	51	5	454	15	5	150
Mov Cap-2 Maneuver	-	-	-	-	-	-	110	40	-	15	39	-
Stage 1	-	-	-	-	-	-	210	332	-	16	49	-
Stage 2	-	-	-	-	-	-	175	49	-	551	332	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.3		16.7		30.9	
HCM LOS					C		D	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	314	77	-	-	408	-	-	150
HCM Lane V/C Ratio	0.024	-	-	-	0.128	-	-	0.072
HCM Control Delay (s)	16.7	0	-	-	15.1	-	-	30.9
HCM Lane LOS	C	A	-	-	C	-	-	D
HCM 95th %tile Q(veh)	0.1	0	-	-	0.4	-	-	0.2

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	902	0	0	2291	0	3
Future Vol, veh/h	902	0	0	2291	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	980	0	0	2490	0	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	490
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	0	-	0	453
Stage 1	-	0	-	0	-
Stage 2	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	453
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	453	-	-	-
HCM Lane V/C Ratio	0.007	-	-	-
HCM Control Delay (s)	13	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.524
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	35	Level Of Service:	A

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	0	0	1	0	2	1
	0	1	0	0	0	1	0	0	0	1	0	2

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Volume Module:

Base Vol:	32	0	33	0	0	0	0	961	88	92	1411	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	0	33	0	0	0	0	961	88	92	1411	0
Added Vol:	0	0	0	52	0	30	46	16	0	0	65	78
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	0	33	52	0	30	46	977	88	92	1476	78
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	32	0	33	52	0	30	46	977	88	92	1476	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	0	33	52	0	30	46	977	88	92	1476	78
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	32	0	33	52	0	30	46	977	88	92	1476	78

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Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.63	0.00	0.37	1.00	2.75	0.25	1.00	2.85	0.15
Final Sat.:	3200	0	1600	1015	0	585	1600	4403	397	1600	4559	241

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Capacity Analysis Module:

Vol/Sat:	0.01	0.00	0.02	0.05	0.00	0.05	0.03	0.22	0.22	0.06	0.32	0.32
Crit Moves:			****			****	****			****		

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #14 Avenida Barbosa / Alpha/Buena Vista

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.550
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	36	Level Of Service:	A

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Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	T	R	L	T	R	L	T	R	L	T	R			
Control:	Split Phase			Split Phase			Protected			Protected					
Rights:	Ovl			Include			Include			Include					
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0			
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Lanes:	0	1	0	0	2	0	1	0	0	1	2	0	1	0	1

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Volume Module:

Base Vol:	56	342	643	2	110	7	2	2	9	201	6	19
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	56	342	643	2	110	7	2	2	9	201	6	19
Added Vol:	0	18	105	0	32	0	0	0	0	100	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	56	360	748	2	142	7	2	2	9	301	6	19
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	360	748	2	142	7	2	2	9	301	6	19
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	360	748	2	142	7	2	2	9	301	6	19
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	56	360	748	2	142	7	2	2	9	301	6	19
OvlAdjVol:	447											

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Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.87	2.00	0.01	0.99	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	215	1385	3200	22	1578	1600	1600	3200	1600	3200	1600	1600

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Capacity Analysis Module:

Vol/Sat:	0.26	0.26	0.23	0.09	0.09	0.00	0.00	0.00	0.01	0.09	0.00	0.01
OvlAdjV/S:	0.14											
Crit Moves:	****			****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.173  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:

Base Vol:	0	0	0	220	0	194	334	518	0	0	2038	698
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	220	0	194	334	518	0	0	2038	698
Added Vol:	1	3	101	113	9	10	26	26	1	307	48	95
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	3	101	333	9	204	360	544	1	307	2086	793
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	3	101	333	9	204	360	544	1	307	2086	793
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	3	101	333	9	204	360	544	1	307	2086	793
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	3	101	333	9	204	360	544	1	307	2086	793

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.04	0.96	1.00	2.99	0.01	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	68	1532	1600	4791	9	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.06	0.10	0.13	0.13	0.23	0.11	0.11	0.19	0.65	0.50
Crit Moves:			****		****		****			****		

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #16 Dwy A / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.510  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 34 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	1	0	0	1	0	3	0	0	2

Volume Module:

Base Vol:	0	0	0	0	0	0	0	994	0	0	1503	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	994	0	0	1503	0
Added Vol:	0	0	0	44	0	2	6	62	0	0	141	173
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	44	0	2	6	1056	0	0	1644	173
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	44	0	2	6	1056	0	0	1644	173
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	44	0	2	6	1056	0	0	1644	173
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	44	0	2	6	1056	0	0	1644	173

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	3.00	0.00	0.00	2.71	0.29
Final Sat.:	0	0	0	1600	0	1600	1600	4800	0	0	4343	457

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.22	0.00	0.00	0.38	0.38
Crit Moves:				****			****			****		

\*\*\*\*\*

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	941	202	0	3187	0	163
Future Vol, veh/h	941	202	0	3187	0	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1023	220	0	3464	0	177

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	512
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	5
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3
Pot Cap-1 Maneuver	-	-	0	-	0	724
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	724
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	724	-	-	-
HCM Lane V/C Ratio	0.245	-	-	-
HCM Control Delay (s)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1	-	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	860	244	0	3187	0	197
Future Vol, veh/h	860	244	0	3187	0	197
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	935	265	0	3464	0	214

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	468
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	5
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3
Pot Cap-1 Maneuver	-	-	0	-	757
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	757
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	757	-	-	-
HCM Lane V/C Ratio	0.283	-	-	-
HCM Control Delay (s)	11.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.2	-	-	-

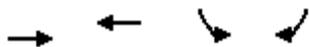
Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↑
Traffic Vol, veh/h	0	1076	1841	65	0	5
Future Vol, veh/h	0	1076	1841	65	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1170	2001	71	0	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1036
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.9
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.3
Pot Cap-1 Maneuver	0	-	- 0 232
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 232
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	232
HCM Lane V/C Ratio	-	-	-	0.023
HCM Control Delay (s)	-	-	-	20.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Timings  
20: Arrow Hwy. & I-605 SB Off-Ramp

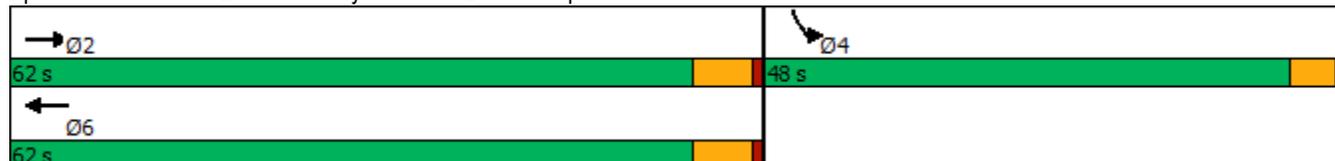


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↘	↗
Traffic Volume (vph)	1058	1949	489	1237
Future Volume (vph)	1058	1949	489	1237
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

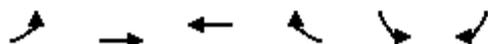
Cycle Length: 110  
 Actuated Cycle Length: 99.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↙	↗
Traffic Volume (veh/h)	0	1058	1949	0	489	1237
Future Volume (veh/h)	0	1058	1949	0	489	1237
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	1091	2009	0	504	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3032	2110	0	552	
Arrive On Green	0.00	0.58	0.58	0.00	0.31	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	1091	2009	0	504	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	10.5	49.6	0.0	25.5	0.0
Cycle Q Clear(g_c), s	0.0	10.5	49.6	0.0	25.5	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3032	2110	0	552	
V/C Ratio(X)	0.00	0.36	0.95	0.00	0.91	
Avail Cap(c_a), veh/h	0	3062	2131	0	823	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.4	18.5	0.0	31.9	0.0
Incr Delay (d2), s/veh	0.0	0.1	10.4	0.0	10.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	19.9	0.0	12.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	10.5	28.9	0.0	42.4	0.0
LnGrp LOS	A	B	C	A	D	
Approach Vol, veh/h		1091	2009		504	A
Approach Delay, s/veh		10.5	28.9		42.4	
Approach LOS		B	C		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		61.5		33.7		61.5
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		12.5		27.5		51.6
Green Ext Time (p_c), s		8.8		1.5		4.0

Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	368	709	751	1907
Future Volume (vph)	368	709	751	1907
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	30.0		90.0	120.0
Total Split (%)	25.0%		75.0%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

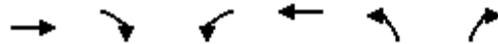
Cycle Length: 120  
 Actuated Cycle Length: 89.5  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑		
Traffic Volume (veh/h)	368	709	751	1907	0	0
Future Volume (veh/h)	368	709	751	1907	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	387	0	791	2007		
Peak Hour Factor	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1295		914	3365		
Arrive On Green	0.36	0.00	0.51	0.93		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	387	0	791	2007		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	6.9	0.0	34.5	7.6		
Cycle Q Clear(g_c), s	6.9	0.0	34.5	7.6		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1295		914	3365		
V/C Ratio(X)	0.30		0.87	0.60		
Avail Cap(c_a), veh/h	1295		1692	4582		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	20.7	0.0	19.5	0.5		
Incr Delay (d2), s/veh	0.0	0.0	5.4	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.7	0.0	13.7	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.7	0.0	24.9	0.8		
LnGrp LOS	C		C	A		
Approach Vol, veh/h	387	A		2798		
Approach Delay, s/veh	20.7			7.6		
Approach LOS	C			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	51.4	38.3			89.7	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	83.9	* 24			113.9	
Max Q Clear Time (g_c+I1), s	36.5	8.9			9.6	
Green Ext Time (p_c), s	8.9	1.3			74.0	

Intersection Summary

HCM 6th Ctrl Delay			9.2			
HCM 6th LOS			A			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	945	143	0	1949	436	0	0	13	0	0	0
Future Vol, veh/h	0	945	143	0	1949	436	0	0	13	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1027	155	0	2118	474	0	0	14	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	-	-	0	-	-	514
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	511
Stage 1	0	-	-	0	-	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	0	511
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	511	-	-	-	-
HCM Lane V/C Ratio	0.028	-	-	-	-
HCM Control Delay (s)	12.2	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection												
Int Delay, s/veh	213											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	368	0	0	1672	0	0	0	666	0	0	986
Future Vol, veh/h	0	368	0	0	1672	0	0	0	666	0	0	986
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	400	0	0	1817	0	0	0	724	0	0	1072

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	-	0	-	-	-	0	-	-	200	-	-	909
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	5.5	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	0	-	0	0	-	0	0	0	880	0	0	~ 401
Stage 1	0	-	0	0	-	0	0	0	-	0	0	-
Stage 2	0	-	0	0	-	0	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	880	-	-	~ 401
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	24.9	\$ 780.8
HCM LOS			C	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	880	-	-	401
HCM Lane V/C Ratio	0.823	-	-	2.673
HCM Control Delay (s)	24.9	-	-	\$ 780.8
HCM Lane LOS	C	-	-	F
HCM 95th %tile Q(veh)	9.4	-	-	88.4

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.851  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	1	1	0	2
	0	0	1	0	0	0	0	0	1	1	0	0

Volume Module:

Base Vol:	905	0	336	0	0	0	0	807	1990	606	866	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	905	0	336	0	0	0	0	807	1990	606	866	0
Added Vol:	101	0	21	0	0	0	0	45	0	11	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1006	0	357	0	0	0	0	852	1990	617	878	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1006	0	357	0	0	0	0	852	1990	617	878	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1006	0	357	0	0	0	0	852	1990	617	878	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1006	0	357	0	0	0	0	852	1990	617	878	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	1600	1600	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.31	0.00	0.22	0.00	0.00	0.00	0.00	0.53	1.24	0.19	0.27	0.00
Crit Moves:	****								****	****		

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Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1156	115	0	1572	0	119
Future Vol, veh/h	1156	115	0	1572	0	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1257	125	0	1709	0	129

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	691
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	336
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	336
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	336	-	-	-
HCM Lane V/C Ratio	0.385	-	-	-
HCM Control Delay (s)	22.3	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.8	-	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2799	1289	125	0	137
Future Vol, veh/h	0	2799	1289	125	0	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3042	1401	136	0	149

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 769
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.9
Pot Cap-1 Maneuver	0	-	-	-	0 299
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 299
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	28.4
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	299
HCM Lane V/C Ratio	-	-	-	0.498
HCM Control Delay (s)	-	-	-	28.4
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.6

Intersection						
Int Delay, s/veh	82.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↘	
Traffic Vol, veh/h	2685	114	116	1303	111	170
Future Vol, veh/h	2685	114	116	1303	111	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2797	119	121	1357	116	177

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	2916	0	3642
Stage 1	-	-	-	-	2857
Stage 2	-	-	-	-	785
Critical Hdwy	-	-	5.3	-	5.7
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	6
Follow-up Hdwy	-	-	3.1	-	3.8
Pot Cap-1 Maneuver	-	-	~ 43	-	~ 12
Stage 1	-	-	-	-	~ 16
Stage 2	-	-	-	-	377
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 43	-	0
Mov Cap-2 Maneuver	-	-	-	-	0
Stage 1	-	-	-	-	~ 16
Stage 2	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	83.2	\$ 906.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	104	-	-	~ 43	-
HCM Lane V/C Ratio	2.815	-	-	2.81	-
HCM Control Delay (s)	\$ 906.7	-	-	\$ 1017.3	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	27.6	-	-	13.2	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1274	2	0	1572	0	19
Future Vol, veh/h	1274	2	0	1572	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1385	2	0	1709	0	21

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	694
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	334
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	334
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	334	-	-	-
HCM Lane V/C Ratio	0.062	-	-	-
HCM Control Delay (s)	16.5	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑			↗
Traffic Vol, veh/h	2	2852	1413	5	0	6
Future Vol, veh/h	2	2852	1413	5	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	3100	1536	5	0	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1541	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.3	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.1	-	-
Pot Cap-1 Maneuver	217	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	217	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	217	-	-	-	298
HCM Lane V/C Ratio	0.01	-	-	-	0.022
HCM Control Delay (s)	21.8	-	-	-	17.4
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2852	1412	2	0	5
Future Vol, veh/h	0	2852	1412	2	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3100	1535	2	0	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	- 769
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	- 7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	- 3.9
Pot Cap-1 Maneuver	0	-	-	-	0 299
Stage 1	0	-	-	-	0 -
Stage 2	0	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	- 299
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	299
HCM Lane V/C Ratio	-	-	-	0.018
HCM Control Delay (s)	-	-	-	17.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑				↕			↕	
Traffic Vol, veh/h	0	1292	0	21	1565	1	6	0	32	0	0	1
Future Vol, veh/h	0	1292	0	21	1565	1	6	0	32	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1332	0	22	1613	1	6	0	33	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1614	0	0	1332	0	0	2021	2990	666	2191	2990	807
Stage 1	-	-	-	-	-	-	1332	1332	-	1658	1658	-
Stage 2	-	-	-	-	-	-	689	1658	-	533	1332	-
Critical Hdwy	5.3	-	-	5.3	-	-	6.4	6.5	7.1	6.4	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.7	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	200	-	-	275	-	-	63	14	348	49	14	282
Stage 1	-	-	-	-	-	-	118	225	-	70	156	-
Stage 2	-	-	-	-	-	-	370	156	-	459	225	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	200	-	-	275	-	-	59	13	348	42	13	282
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	86	-	62	83	-
Stage 1	-	-	-	-	-	-	118	225	-	70	144	-
Stage 2	-	-	-	-	-	-	339	144	-	415	225	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			22.2			17.8		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	200	-	-	275	-	-	282
HCM Lane V/C Ratio	0.158	-	-	-	0.079	-	-	0.004
HCM Control Delay (s)	22.2	0	-	-	19.2	-	-	17.8
HCM Lane LOS	C	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.3	-	-	0

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1324	0	0	1587	0	13
Future Vol, veh/h	1324	0	0	1587	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1439	0	0	1725	0	14

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	720
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	321
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	321
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	321	-	-	-
HCM Lane V/C Ratio	0.044	-	-	-
HCM Control Delay (s)	16.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.886  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 93 Level Of Service: D  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	2	1	0	2

Volume Module:

Base Vol:	113	0	112	0	0	0	0	2635	86	87	1133	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	113	0	112	0	0	0	0	2635	86	87	1133	0
Added Vol:	0	0	0	67	0	39	39	15	0	0	66	66
PasserByVol:	0	0	0	32	0	19	32	-32	0	0	-19	19
Initial Fut:	113	0	112	99	0	58	71	2618	86	87	1180	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	113	0	112	99	0	58	71	2618	86	87	1180	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	113	0	112	99	0	58	71	2618	86	87	1180	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	113	0	112	99	0	58	71	2618	86	87	1180	85

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.63	0.00	0.37	1.00	2.90	0.10	1.00	2.80	0.20
Final Sat.:	3200	0	1600	1009	0	591	1600	4647	153	1600	4477	323

Capacity Analysis Module:

Vol/Sat:	0.04	0.00	0.07	0.10	0.00	0.10	0.04	0.56	0.56	0.05	0.26	0.26
Crit Moves:			****			****		****		****		

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.778  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 62 Level Of Service: C  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Include			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	0	1	0	0	2	0	1	0	0	1	1	0	2	0	1	2	0	1	0	1

Volume Module:

Base Vol:	10	165	371	11	428	6	4	16	88	537	10	16
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	10	165	371	11	428	6	4	16	88	537	10	16
Added Vol:	0	35	100	0	25	0	0	0	0	110	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	10	200	471	11	453	6	4	16	88	647	10	16
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	10	200	471	11	453	6	4	16	88	647	10	16
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	10	200	471	11	453	6	4	16	88	647	10	16
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	10	200	471	11	453	6	4	16	88	647	10	16
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.95	2.00	0.02	0.98	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	76	1524	3200	38	1562	1600	1600	3200	1600	3200	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.13	0.13	0.15	0.29	0.29	0.00	0.00	0.01	0.06	0.20	0.01	0.01	
OvlAdjV/S:	0.00												
Crit Moves:	****	****					****	****	****				

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #15 Avenida Barbosa/Dwy A / Arrow

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Cycle (sec): 100 Critical Vol./Cap.(X): 1.061  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:	North Bound			South Bound			East Bound			West Bound		
Base Vol:	0	0	0	698	0	448	251	891	0	0	1025	253
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	698	0	448	251	891	0	0	1025	253
Added Vol:	6	16	269	118	6	11	30	102	0	225	21	90
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	16	269	816	6	459	281	993	0	225	1046	343
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	6	16	269	816	6	459	281	993	0	225	1046	343
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	16	269	816	6	459	281	993	0	225	1046	343
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	16	269	816	6	459	281	993	0	225	1046	343

Saturation Flow Module:	North Bound			South Bound			East Bound			West Bound		
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.01	0.99	1.00	3.00	0.00	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	21	1579	1600	4800	0	1600	3200	1600

Capacity Analysis Module:	North Bound			South Bound			East Bound			West Bound		
Vol/Sat:	0.00	0.01	0.17	0.26	0.29	0.29	0.18	0.21	0.00	0.14	0.33	0.21
Crit Moves:			****		****		****				****	

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 The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #16 Dwy A / Live Oak

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.844
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	180	Level Of Service:	D

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	0	1	0	3	0	2	1

Volume Module:

Base Vol:	0	0	0	0	0	0	0	2747	0	0	1220	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	2747	0	0	1220	0
Added Vol:	0	0	0	249	0	11	4	78	0	0	121	130
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	249	0	11	4	2825	0	0	1341	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	249	0	11	4	2825	0	0	1341	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	249	0	11	4	2825	0	0	1341	130
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	249	0	11	4	2825	0	0	1341	130

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	3.00	0.00	0.00	2.73	0.27
Final Sat.:	0	0	0	1600	0	1600	1600	4800	0	0	4376	424

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.16	0.00	0.01	0.00	0.59	0.00	0.00	0.31	0.31
Crit Moves:				****				****				

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Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2090	191	0	1690	0	193
Future Vol, veh/h	2090	191	0	1690	0	193
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2272	208	0	1837	0	210

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	1136
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	5
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3
Pot Cap-1 Maneuver	-	-	0	-	0	383
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	383
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	25.2
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	383	-	-	-
HCM Lane V/C Ratio	0.548	-	-	-
HCM Control Delay (s)	25.2	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	3.2	-	-	-

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2052	231	0	1690	0	232
Future Vol, veh/h	2052	231	0	1690	0	232
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2230	251	0	1837	0	252

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1115
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3
Pot Cap-1 Maneuver	-	- 0	- 0 392
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 392
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	392	-	-	-
HCM Lane V/C Ratio	0.643	-	-	-
HCM Control Delay (s)	29.3	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	4.3	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↑
Traffic Vol, veh/h	0	3167	1497	41	0	30
Future Vol, veh/h	0	3167	1497	41	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3442	1627	45	0	33

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	836
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	315
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	315
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	315
HCM Lane V/C Ratio	-	-	-	0.104
HCM Control Delay (s)	-	-	-	17.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.3

Timings  
 20: Arrow Hwy. & I-605 SB Off-Ramp

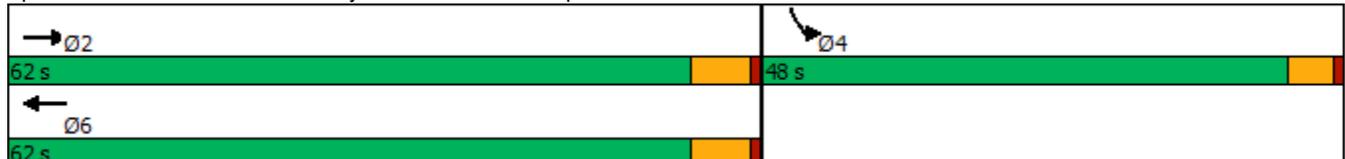


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↘	↙
Traffic Volume (vph)	2284	865	306	616
Future Volume (vph)	2284	865	306	616
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 83.3  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

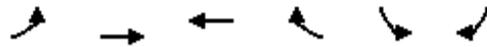
Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↙	↗
Traffic Volume (veh/h)	0	2284	865	0	306	616
Future Volume (veh/h)	0	2284	865	0	306	616
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	2379	901	0	319	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3354	2334	0	380	
Arrive On Green	0.00	0.65	0.65	0.00	0.21	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	2379	901	0	319	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	21.9	8.6	0.0	12.4	0.0
Cycle Q Clear(g_c), s	0.0	21.9	8.6	0.0	12.4	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3354	2334	0	380	
V/C Ratio(X)	0.00	0.71	0.39	0.00	0.84	
Avail Cap(c_a), veh/h	0	3989	2776	0	1072	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	8.4	6.1	0.0	27.7	0.0
Incr Delay (d2), s/veh	0.0	0.5	0.1	0.0	5.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.5	2.2	0.0	5.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	8.9	6.2	0.0	32.7	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h		2379	901		319	A
Approach Delay, s/veh		8.9	6.2		32.7	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		53.0		20.0		53.0
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		23.9		14.4		10.6
Green Ext Time (p_c), s		23.4		1.0		6.9

Intersection Summary

HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.

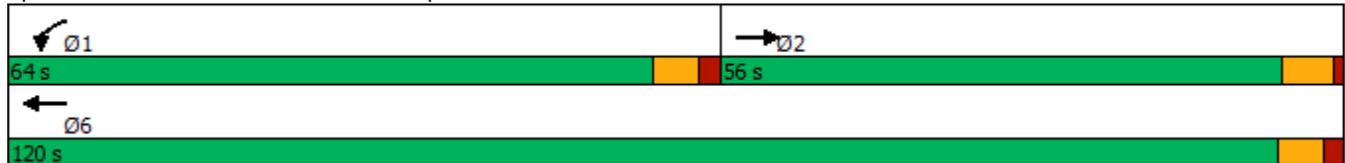


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↵	↑↑
Traffic Volume (vph)	1322	1573	741	1539
Future Volume (vph)	1322	1573	741	1539
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	56.0		64.0	120.0
Total Split (%)	46.7%		53.3%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

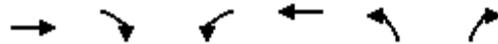
Cycle Length: 120  
 Actuated Cycle Length: 110.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	1322	1573	741	1539	0	0
Future Volume (veh/h)	1322	1573	741	1539	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	1377	0	772	1603		
Peak Hour Factor	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1515		844	3404		
Arrive On Green	0.42	0.00	0.47	0.94		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	1377	0	772	1603		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	38.2	0.0	42.4	4.9		
Cycle Q Clear(g_c), s	38.2	0.0	42.4	4.9		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1515		844	3404		
V/C Ratio(X)	0.91		0.92	0.47		
Avail Cap(c_a), veh/h	1697		981	3850		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	29.1	0.0	26.5	0.3		
Incr Delay (d2), s/veh	6.7	0.0	13.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	16.6	0.0	19.6	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.8	0.0	39.7	0.5		
LnGrp LOS	D		D	A		
Approach Vol, veh/h	1377	A		2375		
Approach Delay, s/veh	35.8			13.3		
Approach LOS	D			B		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	55.9	50.9			106.8	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	57.9	* 50			113.9	
Max Q Clear Time (g_c+I1), s	44.4	40.2			6.9	
Green Ext Time (p_c), s	5.4	4.6			50.0	

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	1768	373	0	865	315	0	0	46	0	0	0
Future Vol, veh/h	0	1768	373	0	865	315	0	0	46	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1842	389	0	901	328	0	0	48	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	276	-	-	-	-
HCM Lane V/C Ratio	0.174	-	-	-	-
HCM Control Delay (s)	20.8	-	-	-	-
HCM Lane LOS	C	-	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-	-

**Intersection**

Int Delay, s/veh 141.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	1322	0	0	1270	0	0	0	705	0	0	1009
Future Vol, veh/h	0	1322	0	0	1270	0	0	0	705	0	0	1009
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1363	0	0	1309	0	0	0	727	0	0	1040

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	~ 518
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	~ 518
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	215	\$ 453.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	518	-	-	533
HCM Lane V/C Ratio	1.403	-	-	1.952
HCM Control Delay (s)	215	-	-	\$ 453.4
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	34.1	-	-	69

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**ATTACHMENT C:  
OPENING YEAR CUMULATIVE (2020) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS  
WORKSHEETS WITH IMPROVEMENTS**

The Park @ Live Oak (JN 11110)
Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.863
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 85 Level Of Service: D
\*\*\*\*\*

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, Min. Green, Y+R, and Lanes.

Volume Module: Table with 12 columns for volume and adjustment factors. Rows include Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, and FinalVolume.

Saturation Flow Module: Table with 12 columns for saturation flow and adjustment factors. Rows include Sat/Lane, Adjustment, Lanes, and Final Sat.

Capacity Analysis Module: Table with 12 columns for capacity and critical moves. Rows include Vol/Sat and Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)
Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Driveway / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.433
Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 47 Level Of Service: A

\*\*\*\*\*

Table with columns: Approach (North Bound, South Bound, East Bound, West Bound), Movement (L, T, R), Control, Rights, Min. Green, Y+R, Lanes.

Volume Module:

Table with columns: Base Vol, Growth Adj, Initial Bse, Added Vol, PasserByVol, Initial Fut, User Adj, PHF Adj, PHF Volume, Reduct Vol, Reduced Vol, PCE Adj, MLF Adj, FinalVolume.

Saturation Flow Module:

Table with columns: Sat/Lane, Adjustment, Lanes, Final Sat.

Capacity Analysis Module:

Table with columns: Vol/Sat, Crit Moves.

\*\*\*\*\*

The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS  
 AM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.875  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 89 Level Of Service: D

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	3

Volume Module:

Base Vol:	0	0	0	310	0	204	345	518	0	0	2038	793
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	310	0	204	345	518	0	0	2038	793
Added Vol:	1	3	101	23	9	0	15	26	1	307	48	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	3	101	333	9	204	360	544	1	307	2086	793
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	3	101	333	9	204	360	544	1	307	2086	793
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	3	101	333	9	204	360	544	1	307	2086	793
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	3	101	333	9	204	360	544	1	307	2086	793

Saturation Flow Module:

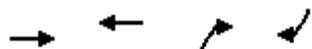
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	2.00	2.99	0.01	1.00	3.00	1.00
Final Sat.:	1600	1600	1600	3200	1600	1600	3200	4791	9	1600	4800	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.06	0.10	0.01	0.13	0.11	0.11	0.11	0.19	0.43	0.50
Crit Moves:			****	****			****					****

\*\*\*\*\*

Timings

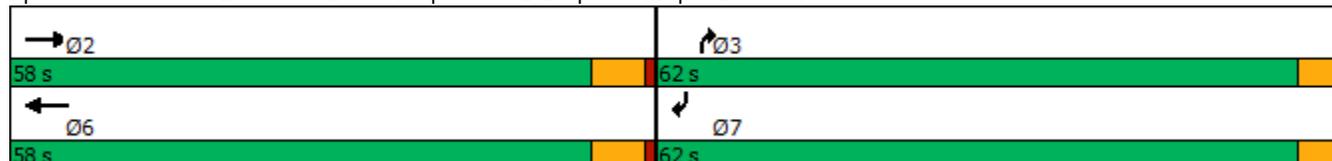


Lane Group	EBT	WBT	NBR	SBR
Lane Configurations	↑↑	↑↑	↗	↗
Traffic Volume (vph)	368	1672	666	986
Future Volume (vph)	368	1672	666	986
Turn Type	NA	NA	Prot	Prot
Protected Phases	2	6	3	7
Permitted Phases				
Detector Phase	2	6	3	7
Switch Phase				
Minimum Initial (s)	10.0	10.0	5.0	5.0
Minimum Split (s)	22.8	22.8	9.5	9.5
Total Split (s)	58.0	58.0	62.0	62.0
Total Split (%)	48.3%	48.3%	51.7%	51.7%
Yellow Time (s)	4.8	4.8	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary

The Park @ Live Oak TIA (JN 11110)

23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

06/10/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Volume (veh/h)	0	368	0	0	1672	0	0	0	666	0	0	986
Future Volume (veh/h)	0	368	0	0	1672	0	0	0	666	0	0	986
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1900	0	0	1900	0	0	0	1900	0	0	1900
Adj Flow Rate, veh/h	0	400	0	0	1817	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	3178	0	0	3178	0	0	0	0	0	0	0
Arrive On Green	0.00	0.88	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	3800	0	0	3800	0		0			0	
Grp Volume(v), veh/h	0	400	0	0	1817	0		0.0			0.0	
Grp Sat Flow(s),veh/h/ln	0	1805	0	0	1805	0						
Q Serve(g_s), s	0.0	0.7	0.0	0.0	5.9	0.0						
Cycle Q Clear(g_c), s	0.0	0.7	0.0	0.0	5.9	0.0						
Prop In Lane	0.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	0	3178	0	0	3178	0						
V/C Ratio(X)	0.00	0.13	0.00	0.00	0.57	0.00						
Avail Cap(c_a), veh/h	0	3890	0	0	3890	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	0.4	0.0	0.0	0.7	0.0						
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	1.0	0.0						
LnGrp LOS	A	A	A	A	A	A						
Approach Vol, veh/h		400			1817							
Approach Delay, s/veh		0.4			1.0							
Approach LOS		A			A							
Timer - Assigned Phs		2			6							
Phs Duration (G+Y+Rc), s		48.4			48.4							
Change Period (Y+Rc), s		5.8			5.8							
Max Green Setting (Gmax), s		52.2			52.2							
Max Q Clear Time (g_c+I1), s		2.7			7.9							
Green Ext Time (p_c), s		5.3			34.8							

Intersection Summary

HCM 6th Ctrl Delay	0.9
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.898  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 99 Level Of Service: D  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	2	0	3

Volume Module:

Base Vol:	905	0	409	0	0	0	0	807	0	694	866	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	905	0	409	0	0	0	0	807	0	694	866	0
Added Vol:	101	0	11	0	0	0	0	45	0	0	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1006	0	420	0	0	0	0	852	0	694	878	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1006	0	420	0	0	0	0	852	0	694	878	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1006	0	420	0	0	0	0	852	0	694	878	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1006	0	420	0	0	0	0	852	0	694	878	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	3.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	4800	0

Capacity Analysis Module:

Vol/Sat:	0.31	0.00	0.26	0.00	0.00	0.00	0.00	0.27	0.00	0.22	0.18	0.00
Crit Moves:	****						****			****		

\*\*\*\*\*

The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #7 Driveway / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.862  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 84 Level Of Service: D  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	0	0	0	0	0	2	1	0	3

Volume Module:

Base Vol:	111	0	170	0	0	0	0	2640	114	116	1203	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	111	0	170	0	0	0	0	2640	114	116	1203	0
Added Vol:	0	0	0	0	0	0	0	45	0	0	100	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	111	0	170	0	0	0	0	2685	114	116	1303	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	111	0	170	0	0	0	0	2685	114	116	1303	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	111	0	170	0	0	0	0	2685	114	116	1303	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	111	0	170	0	0	0	0	2685	114	116	1303	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	2.88	0.12	1.00	3.00	0.00
Final Sat.:	1600	0	1600	0	0	0	0	4605	195	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.07	0.00	0.11	0.00	0.00	0.00	0.00	0.58	0.58	0.07	0.27	0.00
Crit Moves:	****						****			****		

\*\*\*\*\*

The Park @ Live Oak (JN 11110)  
 Opening Year Cumulative (2020) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.884  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 92 Level Of Service: D

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	1	0	1	0

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Volume Module:

Base Vol:	0	0	0	797	0	459	261	954	0	0	1102	343
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	797	0	459	261	954	0	0	1102	343
Added Vol:	6	16	269	19	6	0	20	102	0	225	21	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	16	269	816	6	459	281	1056	0	225	1123	343
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	6	16	269	816	6	459	281	1056	0	225	1123	343
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	16	269	816	6	459	281	1056	0	225	1123	343
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	16	269	816	6	459	281	1056	0	225	1123	343

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Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	2.00	3.00	0.00	1.00	3.00	1.00
Final Sat.:	1600	1600	1600	3200	1600	1600	3200	4800	0	1600	4800	1600

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Capacity Analysis Module:

Vol/Sat:	0.00	0.01	0.17	0.26	0.00	0.29	0.09	0.22	0.00	0.14	0.23	0.21
Crit Moves:			****	****				****		****		

\*\*\*\*\*

Timings

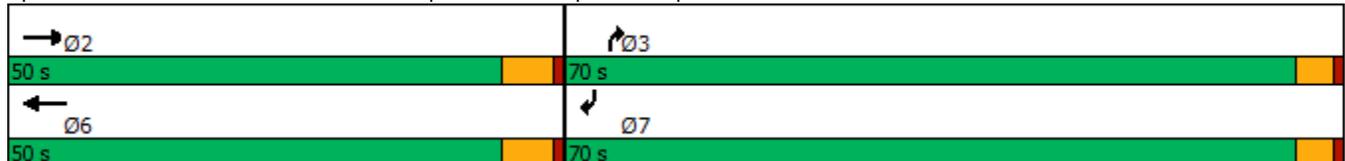


Lane Group	EBT	WBT	NBR	SBR
Lane Configurations	↑↑	↑↑	↗	↗
Traffic Volume (vph)	1322	1270	705	1009
Future Volume (vph)	1322	1270	705	1009
Turn Type	NA	NA	Prot	Prot
Protected Phases	2	6	3	7
Permitted Phases				
Detector Phase	2	6	3	7
Switch Phase				
Minimum Initial (s)	10.0	10.0	5.0	5.0
Minimum Split (s)	22.8	22.8	9.5	9.5
Total Split (s)	50.0	50.0	70.0	70.0
Total Split (%)	41.7%	41.7%	58.3%	58.3%
Yellow Time (s)	4.8	4.8	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

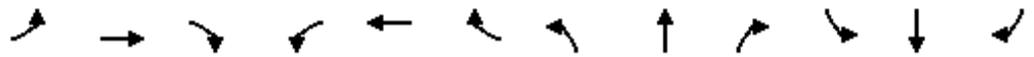


HCM 6th Signalized Intersection Summary

The Park @ Live Oak TIA (JN 11110)

23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

06/10/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Volume (veh/h)	0	1322	0	0	1270	0	0	0	705	0	0	1009
Future Volume (veh/h)	0	1322	0	0	1270	0	0	0	705	0	0	1009
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1900	0	0	1900	0	0	0	1900	0	0	1900
Adj Flow Rate, veh/h	0	1363	0	0	1309	0	0	0	0	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	3003	0	0	3003	0	0	0	0	0	0	0
Arrive On Green	0.00	0.83	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	3800	0	0	3800	0		0			0	
Grp Volume(v), veh/h	0	1363	0	0	1309	0		0.0			0.0	
Grp Sat Flow(s),veh/h/ln	0	1805	0	0	1805	0						
Q Serve(g_s), s	0.0	3.5	0.0	0.0	3.3	0.0						
Cycle Q Clear(g_c), s	0.0	3.5	0.0	0.0	3.3	0.0						
Prop In Lane	0.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	0	3003	0	0	3003	0						
V/C Ratio(X)	0.00	0.45	0.00	0.00	0.44	0.00						
Avail Cap(c_a), veh/h	0	4627	0	0	4627	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	0.8	0.0						
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.0	0.0	0.0	1.0	0.0						
LnGrp LOS	A	A	A	A	A	A						
Approach Vol, veh/h		1363			1309							
Approach Delay, s/veh		1.0			1.0							
Approach LOS		A			A							
Timer - Assigned Phs		2			6							
Phs Duration (G+Y+Rc), s		34.5			34.5							
Change Period (Y+Rc), s		5.8			5.8							
Max Green Setting (Gmax), s		44.2			44.2							
Max Q Clear Time (g_c+I1), s		5.5			5.3							
Green Ext Time (p_c), s		23.2			22.1							

Intersection Summary

HCM 6th Ctrl Delay	1.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

**ATTACHMENT D:  
HORIZON YEAR (2040) WITHOUT PROJECT CONDITIONS INTERSECTION ANALYSIS  
WORKSHEETS**

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.101  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	2	0	0

Volume Module:

Base Vol:	1155	0	330	0	0	0	0	572	0	301	2049	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1155	0	330	0	0	0	0	572	0	301	2049	0
Added Vol:	0	0	11	0	0	0	0	0	0	10	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1155	0	341	0	0	0	0	572	0	311	2049	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1155	0	341	0	0	0	0	572	0	311	2049	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1155	0	341	0	0	0	0	572	0	311	2049	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1155	0	341	0	0	0	0	572	0	311	2049	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.36	0.00	0.21	0.00	0.00	0.00	0.00	0.18	0.00	0.10	0.64	0.00
Crit Moves:	****						****			****		

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Intersection						
Int Delay, s/veh	3.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1067	76	71	1465	31	48
Future Vol, veh/h	1067	76	71	1465	31	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1100	78	73	1510	32	49

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1178	0	2040
Stage 1	-	-	-	-	1139
Stage 2	-	-	-	-	901
Critical Hdwy	-	-	5.3	-	6.25
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	3.1	-	3.65
Pot Cap-1 Maneuver	-	-	326	-	68
Stage 1	-	-	-	-	206
Stage 2	-	-	-	-	352
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	326	-	53
Mov Cap-2 Maneuver	-	-	-	-	53
Stage 1	-	-	-	-	206
Stage 2	-	-	-	-	273

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	95.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	112	-	-	326	-
HCM Lane V/C Ratio	0.727	-	-	0.225	-
HCM Control Delay (s)	95.3	-	-	19.2	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	3.9	-	-	0.8	-

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑							↑
Traffic Vol, veh/h	0	913	0	0	2349	21	0	0	0	0	0	10
Future Vol, veh/h	0	913	0	0	2349	21	0	0	0	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	992	0	0	2553	23	0	0	0	0	0	11

Major/Minor	Major1		Major2			Minor2			
Conflicting Flow All	-	0	-	-	-	0	-	-	1288
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	0	0	-	-	0	0	135
Stage 1	0	-	0	0	-	-	0	0	-
Stage 2	0	-	0	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	0	135
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	34
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	135
HCM Lane V/C Ratio	-	-	-	0.081
HCM Control Delay (s)	-	-	-	34
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	0.3

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.434  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 30 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	2	1	0	2

Volume Module:

Base Vol:	32	0	33	0	0	0	0	1017	88	93	1493	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	0	33	0	0	0	0	1017	88	93	1493	0
Added Vol:	0	0	0	0	0	0	0	10	0	0	11	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	0	33	0	0	0	0	1027	88	93	1504	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	32	0	33	0	0	0	0	1027	88	93	1504	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	0	33	0	0	0	0	1027	88	93	1504	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	32	0	33	0	0	0	0	1027	88	93	1504	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	1.00	0.00	1.00	2.76	0.24	1.00	3.00	0.00
Final Sat.:	3200	0	1600	0	1600	0	1600	4421	379	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.23	0.23	0.06	0.31	0.00
Crit Moves:			****					****			****	

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.542
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	36	Level Of Service:	A

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	1	0	0	1	0	1	0	2	0	1	0

Volume Module:

Base Vol:	59	362	683	2	117	8	2	2	10	213	7	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	362	683	2	117	8	2	2	10	213	7	20
Added Vol:	0	0	105	0	0	0	0	0	0	100	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	59	362	788	2	117	8	2	2	10	313	7	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	59	362	788	2	117	8	2	2	10	313	7	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	362	788	2	117	8	2	2	10	313	7	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	59	362	788	2	117	8	2	2	10	313	7	20
OvlAdjVol:	475											

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.14	0.86	2.00	0.02	0.98	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	224	1376	3200	27	1573	1600	1600	3200	1600	3200	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.26	0.26	0.25	0.07	0.07	0.01	0.00	0.00	0.01	0.10	0.00	0.01
OvlAdjV/S:	0.15											
Crit Moves:	****			****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.137  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:

Base Vol:	0	0	0	233	0	206	355	547	0	0	2155	741
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	233	0	206	355	547	0	0	2155	741
Added Vol:	0	0	0	90	0	10	11	0	0	0	0	95
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	323	0	216	366	547	0	0	2155	836
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	323	0	216	366	547	0	0	2155	836
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	323	0	216	366	547	0	0	2155	836
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	323	0	216	366	547	0	0	2155	836

Saturation Flow Module:

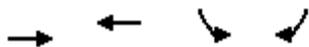
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.00	1.00	1.00	3.00	0.00	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	0	1600	1600	4800	0	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.10	0.00	0.14	0.23	0.11	0.00	0.00	0.67	0.52
Crit Moves:						****	****				****	

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Timings  
20: Arrow Hwy. & I-605 SB Off-Ramp

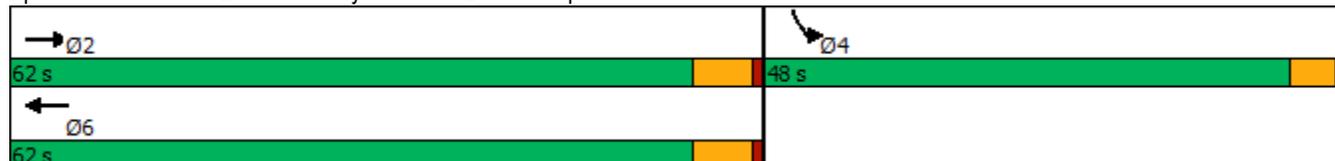


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↶	↷
Traffic Volume (vph)	870	1999	518	991
Future Volume (vph)	870	1999	518	991
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 100.8  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

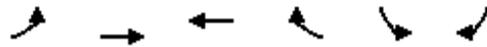
Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↘	↗
Traffic Volume (veh/h)	0	870	1999	0	518	991
Future Volume (veh/h)	0	870	1999	0	518	991
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	897	2061	0	534	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	2970	2067	0	580	
Arrive On Green	0.00	0.57	0.57	0.00	0.32	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	897	2061	0	534	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	8.8	55.8	0.0	27.9	0.0
Cycle Q Clear(g_c), s	0.0	8.8	55.8	0.0	27.9	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	2970	2067	0	580	
V/C Ratio(X)	0.00	0.30	1.00	0.00	0.92	
Avail Cap(c_a), veh/h	0	2970	2067	0	798	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	10.8	20.9	0.0	32.1	0.0
Incr Delay (d2), s/veh	0.0	0.1	19.1	0.0	12.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	24.9	0.0	13.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	10.9	40.0	0.0	44.9	0.0
LnGrp LOS	A	B	D	A	D	
Approach Vol, veh/h		897	2061		534	A
Approach Delay, s/veh		10.9	40.0		44.9	
Approach LOS		B	D		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.0		36.2		62.0
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		10.8		29.9		57.8
Green Ext Time (p_c), s		6.8		1.5		0.0

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
21: I-605 SB On-Ramp & Live Oak Av.

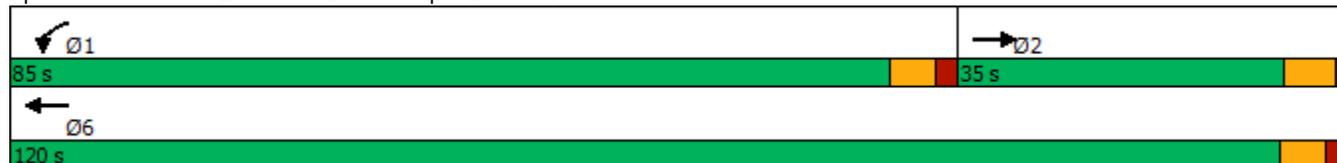


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	387	649	769	1626
Future Volume (vph)	387	649	769	1626
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	35.0		85.0	120.0
Total Split (%)	29.2%		70.8%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

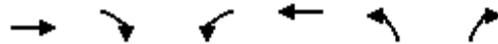
Cycle Length: 120  
 Actuated Cycle Length: 64.1  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	387	649	769	1626	0	0
Future Volume (veh/h)	387	649	769	1626	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	407	0	809	1712		
Peak Hour Factor	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1051		969	3298		
Arrive On Green	0.29	0.00	0.54	0.91		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	407	0	809	1712		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	6.3	0.0	26.5	5.5		
Cycle Q Clear(g_c), s	6.3	0.0	26.5	5.5		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1051		969	3298		
V/C Ratio(X)	0.39		0.83	0.52		
Avail Cap(c_a), veh/h	1495		2025	5833		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	20.0	0.0	13.7	0.5		
Incr Delay (d2), s/veh	0.1	0.0	4.1	0.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	0.0	9.2	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.0	0.0	17.8	0.8		
LnGrp LOS	C		B	A		
Approach Vol, veh/h	407	A		2521		
Approach Delay, s/veh	20.0			6.3		
Approach LOS	C			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	43.9	26.6			70.5	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	78.9	* 29			113.9	
Max Q Clear Time (g_c+I1), s	28.5	8.3			7.5	
Green Ext Time (p_c), s	9.3	1.5			56.9	

Intersection Summary

HCM 6th Ctrl Delay			8.2			
HCM 6th LOS			A			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	888	21	0	1999	462	0	0	14	0	0	0
Future Vol, veh/h	0	888	21	0	1999	462	0	0	14	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	965	23	0	2173	502	0	0	15	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	535	-	-	-	-
HCM Lane V/C Ratio	0.028	-	-	-	-
HCM Control Delay (s)	11.9	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

**Intersection**

Int Delay, s/veh 105.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	387	0	0	1662	0	0	0	705	0	0	734
Future Vol, veh/h	0	387	0	0	1662	0	0	0	705	0	0	734
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	421	0	0	1807	0	0	0	766	0	0	798

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	869
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	869
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	31	\$ 472.2
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	869	-	-	403
HCM Lane V/C Ratio	0.882	-	-	1.98
HCM Control Delay (s)	31	-	-	\$ 472.2
HCM Lane LOS	D	-	-	F
HCM 95th %tile Q(veh)	11.7	-	-	54.8

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.893  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 97 Level Of Service: D  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	0	2	0

Volume Module:

Base Vol:	958	0	409	0	0	0	0	855	0	713	920	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	958	0	409	0	0	0	0	855	0	713	920	0
Added Vol:	0	0	10	0	0	0	0	0	0	11	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	958	0	419	0	0	0	0	855	0	724	920	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	958	0	419	0	0	0	0	855	0	724	920	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	958	0	419	0	0	0	0	855	0	724	920	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	958	0	419	0	0	0	0	855	0	724	920	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.30	0.00	0.26	0.00	0.00	0.00	0.00	0.27	0.00	0.23	0.29	0.00
Crit Moves:	****						****			****		

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Intersection						
Int Delay, s/veh	98.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	2793	115	119	1265	112	174
Future Vol, veh/h	2793	115	119	1265	112	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2909	120	124	1318	117	181

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	3029	0	3876
Stage 1	-	-	-	-	2969
Stage 2	-	-	-	-	907
Critical Hdwy	-	-	5.3	-	6.25
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	5.8
Follow-up Hdwy	-	-	3.1	-	3.65
Pot Cap-1 Maneuver	-	-	~ 38	-	~ 5
Stage 1	-	-	-	-	~ 14
Stage 2	-	-	-	-	350
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 38	-	0
Mov Cap-2 Maneuver	-	-	-	-	0
Stage 1	-	-	-	-	~ 14
Stage 2	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	106.6	\$ 1056.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	95	-	-	~ 38	-
HCM Lane V/C Ratio	3.136	-	-	3.262	-
HCM Control Delay (s)	\$ 1056.8	-	-	\$ 1239.7	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	29.2	-	-	14.1	-

Notes  
~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑↑							↑
Traffic Vol, veh/h	0	1273	0	0	1642	1	0	0	0	0	0	1
Future Vol, veh/h	0	1273	0	0	1642	1	0	0	0	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	16965	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1312	0	0	1693	1	0	0	0	0	0	1

Major/Minor	Major1			Major2			Minor2			
Conflicting Flow All	-	0	-	-	-	0	-	-	847	
Stage 1	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	
Critical Hdwy	-	-	-	-	-	-	-	-	7.1	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.9	
Pot Cap-1 Maneuver	0	-	0	0	-	-	-	0	0	265
Stage 1	0	-	0	0	-	-	-	0	0	-
Stage 2	0	-	0	0	-	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	0	265
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	-	0	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	265
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	18.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.984
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	173	Level Of Service:	E

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	2	1	0	2

Volume Module:

Base Vol:	203	0	249	0	0	0	0	2732	223	177	1260	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	0	249	0	0	0	0	2732	223	177	1260	0
Added Vol:	0	0	0	0	0	0	0	11	0	0	10	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	203	0	249	0	0	0	0	2743	223	177	1270	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	203	0	249	0	0	0	0	2743	223	177	1270	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	203	0	249	0	0	0	0	2743	223	177	1270	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	203	0	249	0	0	0	0	2743	223	177	1270	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	1.00	0.00	1.00	2.77	0.23	1.00	3.00	0.00
Final Sat.:	3200	0	1600	0	1600	0	1600	4439	361	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.06	0.00	0.16	0.00	0.00	0.00	0.00	0.62	0.62	0.11	0.26	0.00
Crit Moves:			****					****	****			

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.778  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 62 Level Of Service: C  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Include			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	0	1	0	0	2	0	1	0	0	1	1	0	2	0	1	2	0	1	0	1

Volume Module:

Base Vol:	11	174	394	12	454	7	5	17	94	570	10	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	174	394	12	454	7	5	17	94	570	10	17
Added Vol:	0	0	100	0	0	0	0	0	0	110	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	174	494	12	454	7	5	17	94	680	10	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	174	494	12	454	7	5	17	94	680	10	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	174	494	12	454	7	5	17	94	680	10	17
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	174	494	12	454	7	5	17	94	680	10	17
OvlAdjVol:	0											

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.06	0.94	2.00	0.03	0.97	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	95	1505	3200	41	1559	1600	1600	3200	1600	3200	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.12	0.12	0.15	0.29	0.29	0.00	0.00	0.01	0.06	0.21	0.01	0.01
OvlAdjV/S:	0.00											
Crit Moves:	****			****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) Without Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.938  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 123 Level Of Service: E  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:

Base Vol:	0	0	0	741	0	475	266	997	0	0	1157	268
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	741	0	475	266	997	0	0	1157	268
Added Vol:	0	0	0	99	0	11	10	0	0	0	0	90
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	840	0	486	276	997	0	0	1157	358
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	840	0	486	276	997	0	0	1157	358
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	840	0	486	276	997	0	0	1157	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	840	0	486	276	997	0	0	1157	358

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.00	1.00	1.00	3.00	0.00	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	0	1600	1600	4800	0	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.26	0.00	0.30	0.17	0.21	0.00	0.00	0.36	0.22
Crit Moves:				****		****	****			****		

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Timings  
 20: Arrow Hwy. & I-605 SB Off-Ramp

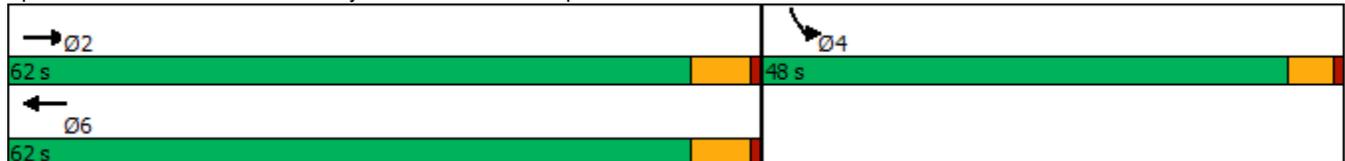


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↵	↷
Traffic Volume (vph)	1837	862	324	444
Future Volume (vph)	1837	862	324	444
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 71.9  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↙	↗
Traffic Volume (veh/h)	0	1837	862	0	324	444
Future Volume (veh/h)	0	1837	862	0	324	444
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	1914	898	0	338	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3103	2160	0	412	
Arrive On Green	0.00	0.60	0.60	0.00	0.23	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	1914	898	0	338	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	14.2	8.0	0.0	10.7	0.0
Cycle Q Clear(g_c), s	0.0	14.2	8.0	0.0	10.7	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3103	2160	0	412	
V/C Ratio(X)	0.00	0.62	0.42	0.00	0.82	
Avail Cap(c_a), veh/h	0	4830	3361	0	1298	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	7.7	6.5	0.0	22.1	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	1.9	0.0	4.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.9	6.6	0.0	26.2	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h		1914	898		338	A
Approach Delay, s/veh		7.9	6.6		26.2	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		41.9		18.4		41.9
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		16.2		12.7		10.0
Green Ext Time (p_c), s		19.9		1.0		6.9

Intersection Summary

HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.

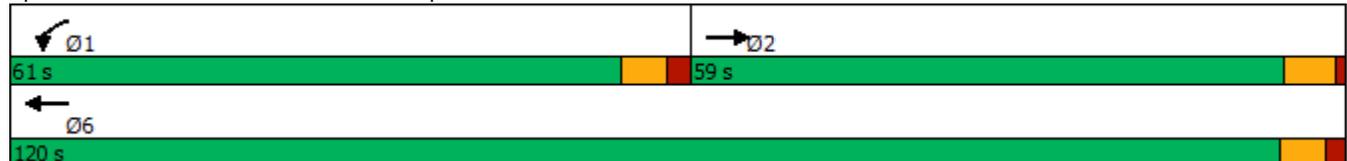


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↵	↑↑
Traffic Volume (vph)	1388	1348	740	1351
Future Volume (vph)	1388	1348	740	1351
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	59.0		61.0	120.0
Total Split (%)	49.2%		50.8%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 113.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

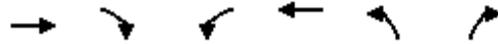
Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	1388	1348	740	1351	0	0
Future Volume (veh/h)	1388	1348	740	1351	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	1446	0	771	1407		
Peak Hour Factor	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1573		824	3413		
Arrive On Green	0.44	0.00	0.46	0.95		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	1446	0	771	1407		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	42.1	0.0	45.2	3.9		
Cycle Q Clear(g_c), s	42.1	0.0	45.2	3.9		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1573		824	3413		
V/C Ratio(X)	0.92		0.94	0.41		
Avail Cap(c_a), veh/h	1719		889	3680		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	29.7	0.0	28.9	0.3		
Incr Delay (d2), s/veh	7.6	0.0	17.2	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	18.5	0.0	21.9	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.3	0.0	46.1	0.4		
LnGrp LOS	D		D	A		
Approach Vol, veh/h	1446	A		2178		
Approach Delay, s/veh	37.3			16.6		
Approach LOS	D			B		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	57.0	54.8			111.7	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	54.9	* 53			113.9	
Max Q Clear Time (g_c+I1), s	47.2	44.1			5.9	
Green Ext Time (p_c), s	3.7	4.6			38.2	
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			24.9			
HCM 6th LOS			C			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.						

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	1682	25	0	862	334	0	0	48	0	0	0
Future Vol, veh/h	0	1682	25	0	862	334	0	0	48	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1752	26	0	898	348	0	0	50	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	296	-	-	-	-
HCM Lane V/C Ratio	0.169	-	-	-	-
HCM Control Delay (s)	19.6	-	-	-	-
HCM Lane LOS	C	-	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-	-

**Intersection**

Int Delay, s/veh 111.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	1388	0	0	1232	0	0	0	748	0	0	857
Future Vol, veh/h	0	1388	0	0	1232	0	0	0	748	0	0	857
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1431	0	0	1270	0	0	0	771	0	0	884

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	~ 498
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	~ 498
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	278	\$ 307.4
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	498	-	-	545
HCM Lane V/C Ratio	1.548	-	-	1.621
HCM Control Delay (s)	278	-	-	\$ 307.4
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	41.2	-	-	49.1

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**ATTACHMENT E:  
HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS**

-----  
 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 AM Peak Hour  
 -----

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	1.122
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	2	0	0

Volume Module:

Base Vol:	1155	0	330	0	0	0	0	572	0	301	2049	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1155	0	330	0	0	0	0	572	0	301	2049	0
Added Vol:	64	0	12	0	0	0	0	57	0	10	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1219	0	342	0	0	0	0	629	0	311	2051	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1219	0	342	0	0	0	0	629	0	311	2051	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1219	0	342	0	0	0	0	629	0	311	2051	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1219	0	342	0	0	0	0	629	0	311	2051	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.38	0.00	0.21	0.00	0.00	0.00	0.00	0.20	0.00	0.10	0.64	0.00
Crit Moves:	****						****			****		

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Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	854	118	0	2361	0	93
Future Vol, veh/h	854	118	0	2361	0	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	928	128	0	2566	0	101

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	528
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	428
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	428
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	428	-	-	-
HCM Lane V/C Ratio	0.236	-	-	-
HCM Control Delay (s)	16	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.9	-	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1199	1445	125	0	116
Future Vol, veh/h	0	1199	1445	125	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1303	1571	136	0	126

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	854
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	263
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	263
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	263
HCM Lane V/C Ratio	-	-	-	0.479
HCM Control Delay (s)	-	-	-	30.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.4

Intersection						
Int Delay, s/veh	2.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↘	↑↑↑	↘	
Traffic Vol, veh/h	1123	76	71	1540	31	48
Future Vol, veh/h	1123	76	71	1540	31	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1158	78	73	1588	32	49

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1236	0	1978
Stage 1	-	-	-	-	1197
Stage 2	-	-	-	-	781
Critical Hdwy	-	-	5.3	-	5.7
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	6
Follow-up Hdwy	-	-	3.1	-	3.8
Pot Cap-1 Maneuver	-	-	306	-	99
Stage 1	-	-	-	-	186
Stage 2	-	-	-	-	378
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	306	-	75
Mov Cap-2 Maneuver	-	-	-	-	75
Stage 1	-	-	-	-	186
Stage 2	-	-	-	-	288

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	57
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	146	-	-	306	-
HCM Lane V/C Ratio	0.558	-	-	0.239	-
HCM Control Delay (s)	57	-	-	20.4	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	2.8	-	-	0.9	-

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	944	3	0	2361	0	4
Future Vol, veh/h	944	3	0	2361	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1026	3	0	2566	0	4

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	515
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	436
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	436
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	436	-	-	-
HCM Lane V/C Ratio	0.01	-	-	-
HCM Control Delay (s)	13.3	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑	↘		↗
Traffic Vol, veh/h	4	1168	1610	9	0	1
Future Vol, veh/h	4	1168	1610	9	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	1270	1750	10	0	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1760	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	5.3	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	3.1	-	-
Pot Cap-1 Maneuver	169	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	169	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	169	-	-	-	252
HCM Lane V/C Ratio	0.026	-	-	-	0.004
HCM Control Delay (s)	26.9	-	-	-	19.3
HCM Lane LOS	D	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1168	1618	3	0	1
Future Vol, veh/h	0	1168	1618	3	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1270	1759	3	0	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	881
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	252
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	252
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	252
HCM Lane V/C Ratio	-	-	-	0.004
HCM Control Delay (s)	-	-	-	19.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑				↕			↕	
Traffic Vol, veh/h	0	947	1	48	2350	21	1	0	6	0	0	10
Future Vol, veh/h	0	947	1	48	2350	21	1	0	6	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1029	1	52	2554	23	1	0	7	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2577	0	0	1030	0	0	2156	3711	515	3082	3700	1289
Stage 1	-	-	-	-	-	-	1030	1030	-	2670	2670	-
Stage 2	-	-	-	-	-	-	1126	2681	-	412	1030	-
Critical Hdwy	5.3	-	-	5.3	-	-	6.4	6.5	7.1	6.4	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.7	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	65	-	-	384	-	-	52	5	436	13	5	135
Stage 1	-	-	-	-	-	-	192	313	-	13	48	-
Stage 2	-	-	-	-	-	-	199	47	-	543	313	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	65	-	-	384	-	-	43	4	436	11	4	135
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	34	-	12	34	-
Stage 1	-	-	-	-	-	-	192	313	-	13	42	-
Stage 2	-	-	-	-	-	-	158	41	-	535	313	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			17.7			34		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	292	65	-	-	384	-	-	135
HCM Lane V/C Ratio	0.026	-	-	-	0.136	-	-	0.081
HCM Control Delay (s)	17.7	0	-	-	15.8	-	-	34
HCM Lane LOS	C	A	-	-	C	-	-	D
HCM 95th %tile Q(veh)	0.1	0	-	-	0.5	-	-	0.3

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	952	0	0	2419	0	3
Future Vol, veh/h	952	0	0	2419	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1035	0	0	2629	0	3

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	518
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	434
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	434
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	434	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-
HCM Control Delay (s)	13.4	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0	-	-	-

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

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Cycle (sec): 100 Critical Vol./Cap.(X): 0.541  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 36 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	2	1	0	2

Volume Module:

Base Vol:	32	0	33	0	0	0	0	1017	88	93	1493	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	0	33	0	0	0	0	1017	88	93	1493	0
Added Vol:	0	0	0	52	0	30	46	16	0	0	65	78
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	0	33	52	0	30	46	1033	88	93	1558	78
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	32	0	33	52	0	30	46	1033	88	93	1558	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	0	33	52	0	30	46	1033	88	93	1558	78
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	32	0	33	52	0	30	46	1033	88	93	1558	78

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.63	0.00	0.37	1.00	2.76	0.24	1.00	2.86	0.14
Final Sat.:	3200	0	1600	1015	0	585	1600	4423	377	1600	4571	229

Capacity Analysis Module:

Vol/Sat:	0.01	0.00	0.02	0.05	0.00	0.05	0.03	0.23	0.23	0.06	0.34	0.34
Crit Moves:			****			****	****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #14 Avenida Barbosa / Alpha/Buena Vista

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Cycle (sec): 100 Critical Vol./Cap.(X): 0.573  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 38 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound										
Movement:	L	T	R	L	T	R	L	T	R	L	T	R								
Control:	Split Phase			Split Phase			Protected			Protected										
Rights:	Ovl			Include			Include			Include										
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0								
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0								
Lanes:	0	1	0	0	2	0	1	0	0	1	1	0	2	0	1	2	0	1	0	1

Volume Module:

Base Vol:	59	362	683	2	117	8	2	2	10	213	7	20
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	59	362	683	2	117	8	2	2	10	213	7	20
Added Vol:	0	18	105	0	32	0	0	0	0	100	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	59	380	788	2	149	8	2	2	10	313	7	20
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	59	380	788	2	149	8	2	2	10	313	7	20
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	59	380	788	2	149	8	2	2	10	313	7	20
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	59	380	788	2	149	8	2	2	10	313	7	20
OvlAdjVol:	475											

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.13	0.87	2.00	0.01	0.99	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	215	1385	3200	21	1579	1600	1600	3200	1600	3200	1600	1600

Capacity Analysis Module:

Vol/Sat:	0.27	0.27	0.25	0.09	0.09	0.01	0.00	0.00	0.01	0.10	0.00	0.01
OvlAdjV/S:	0.15											
Crit Moves:	****			****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #15 Avenida Barbosa/Dwy A / Arrow

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Cycle (sec): 100 Critical Vol./Cap.(X): 1.230  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:

Base Vol:	0	0	0	233	0	206	355	547	0	0	2155	741
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	233	0	206	355	547	0	0	2155	741
Added Vol:	1	3	101	113	9	10	26	26	1	307	48	95
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	3	101	346	9	216	381	573	1	307	2203	836
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	3	101	346	9	216	381	573	1	307	2203	836
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	3	101	346	9	216	381	573	1	307	2203	836
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	3	101	346	9	216	381	573	1	307	2203	836

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.04	0.96	1.00	2.99	0.01	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	64	1536	1600	4792	8	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.06	0.11	0.14	0.14	0.24	0.12	0.12	0.19	0.69	0.52
Crit Moves:			****		****		****				****	

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #16 Dwy A / Live Oak

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.527
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	35	Level Of Service:	A

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	0	1	0	3	0	2	1

Volume Module:

Base Vol:	0	0	0	0	0	0	0	1050	0	0	1586	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	1050	0	0	1586	0
Added Vol:	0	0	0	44	0	2	6	62	0	0	141	173
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	44	0	2	6	1112	0	0	1727	173
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	44	0	2	6	1112	0	0	1727	173
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	44	0	2	6	1112	0	0	1727	173
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	44	0	2	6	1112	0	0	1727	173

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	3.00	0.00	0.00	2.73	0.27
Final Sat.:	0	0	0	1600	0	1600	1600	4800	0	0	4363	437

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.23	0.00	0.00	0.40	0.40
Crit Moves:				****			****			****		

\*\*\*\*\*

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	983	202	0	3346	0	163
Future Vol, veh/h	983	202	0	3346	0	163
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1068	220	0	3637	0	177

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	534
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	5
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3
Pot Cap-1 Maneuver	-	-	0	-	708
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	708
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	708	-	-	-
HCM Lane V/C Ratio	0.25	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1	-	-	-

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	902	244	0	3346	0	197
Future Vol, veh/h	902	244	0	3346	0	197
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	980	265	0	3637	0	214

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	-	-	490
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	5
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3
Pot Cap-1 Maneuver	-	-	0	-	740
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	740
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	740	-	-	-
HCM Lane V/C Ratio	0.289	-	-	-
HCM Control Delay (s)	11.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	1.2	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↑
Traffic Vol, veh/h	0	1132	1924	65	0	5
Future Vol, veh/h	0	1132	1924	65	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	1230	2091	71	0	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 1081
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.9
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.3
Pot Cap-1 Maneuver	0	-	- 0 217
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 217
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	217
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	22
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Timings  
 20: Arrow Hwy. & I-605 SB Off-Ramp

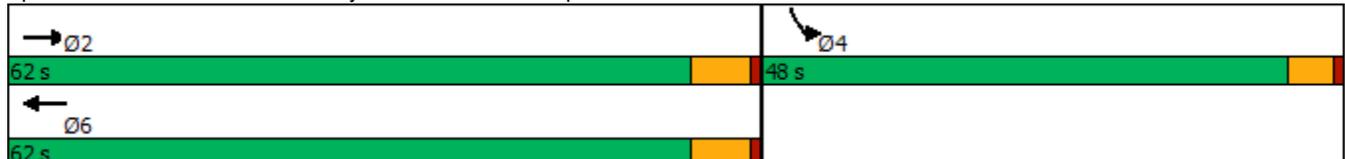


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↵	↵
Traffic Volume (vph)	1100	2066	518	1280
Future Volume (vph)	1100	2066	518	1280
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 100.8  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated

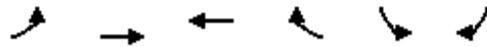
Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↘	↘
Traffic Volume (veh/h)	0	1100	2066	0	518	1280
Future Volume (veh/h)	0	1100	2066	0	518	1280
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	1134	2130	0	534	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	2970	2067	0	580	
Arrive On Green	0.00	0.57	0.57	0.00	0.32	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	1134	2130	0	534	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	11.7	56.2	0.0	27.9	0.0
Cycle Q Clear(g_c), s	0.0	11.7	56.2	0.0	27.9	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	2970	2067	0	580	
V/C Ratio(X)	0.00	0.38	1.03	0.00	0.92	
Avail Cap(c_a), veh/h	0	2970	2067	0	798	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	11.5	21.0	0.0	32.1	0.0
Incr Delay (d2), s/veh	0.0	0.1	28.1	0.0	12.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.9	27.7	0.0	13.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	11.6	49.1	0.0	44.9	0.0
LnGrp LOS	A	B	F	A	D	
Approach Vol, veh/h		1134	2130		534	A
Approach Delay, s/veh		11.6	49.1		44.9	
Approach LOS		B	D		D	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		62.0		36.2		62.0
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		13.7		29.9		58.2
Green Ext Time (p_c), s		9.2		1.5		0.0

Intersection Summary

HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.

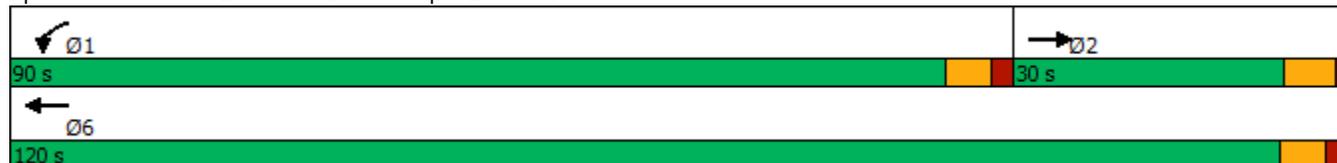


Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	389	743	795	1990
Future Volume (vph)	389	743	795	1990
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	30.0		90.0	120.0
Total Split (%)	25.0%		75.0%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

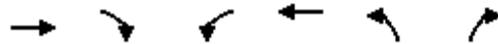
Cycle Length: 120  
 Actuated Cycle Length: 99.8  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)  
 06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	389	743	795	1990	0	0
Future Volume (veh/h)	389	743	795	1990	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	409	0	837	2095		
Peak Hour Factor	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1236		957	3377		
Arrive On Green	0.34	0.00	0.53	0.94		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	409	0	837	2095		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	8.0	0.0	38.4	8.4		
Cycle Q Clear(g_c), s	8.0	0.0	38.4	8.4		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1236		957	3377		
V/C Ratio(X)	0.33		0.87	0.62		
Avail Cap(c_a), veh/h	1236		1603	4342		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	23.1	0.0	19.6	0.5		
Incr Delay (d2), s/veh	0.1	0.0	5.8	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	3.2	0.0	15.3	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.1	0.0	25.4	0.9		
LnGrp LOS	C		C	A		
Approach Vol, veh/h	409	A		2932		
Approach Delay, s/veh	23.1			7.9		
Approach LOS	C			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	56.2	38.5			94.7	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	83.9	* 24			113.9	
Max Q Clear Time (g_c+I1), s	40.4	10.0			10.4	
Green Ext Time (p_c), s	9.7	1.3			78.2	

Intersection Summary

HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	995	144	0	2066	462	0	0	14	0	0	0
Future Vol, veh/h	0	995	144	0	2066	462	0	0	14	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1082	157	0	2246	502	0	0	15	0	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	-	0	0	-	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	0
Stage 1	0	-	-	0	-	0
Stage 2	0	-	-	0	-	0
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	0
Mov Cap-2 Maneuver	-	-	-	-	-	0
Stage 1	-	-	-	-	-	0
Stage 2	-	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	491	-	-	-	-
HCM Lane V/C Ratio	0.031	-	-	-	-
HCM Control Delay (s)	12.6	-	-	-	-
HCM Lane LOS	B	-	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-	-

**Intersection**

Int Delay, s/veh 241.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	389	0	0	1766	0	0	0	705	0	0	1019
Future Vol, veh/h	0	389	0	0	1766	0	0	0	705	0	0	1019
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	423	0	0	1920	0	0	0	766	0	0	1108

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	868
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	868
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	31.2	\$ 897.3
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	868	-	-	378
HCM Lane V/C Ratio	0.883	-	-	2.93
HCM Control Delay (s)	31.2	-	-	\$ 897.3
HCM Lane LOS	D	-	-	F
HCM 95th %tile Q(veh)	11.7	-	-	95.5

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #4 Live Oak / Arrow (West)

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.938
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	124	Level Of Service:	E

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	2	0	0	0

Volume Module:

Base Vol:	958	0	409	0	0	0	0	855	0	713	920	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	958	0	409	0	0	0	0	855	0	713	920	0
Added Vol:	101	0	21	0	0	0	0	45	0	11	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1059	0	430	0	0	0	0	900	0	724	932	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1059	0	430	0	0	0	0	900	0	724	932	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1059	0	430	0	0	0	0	900	0	724	932	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1059	0	430	0	0	0	0	900	0	724	932	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	2.00	0.00	2.00	2.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	3200	0	3200	3200	0

Capacity Analysis Module:

Vol/Sat:	0.33	0.00	0.27	0.00	0.00	0.00	0.00	0.28	0.00	0.23	0.29	0.00
Crit Moves:	****						****			****		

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Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1214	115	0	1655	0	119
Future Vol, veh/h	1214	115	0	1655	0	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1320	125	0	1799	0	129

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	723
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	320
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	320
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	320	-	-	-
HCM Lane V/C Ratio	0.404	-	-	-
HCM Control Delay (s)	23.7	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	1.9	-	-	-

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	2953	1352	125	0	137
Future Vol, veh/h	0	2953	1352	125	0	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3210	1470	136	0	149

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	803
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	284
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	284
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.8
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	284
HCM Lane V/C Ratio	-	-	-	0.524
HCM Control Delay (s)	-	-	-	30.8
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	2.8

Intersection						
Int Delay, s/veh	101.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↖	↑↑↑	↘	
Traffic Vol, veh/h	2838	115	119	1365	112	174
Future Vol, veh/h	2838	115	119	1365	112	174
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2956	120	124	1422	117	181

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	3076	0	3833
Stage 1	-	-	-	-	3016
Stage 2	-	-	-	-	817
Critical Hdwy	-	-	5.3	-	5.7
Critical Hdwy Stg 1	-	-	-	-	6.6
Critical Hdwy Stg 2	-	-	-	-	6
Follow-up Hdwy	-	-	3.1	-	3.8
Pot Cap-1 Maneuver	-	-	~ 36	-	~ 9
Stage 1	-	-	-	-	~ 12
Stage 2	-	-	-	-	362
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	~ 36	-	0
Mov Cap-2 Maneuver	-	-	-	-	0
Stage 1	-	-	-	-	~ 12
Stage 2	-	-	-	-	0

Approach	EB	WB	NB
HCM Control Delay, s	0	106.7	\$ 1121.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	-	-	~ 36	-
HCM Lane V/C Ratio	3.274	-	-	3.443	-
HCM Control Delay (s)	\$ 1121.9	-	-	\$ 1330.9	-
HCM Lane LOS	F	-	-	F	-
HCM 95th %tile Q(veh)	29.6	-	-	14.3	-

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1332	2	0	1655	0	19
Future Vol, veh/h	1332	2	0	1655	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1448	2	0	1799	0	21

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	-	-	725
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	319
Stage 1	-	-	0	-	-
Stage 2	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	319
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	319	-	-	-
HCM Lane V/C Ratio	0.065	-	-	-
HCM Control Delay (s)	17.1	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑↑	↑↑↑	↘		↗
Traffic Vol, veh/h	2	3009	1478	5	0	6
Future Vol, veh/h	2	3009	1478	5	0	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	3271	1607	5	0	7

Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	1612	0	-	0	-	806
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	5.3	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	3.1	-	-	-	-	3.9
Pot Cap-1 Maneuver	200	-	-	-	0	282
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	200	-	-	-	-	282
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	200	-	-	-	282
HCM Lane V/C Ratio	0.011	-	-	-	0.023
HCM Control Delay (s)	23.2	-	-	-	18.1
HCM Lane LOS	C	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	3009	1477	2	0	5
Future Vol, veh/h	0	3009	1477	2	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3271	1605	2	0	5

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	804
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	283
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	283
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	283
HCM Lane V/C Ratio	-	-	-	0.019
HCM Control Delay (s)	-	-	-	18
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵ ↑↑↑			↵ ↑↑↑				↕			↕	
Traffic Vol, veh/h	0	1350	0	21	1648	1	6	0	32	0	0	1
Future Vol, veh/h	0	1350	0	21	1648	1	6	0	32	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1392	0	22	1699	1	6	0	33	0	0	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1700	0	0	1392	0	0	2116	3136	696	2301	3136	850
Stage 1	-	-	-	-	-	-	1392	1392	-	1744	1744	-
Stage 2	-	-	-	-	-	-	724	1744	-	557	1392	-
Critical Hdwy	5.3	-	-	5.3	-	-	6.4	6.5	7.1	6.4	6.5	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-	7.3	5.5	-	7.3	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.7	5.5	-	6.7	5.5	-
Follow-up Hdwy	3.1	-	-	3.1	-	-	3.8	4	3.9	3.8	4	3.9
Pot Cap-1 Maneuver	181	-	-	257	-	-	55	11	333	42	11	264
Stage 1	-	-	-	-	-	-	107	211	-	60	142	-
Stage 2	-	-	-	-	-	-	352	142	-	444	211	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	181	-	-	257	-	-	51	10	333	35	10	264
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	78	-	53	75	-
Stage 1	-	-	-	-	-	-	107	211	-	60	130	-
Stage 2	-	-	-	-	-	-	321	130	-	400	211	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			23.6			18.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	232	181	-	-	257	-	-	264
HCM Lane V/C Ratio	0.169	-	-	-	0.084	-	-	0.004
HCM Control Delay (s)	23.6	0	-	-	20.3	-	-	18.7
HCM Lane LOS	C	A	-	-	C	-	-	C
HCM 95th %tile Q(veh)	0.6	0	-	-	0.3	-	-	0

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑			↑↑↑		↑
Traffic Vol, veh/h	1382	0	0	1670	0	13
Future Vol, veh/h	1382	0	0	1670	0	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1502	0	0	1815	0	14

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	-	-	-	751
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.9
Pot Cap-1 Maneuver	-	-	0	-	0	307
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	307
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	307	-	-	-
HCM Lane V/C Ratio	0.046	-	-	-
HCM Control Delay (s)	17.3	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	1.076
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	F

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	2	1	0	2

-----|-----|-----|-----|

Volume Module:

Base Vol:	203	0	249	0	0	0	0	2732	223	177	1260	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	0	249	0	0	0	0	2732	223	177	1260	0
Added Vol:	0	0	0	67	0	39	39	15	0	0	66	66
PasserByVol:	0	0	0	32	0	19	32	-32	0	0	-19	19
Initial Fut:	203	0	249	99	0	58	71	2715	223	177	1307	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	203	0	249	99	0	58	71	2715	223	177	1307	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	203	0	249	99	0	58	71	2715	223	177	1307	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	203	0	249	99	0	58	71	2715	223	177	1307	85

-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.63	0.00	0.37	1.00	2.77	0.23	1.00	2.82	0.18
Final Sat.:	3200	0	1600	1009	0	591	1600	4436	364	1600	4507	293

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Capacity Analysis Module:

Vol/Sat:	0.06	0.00	0.16	0.10	0.00	0.10	0.04	0.61	0.61	0.11	0.29	0.29
Crit Moves:			****			****		****		****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #14 Avenida Barbosa / Alpha/Buena Vista

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.816
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	70	Level Of Service:	D

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Ovl			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	1	0	0	1	0	0	1	0	1	2	0

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Volume Module:

Base Vol:	11	174	394	12	454	7	5	17	94	570	10	17
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	11	174	394	12	454	7	5	17	94	570	10	17
Added Vol:	0	35	100	0	25	0	0	0	0	110	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	11	209	494	12	479	7	5	17	94	680	10	17
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	11	209	494	12	479	7	5	17	94	680	10	17
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	11	209	494	12	479	7	5	17	94	680	10	17
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	11	209	494	12	479	7	5	17	94	680	10	17
OvlAdjVol:	0											

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Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.05	0.95	2.00	0.02	0.98	1.00	1.00	2.00	1.00	2.00	1.00	1.00
Final Sat.:	80	1520	3200	39	1561	1600	1600	3200	1600	3200	1600	1600

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Capacity Analysis Module:

Vol/Sat:	0.14	0.14	0.15	0.31	0.31	0.00	0.00	0.01	0.06	0.21	0.01	0.01
OvlAdjV/S:	0.00											
Crit Moves:	****			****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 1.129  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: F  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	2	1	0	2

Volume Module:

Base Vol:	0	0	0	741	0	475	266	997	0	0	1157	268
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	741	0	475	266	997	0	0	1157	268
Added Vol:	6	16	269	118	6	11	30	102	0	225	21	90
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	16	269	859	6	486	296	1099	0	225	1178	358
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	6	16	269	859	6	486	296	1099	0	225	1178	358
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	16	269	859	6	486	296	1099	0	225	1178	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	16	269	859	6	486	296	1099	0	225	1178	358

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	0.01	0.99	1.00	3.00	0.00	1.00	2.00	1.00
Final Sat.:	1600	1600	1600	3200	20	1580	1600	4800	0	1600	3200	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.01	0.17	0.27	0.31	0.31	0.19	0.23	0.00	0.14	0.37	0.22
Crit Moves:			****			****	****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #16 Dwy A / Live Oak

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.893
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	D

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	0	0	0	0	0	0	1	0	3	0	2	1

Volume Module:												
Base Vol:	0	0	0	0	0	0	0	2981	0	0	1348	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	0	0	0	2981	0	0	1348	0
Added Vol:	0	0	0	249	0	11	4	78	0	0	121	130
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	249	0	11	4	3059	0	0	1469	130
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	0	0	249	0	11	4	3059	0	0	1469	130
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	0	0	249	0	11	4	3059	0	0	1469	130
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	0	0	0	249	0	11	4	3059	0	0	1469	130

Saturation Flow Module:												
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	0.00	0.00	1.00	0.00	1.00	1.00	3.00	0.00	0.00	2.76	0.24
Final Sat.:	0	0	0	1600	0	1600	1600	4800	0	0	4410	390

Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.16	0.00	0.01	0.00	0.64	0.00	0.00	0.33	0.33
Crit Moves:				****				****				

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Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2176	191	0	1761	0	193
Future Vol, veh/h	2176	191	0	1761	0	193
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2365	208	0	1914	0	210

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1183
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3
Pot Cap-1 Maneuver	-	- 0	- 0 365
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 365
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	27.4
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	365	-	-	-
HCM Lane V/C Ratio	0.575	-	-	-
HCM Control Delay (s)	27.4	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	3.4	-	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↑↑↑		↑
Traffic Vol, veh/h	2138	231	0	1761	0	232
Future Vol, veh/h	2138	231	0	1761	0	232
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2324	251	0	1914	0	252

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	- - - 1162
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - - 5
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - - 3
Pot Cap-1 Maneuver	-	- 0	- 0 373
Stage 1	-	- 0	- 0 -
Stage 2	-	- 0	- 0 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	- - - 373
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	32.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	373	-	-	-
HCM Lane V/C Ratio	0.676	-	-	-
HCM Control Delay (s)	32.6	-	-	-
HCM Lane LOS	D	-	-	-
HCM 95th %tile Q(veh)	4.8	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑			↑
Traffic Vol, veh/h	0	3324	1562	41	0	30
Future Vol, veh/h	0	3324	1562	41	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	3613	1698	45	0	33

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	872
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	298
Stage 1	0	-	-	-	0
Stage 2	0	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	298
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	298
HCM Lane V/C Ratio	-	-	-	0.109
HCM Control Delay (s)	-	-	-	18.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.4

Timings  
 20: Arrow Hwy. & I-605 SB Off-Ramp

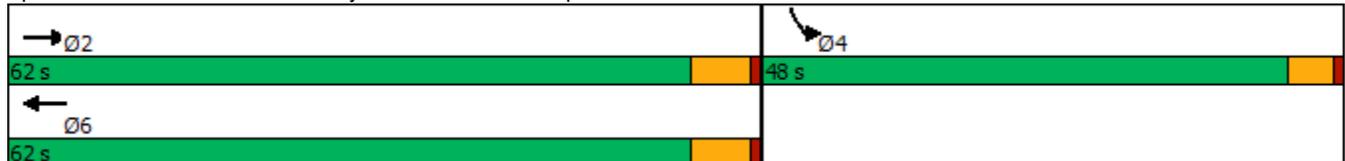


Lane Group	EBT	WBT	SBL	SBR
Lane Configurations	↑↑↑	↑↑	↘	↙
Traffic Volume (vph)	2370	915	324	637
Future Volume (vph)	2370	915	324	637
Turn Type	NA	NA	Prot	Free
Protected Phases	2	6	4	
Permitted Phases				Free
Detector Phase	2	6	4	
Switch Phase				
Minimum Initial (s)	15.0	15.0	9.0	
Minimum Split (s)	22.5	22.8	22.5	
Total Split (s)	62.0	62.0	48.0	
Total Split (%)	56.4%	56.4%	43.6%	
Yellow Time (s)	4.8	4.8	3.7	
All-Red Time (s)	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	5.8	5.8	4.7	
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	Min	

Intersection Summary

Cycle Length: 110  
 Actuated Cycle Length: 86.1  
 Natural Cycle: 60  
 Control Type: Actuated-Uncoordinated

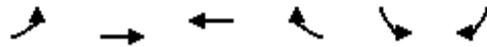
Splits and Phases: 20: Arrow Hwy. & I-605 SB Off-Ramp



HCM 6th Signalized Intersection Summary  
 20: Arrow Hwy. & I-605 SB Off-Ramp

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑		↘	↗
Traffic Volume (veh/h)	0	2370	915	0	324	637
Future Volume (veh/h)	0	2370	915	0	324	637
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	0	1900	1900	0	1900	1900
Adj Flow Rate, veh/h	0	2469	953	0	338	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	0	3341	2325	0	396	
Arrive On Green	0.00	0.64	0.64	0.00	0.22	0.00
Sat Flow, veh/h	0	5529	3800	0	1810	1610
Grp Volume(v), veh/h	0	2469	953	0	338	0
Grp Sat Flow(s),veh/h/ln	0	1729	1805	0	1810	1610
Q Serve(g_s), s	0.0	24.8	9.8	0.0	13.8	0.0
Cycle Q Clear(g_c), s	0.0	24.8	9.8	0.0	13.8	0.0
Prop In Lane	0.00			0.00	1.00	1.00
Lane Grp Cap(c), veh/h	0	3341	2325	0	396	
V/C Ratio(X)	0.00	0.74	0.41	0.00	0.85	
Avail Cap(c_a), veh/h	0	3801	2646	0	1022	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	9.3	6.6	0.0	28.8	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.1	0.0	5.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.5	2.6	0.0	6.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	10.0	6.7	0.0	34.0	0.0
LnGrp LOS	A	A	A	A	C	
Approach Vol, veh/h		2469	953		338	A
Approach Delay, s/veh		10.0	6.7		34.0	
Approach LOS		A	A		C	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		55.2		21.5		55.2
Change Period (Y+Rc), s		5.8		* 4.7		5.8
Max Green Setting (Gmax), s		56.2		* 43		56.2
Max Q Clear Time (g_c+I1), s		26.8		15.8		11.8
Green Ext Time (p_c), s		22.6		1.0		7.4

Intersection Summary

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Timings  
 21: I-605 SB On-Ramp & Live Oak Av.



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations	↑↑	↑	↓	↑↑
Traffic Volume (vph)	1400	1652	782	1604
Future Volume (vph)	1400	1652	782	1604
Turn Type	NA	Free	Prot	NA
Protected Phases	2		1	6
Permitted Phases		Free		
Detector Phase	2		1	6
Switch Phase				
Minimum Initial (s)	10.0		30.0	10.0
Minimum Split (s)	22.8		36.1	16.1
Total Split (s)	56.0		64.0	120.0
Total Split (%)	46.7%		53.3%	100.0%
Yellow Time (s)	4.8		4.1	4.1
All-Red Time (s)	1.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0	0.0
Total Lost Time (s)	5.8		6.1	6.1
Lead/Lag	Lag		Lead	
Lead-Lag Optimize?	Yes		Yes	
Recall Mode	None		None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 116.1  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated

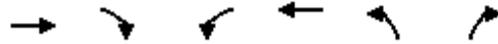
Splits and Phases: 21: I-605 SB On-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary  
 21: I-605 SB On-Ramp & Live Oak Av.

The Park @ Live Oak TIA (JN 11110)

06/10/2019



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑		
Traffic Volume (veh/h)	1400	1652	782	1604	0	0
Future Volume (veh/h)	1400	1652	782	1604	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900		
Adj Flow Rate, veh/h	1458	0	815	1671		
Peak Hour Factor	0.96	0.96	0.96	0.96		
Percent Heavy Veh, %	0	0	0	0		
Cap, veh/h	1524		857	3422		
Arrive On Green	0.42	0.00	0.47	0.95		
Sat Flow, veh/h	3705	1610	1810	3705		
Grp Volume(v), veh/h	1458	0	815	1671		
Grp Sat Flow(s),veh/h/ln	1805	1610	1810	1805		
Q Serve(g_s), s	45.8	0.0	50.5	5.3		
Cycle Q Clear(g_c), s	45.8	0.0	50.5	5.3		
Prop In Lane		1.00	1.00			
Lane Grp Cap(c), veh/h	1524		857	3422		
V/C Ratio(X)	0.96		0.95	0.49		
Avail Cap(c_a), veh/h	1549		896	3515		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	0.00	1.00	1.00		
Uniform Delay (d), s/veh	32.8	0.0	29.5	0.3		
Incr Delay (d2), s/veh	13.7	0.0	19.5	0.2		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	21.5	0.0	24.7	0.1		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	46.5	0.0	49.0	0.5		
LnGrp LOS	D		D	A		
Approach Vol, veh/h	1458	A		2486		
Approach Delay, s/veh	46.5			16.4		
Approach LOS	D			B		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	61.5	55.5			117.0	
Change Period (Y+Rc), s	6.1	* 6.1			6.1	
Max Green Setting (Gmax), s	57.9	* 50			113.9	
Max Q Clear Time (g_c+I1), s	52.5	47.8			7.3	
Green Ext Time (p_c), s	2.9	1.6			54.3	

Intersection Summary

HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

\* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.  
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑		↑↑	↑			↑			
Traffic Vol, veh/h	0	1866	374	0	915	334	0	0	48	0	0	0
Future Vol, veh/h	0	1866	374	0	915	334	0	0	48	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16983	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1944	390	0	953	348	0	0	50	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	-	0	0	-	-	0	-	-	972
Stage 1	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	0	-	-	0	0	256
Stage 1	0	-	-	0	-	-	0	0	-
Stage 2	0	-	-	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	0	256
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	0	-
Stage 1	-	-	-	-	-	-	-	0	-
Stage 2	-	-	-	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	22.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	WBR
Capacity (veh/h)	256	-	-	-	-
HCM Lane V/C Ratio	0.195	-	-	-	-
HCM Control Delay (s)	22.4	-	-	-	-
HCM Lane LOS	C	-	-	-	-
HCM 95th %tile Q(veh)	0.7	-	-	-	-

**Intersection**

Int Delay, s/veh 166.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Vol, veh/h	0	1400	0	0	1337	0	0	0	748	0	0	1047
Future Vol, veh/h	0	1400	0	0	1337	0	0	0	748	0	0	1047
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	1443	0	0	1378	0	0	0	771	0	0	1079

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	-	0	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	5.5
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	3.3
Pot Cap-1 Maneuver	0	0	0	~ 495
Stage 1	0	0	0	0
Stage 2	0	0	0	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	~ 495
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	282.2	\$ 520
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBT	WBT	SBLn1
Capacity (veh/h)	495	-	-	514
HCM Lane V/C Ratio	1.558	-	-	2.1
HCM Control Delay (s)	282.2	-	-	\$ 520
HCM Lane LOS	F	-	-	F
HCM 95th %tile Q(veh)	41.5	-	-	76

Notes  
 ~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**ATTACHMENT F:  
HORIZON YEAR (2040) WITH PROJECT CONDITIONS INTERSECTION ANALYSIS WORKSHEETS  
WITH IMPROVEMENTS**

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.908  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 104 Level Of Service: E  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	3	2	0	3

Volume Module:

Base Vol:	1155	0	341	0	0	0	0	572	0	311	2049	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	1155	0	341	0	0	0	0	572	0	311	2049	0
Added Vol:	64	0	2	0	0	0	0	57	0	0	2	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1219	0	343	0	0	0	0	629	0	311	2051	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1219	0	343	0	0	0	0	629	0	311	2051	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1219	0	343	0	0	0	0	629	0	311	2051	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1219	0	343	0	0	0	0	629	0	311	2051	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	3.00	0.00	2.00	3.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	4800	0	3200	4800	0

Capacity Analysis Module:

Vol/Sat:	0.38	0.00	0.21	0.00	0.00	0.00	0.00	0.13	0.00	0.10	0.43	0.00
Crit Moves:	****						****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #7 Driveway / Live Oak

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Cycle (sec):	100	Critical Vol./Cap.(X):	0.451
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	50	Level Of Service:	A

\*\*\*\*\*

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Split Phase	Split Phase	Permitted	Protected
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Y+R:	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0	4.0 4.0 4.0
Lanes:	1 0 0 0 1	0 0 0 0 0	0 0 2 1 0	1 0 3 0 0

-----

Volume Module:

Base Vol:	31	0	48	0	0	0	0	1067	76	71	1465	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	31	0	48	0	0	0	0	1067	76	71	1465	0
Added Vol:	0	0	0	0	0	0	0	56	0	0	75	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	31	0	48	0	0	0	0	1123	76	71	1540	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	31	0	48	0	0	0	0	1123	76	71	1540	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	31	0	48	0	0	0	0	1123	76	71	1540	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	31	0	48	0	0	0	0	1123	76	71	1540	0

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Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	2.81	0.19	1.00	3.00	0.00
Final Sat.:	1600	0	1600	0	0	0	0	4496	304	1600	4800	0

-----

Capacity Analysis Module:

Vol/Sat:	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.25	0.25	0.04	0.32	0.00
Crit Moves:			****								****	

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.523  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 35 Level Of Service: A  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	3	1	0	2

Volume Module:

Base Vol:	32	0	33	0	0	0	0	1027	88	93	1504	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	32	0	33	0	0	0	0	1027	88	93	1504	0
Added Vol:	0	0	0	52	0	30	46	6	0	0	54	78
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	32	0	33	52	0	30	46	1033	88	93	1558	78
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	32	0	33	52	0	30	46	1033	88	93	1558	78
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	32	0	33	52	0	30	46	1033	88	93	1558	78
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	32	0	33	52	0	30	46	1033	88	93	1558	78

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	1.00	0.00	1.00	1.00	3.00	1.00	1.00	2.86	0.14
Final Sat.:	3200	0	1600	1600	0	1600	1600	4800	1600	1600	4571	229

Capacity Analysis Module:

Vol/Sat:	0.01	0.00	0.02	0.03	0.00	0.02	0.03	0.22	0.06	0.06	0.34	0.34
Crit Moves:			****	****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 AM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

\*\*\*\*\*

Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.913  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 107 Level Of Service: E  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	0	1	0	1	0

Volume Module:

Base Vol:	0	0	0	323	0	216	366	547	0	0	2155	836
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	323	0	216	366	547	0	0	2155	836
Added Vol:	1	3	101	23	9	0	15	26	1	307	48	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	3	101	346	9	216	381	573	1	307	2203	836
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1	3	101	346	9	216	381	573	1	307	2203	836
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	3	101	346	9	216	381	573	1	307	2203	836
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1	3	101	346	9	216	381	573	1	307	2203	836

Saturation Flow Module:

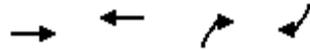
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	2.00	2.99	0.01	1.00	3.00	1.00
Final Sat.:	1600	1600	1600	3200	1600	1600	3200	4792	8	1600	4800	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.00	0.06	0.11	0.01	0.14	0.12	0.12	0.12	0.19	0.46	0.52
Crit Moves:			****	****			****					****

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Timings

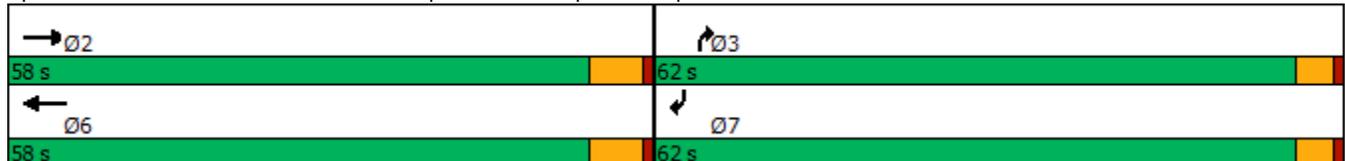


Lane Group	EBT	WBT	NBR	SBR
Lane Configurations	↑↑	↑↑	↗	↖
Traffic Volume (vph)	389	1766	705	1019
Future Volume (vph)	389	1766	705	1019
Turn Type	NA	NA	Prot	Prot
Protected Phases	2	6	3	7
Permitted Phases				
Detector Phase	2	6	3	7
Switch Phase				
Minimum Initial (s)	10.0	10.0	5.0	5.0
Minimum Split (s)	22.8	22.8	9.5	9.5
Total Split (s)	58.0	58.0	62.0	62.0
Total Split (%)	48.3%	48.3%	51.7%	51.7%
Yellow Time (s)	4.8	4.8	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 120  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.



HCM 6th Signalized Intersection Summary

The Park @ Live Oak TIA (JN 11110)

23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

06/10/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Volume (veh/h)	0	389	0	0	1766	0	0	0	705	0	0	1019
Future Volume (veh/h)	0	389	0	0	1766	0	0	0	705	0	0	1019
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No
Adj Sat Flow, veh/h/ln	0	1900	0	0	1900	0	0	0	1900	0	0	1900
Adj Flow Rate, veh/h	0	423	0	0	1920	0	0	0	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	3194	0	0	3194	0	0	0	0	0	0	0
Arrive On Green	0.00	0.88	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	3800	0	0	3800	0		0			0	
Grp Volume(v), veh/h	0	423	0	0	1920	0		0.0			0.0	
Grp Sat Flow(s),veh/h/ln	0	1805	0	0	1805	0						
Q Serve(g_s), s	0.0	0.8	0.0	0.0	6.6	0.0						
Cycle Q Clear(g_c), s	0.0	0.8	0.0	0.0	6.6	0.0						
Prop In Lane	0.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	0	3194	0	0	3194	0						
V/C Ratio(X)	0.00	0.13	0.00	0.00	0.60	0.00						
Avail Cap(c_a), veh/h	0	3741	0	0	3741	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	0.4	0.0	0.0	0.7	0.0						
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.4	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.2	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	1.1	0.0						
LnGrp LOS	A	A	A	A	A	A						
Approach Vol, veh/h		423			1920							
Approach Delay, s/veh		0.4			1.1							
Approach LOS		A			A							
Timer - Assigned Phs		2			6							
Phs Duration (G+Y+Rc), s		50.4			50.4							
Change Period (Y+Rc), s		5.8			5.8							
Max Green Setting (Gmax), s		52.2			52.2							
Max Q Clear Time (g_c+I1), s		2.8			8.6							
Green Ext Time (p_c), s		5.6			36.0							

Intersection Summary

HCM 6th Ctrl Delay	1.0
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #4 Live Oak / Arrow (West)

\*\*\*\*\*

Cycle (sec):	100	Critical Vol./Cap.(X):	0.845
Loss Time (sec):	10	Average Delay (sec/veh):	xxxxxxx
Optimal Cycle:	78	Level Of Service:	D

\*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	0	0	0	0	0	3	0	0	0

Volume Module:

Base Vol:	958	0	419	0	0	0	0	855	0	724	920	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	958	0	419	0	0	0	0	855	0	724	920	0
Added Vol:	101	0	11	0	0	0	0	45	0	0	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1059	0	430	0	0	0	0	900	0	724	932	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	1059	0	430	0	0	0	0	900	0	724	932	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1059	0	430	0	0	0	0	900	0	724	932	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	1059	0	430	0	0	0	0	900	0	724	932	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	0.00	0.00	0.00	0.00	3.00	0.00	2.00	3.00	0.00
Final Sat.:	3200	0	1600	0	0	0	0	4800	0	3200	4800	0

Capacity Analysis Module:

Vol/Sat:	0.33	0.00	0.27	0.00	0.00	0.00	0.00	0.19	0.00	0.23	0.19	0.00
Crit Moves:	****							****		****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #7 Driveway / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.898  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 99 Level Of Service: D  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Permitted			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	0	0	0	0	0	0	2	1	0	3

Volume Module:

Base Vol:	112	0	174	0	0	0	0	2793	115	119	1265	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	112	0	174	0	0	0	0	2793	115	119	1265	0
Added Vol:	0	0	0	0	0	0	0	45	0	0	100	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	112	0	174	0	0	0	0	2838	115	119	1365	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	112	0	174	0	0	0	0	2838	115	119	1365	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	112	0	174	0	0	0	0	2838	115	119	1365	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	112	0	174	0	0	0	0	2838	115	119	1365	0

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.00	1.00	0.00	0.00	0.00	0.00	2.88	0.12	1.00	3.00	0.00
Final Sat.:	1600	0	1600	0	0	0	0	4613	187	1600	4800	0

Capacity Analysis Module:

Vol/Sat:	0.07	0.00	0.11	0.00	0.00	0.00	0.00	0.62	0.62	0.07	0.28	0.00
Crit Moves:	****						****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour  
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Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #13 Dwy 7 / Live Oak

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.994  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 180 Level Of Service: E  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	0	1	0	0	1	0	3	1	0	2

Volume Module:

Base Vol:	203	0	249	0	0	0	0	2743	223	177	1270	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	203	0	249	0	0	0	0	2743	223	177	1270	0
Added Vol:	0	0	0	67	0	39	39	4	0	0	56	66
PasserByVol:	0	0	0	32	0	19	32	-32	0	0	-19	19
Initial Fut:	203	0	249	99	0	58	71	2715	223	177	1307	85
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	203	0	249	99	0	58	71	2715	223	177	1307	85
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	203	0	249	99	0	58	71	2715	223	177	1307	85
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	203	0	249	99	0	58	71	2715	223	177	1307	85

Saturation Flow Module:

Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	0.00	1.00	1.00	0.00	1.00	1.00	3.00	1.00	1.00	2.82	0.18
Final Sat.:	3200	0	1600	1600	0	1600	1600	4800	1600	1600	4507	293

Capacity Analysis Module:

Vol/Sat:	0.06	0.00	0.16	0.06	0.00	0.04	0.04	0.57	0.14	0.11	0.29	0.29
Crit Moves:			****	****			****			****		

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 The Park @ Live Oak (JN 11110)  
 Horizon Year (2040) With Project Conditions WITH IMPROVEMENTS  
 PM Peak Hour  
 -----

Level Of Service Computation Report

ICU 1(Loss as Cycle Length %) Method (Future Volume Alternative)

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Intersection #15 Avenida Barbosa/Dwy A / Arrow

\*\*\*\*\*

Cycle (sec): 100 Critical Vol./Cap.(X): 0.906  
 Loss Time (sec): 10 Average Delay (sec/veh): xxxxxx  
 Optimal Cycle: 103 Level Of Service: E  
 \*\*\*\*\*

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	1	0	1	0	1	2	0	2	1	0

Volume Module:

Base Vol:	0	0	0	840	0	486	276	997	0	0	1157	358
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	840	0	486	276	997	0	0	1157	358
Added Vol:	6	16	269	19	6	0	20	102	0	225	21	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	6	16	269	859	6	486	296	1099	0	225	1178	358
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	6	16	269	859	6	486	296	1099	0	225	1178	358
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	6	16	269	859	6	486	296	1099	0	225	1178	358
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	6	16	269	859	6	486	296	1099	0	225	1178	358

Saturation Flow Module:

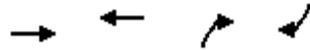
Sat/Lane:	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	2.00	3.00	0.00	1.00	3.00	1.00
Final Sat.:	1600	1600	1600	3200	1600	1600	3200	4800	0	1600	4800	1600

Capacity Analysis Module:

Vol/Sat:	0.00	0.01	0.17	0.27	0.00	0.30	0.09	0.23	0.00	0.14	0.25	0.22
Crit Moves:			****	****				****		****		

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Timings

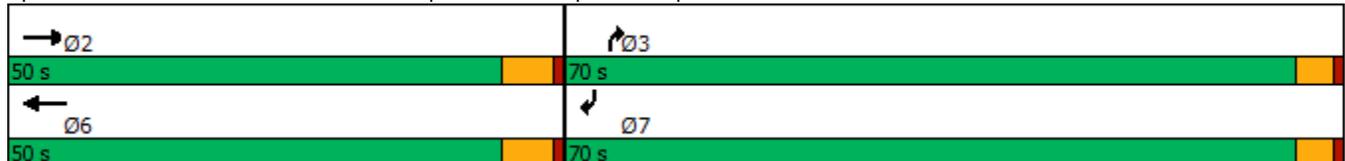


Lane Group	EBT	WBT	NBR	SBR
Lane Configurations	↑↑	↑↑	↗	↗
Traffic Volume (vph)	1400	1337	748	1047
Future Volume (vph)	1400	1337	748	1047
Turn Type	NA	NA	Prot	Prot
Protected Phases	2	6	3	7
Permitted Phases				
Detector Phase	2	6	3	7
Switch Phase				
Minimum Initial (s)	10.0	10.0	5.0	5.0
Minimum Split (s)	22.8	22.8	9.5	9.5
Total Split (s)	50.0	50.0	70.0	70.0
Total Split (%)	41.7%	41.7%	58.3%	58.3%
Yellow Time (s)	4.8	4.8	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	4.5	4.5
Lead/Lag				
Lead-Lag Optimize?				
Recall Mode	None	None	None	None

Intersection Summary

Cycle Length: 120  
 Actuated Cycle Length: 120  
 Natural Cycle: 100  
 Control Type: Actuated-Uncoordinated

Splits and Phases: 23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

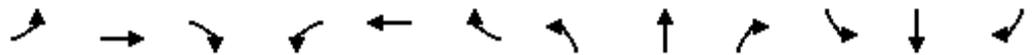


HCM 6th Signalized Intersection Summary

The Park @ Live Oak TIA (JN 11110)

23: I-605 NB Off-Ramp/I-605 NB Loop Off-Ramp & Live Oak Av.

06/10/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑				↑			↑
Traffic Volume (veh/h)	0	1400	0	0	1337	0	0	0	748	0	0	1047
Future Volume (veh/h)	0	1400	0	0	1337	0	0	0	748	0	0	1047
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1900	0	0	1900	0	0	0	1900	0	0	1900
Adj Flow Rate, veh/h	0	1443	0	0	1378	0	0	0	0	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	0	3033	0	0	3033	0	0	0	0	0	0	0
Arrive On Green	0.00	0.84	0.00	0.00	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sat Flow, veh/h	0	3800	0	0	3800	0		0			0	
Grp Volume(v), veh/h	0	1443	0	0	1378	0		0.0			0.0	
Grp Sat Flow(s),veh/h/ln	0	1805	0	0	1805	0						
Q Serve(g_s), s	0.0	3.9	0.0	0.0	3.6	0.0						
Cycle Q Clear(g_c), s	0.0	3.9	0.0	0.0	3.6	0.0						
Prop In Lane	0.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	0	3033	0	0	3033	0						
V/C Ratio(X)	0.00	0.48	0.00	0.00	0.45	0.00						
Avail Cap(c_a), veh/h	0	4399	0	0	4399	0						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	0.0	0.8	0.0	0.0	0.7	0.0						
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.1	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.0	0.0	0.0	1.0	0.0						
LnGrp LOS	A	A	A	A	A	A						
Approach Vol, veh/h		1443			1378							
Approach Delay, s/veh		1.0			1.0							
Approach LOS		A			A							
Timer - Assigned Phs		2			6							
Phs Duration (G+Y+Rc), s		36.3			36.3							
Change Period (Y+Rc), s		5.8			5.8							
Max Green Setting (Gmax), s		44.2			44.2							
Max Q Clear Time (g_c+I1), s		5.9			5.6							
Green Ext Time (p_c), s		24.6			23.4							
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				1.0								
HCM 6th LOS				A								
<b>Notes</b>												
Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.												