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**TO:** Chad Brooks  
Virginia Department of Transportation (VDOT)

**FROM:** William F. Johnson, P.E., PTOE  
Kathryn M. Morrissey, EIT

**RE:** Essex Point at Mt. Clement  
Essex County, Virginia

**SUBJECT:** Traffic Impact Analysis (TIA) Addendum

**DATE:** March 5, 2023

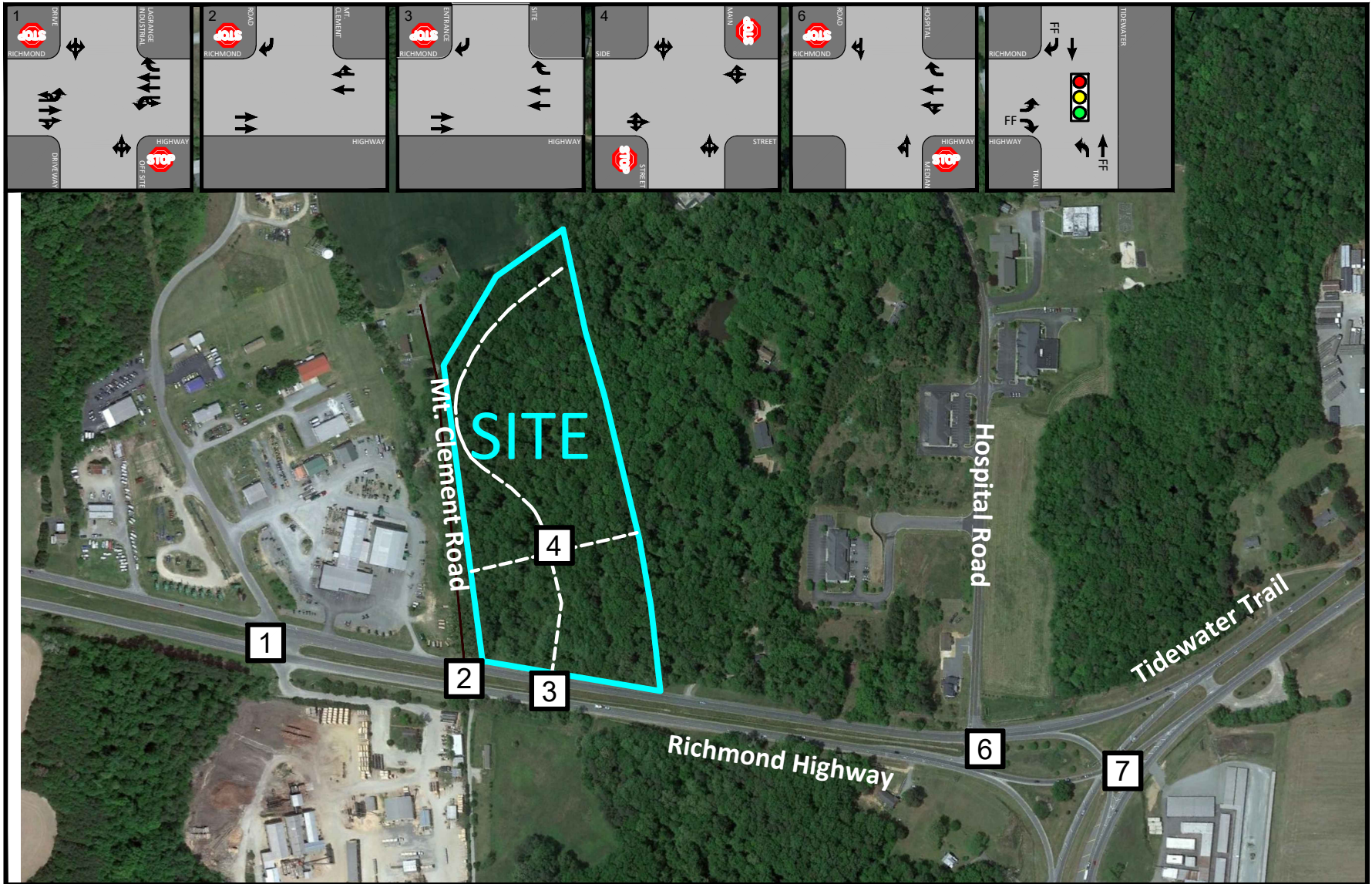
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This memorandum provides an Addendum to the previously submitted Traffic Impact Analysis (TIA) for a proposed mixed-use development in Essex County, Virginia. The 13.186-acre site is generally located on the north side of Richmond Highway (Route 360), west of Hospital Road and east of Lagrange Industrial Park.

The TIA, dated December 30, 2022, was reviewed and found “acceptable” by VDOT in a letter to Essex County dated March 31, 2023. A copy of VDOT’s letter is provided in Attachment 1. In the same letter, VDOT commented that the right-in only entrance shown in the initial submission of the preliminary plan (dated February 24, 2023) would need to be removed since the entrance did not comply with the spacing standards. In response, the Applicant has revised the preliminary plan to show the removal of the right-in only entrance (reduction provided in Attachment 2). Therefore, this Addendum provides the revised total future conditions analysis reflecting the removal of the right-in only access. Under this scenario, sole access to the proposed development would be via a right-in/right-out on Richmond Highway (Route 360) at the main entrance to the site. The total future lane use and traffic controls reflecting this access modification is shown on Figure 1.

The trip generation analysis applied in this Addendum is consistent with that applied in the originally submitted TIA. The revised trip assignments reflecting the removal of the right-in only entrance (formerly Intersection #5) is shown on Figure 2. The resulting total future traffic forecasts (with development of the subject site) are shown on Figure 3.

Total future levels of service and 95<sup>th</sup>-percentile queues were forecasted using the Highway Capacity Manual (HCM) methodologies as reported by Synchro software, Version 11. The analysis results are summarized in Table 1 (levels of service and delays) and Table 2 (queues). As shown, the modifications to site access would result in no appreciable impacts to overall intersection



**Figure 1**  
2027 Total Future Lane Use and Traffic Controls

**#** Study Intersections  
FF Free Flow



Mt. Clement Property  
Essex County, Virginia



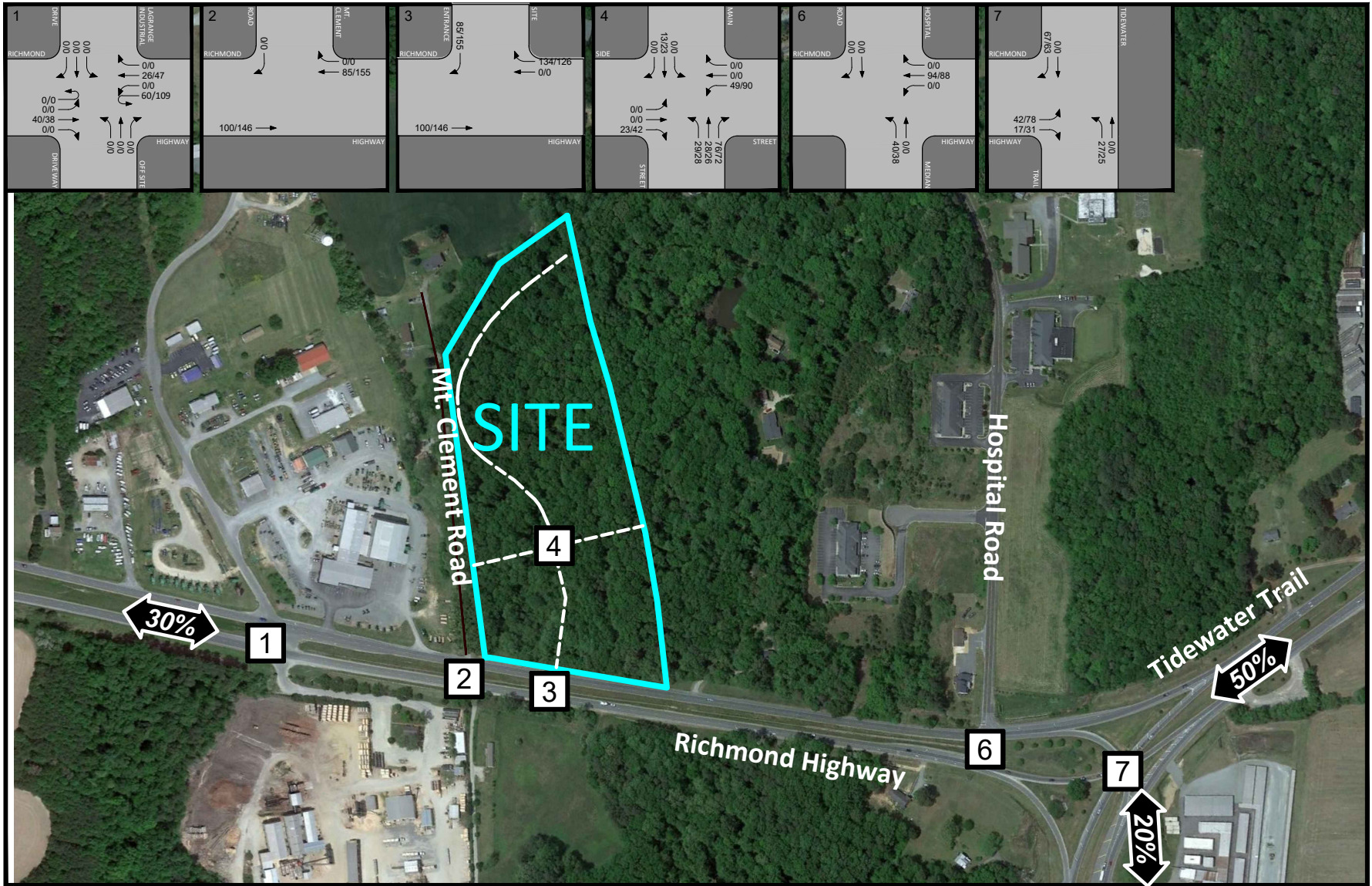


Figure 2  
Site Trip Assignments and Trip Distribution

# Study Intersections  
 ◀▶▶▶ Trip Distribution



Mt. Clement Property  
Essex County, Virginia



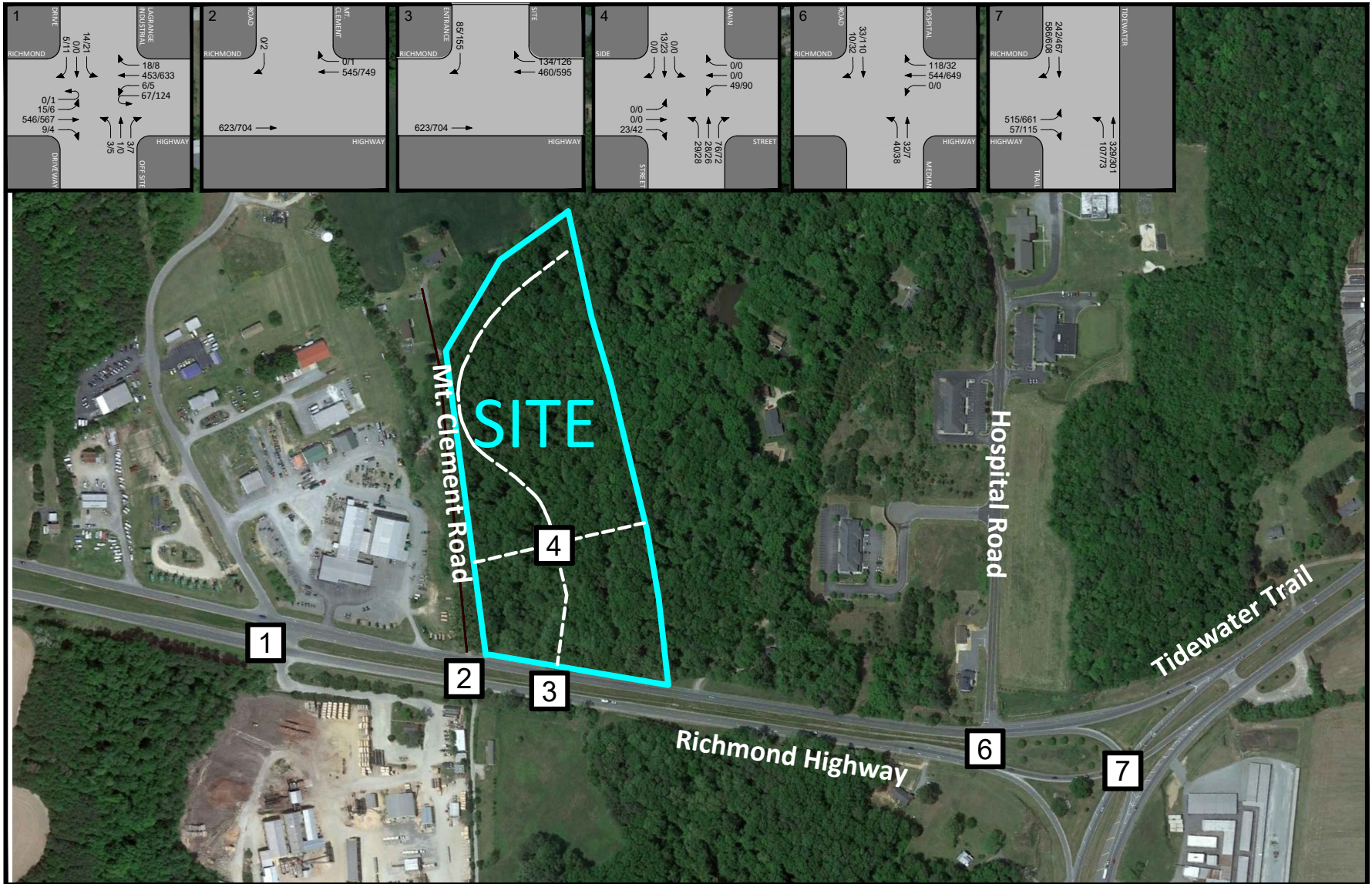


Figure 3  
2027 Total Future Traffic Forecasts

# Study Intersections



Mt. Clement Property  
Essex County, Virginia



Table 1  
 Mt. Clement Property  
 Intersection Levels of Service Summary (1) (2) (3)

| Intersection   | Operating Condition | Street Name                               | Approach/Movement | Existing 2022   |                 | Background 2027 |                 | Total Future 2027 |                 |
|--|---------------------|---|-------------------|-----------------|-----------------|-----------------|-----------------|-------------------|-----------------|
|  |                     |   |                   | AM              | PM              | AM              | PM              | AM                | PM              |
| 1 Richmond Highway/ <b>Lagrange Industrial Drive</b> | STOP                | Richmond Highway                          | EBLU              | A [8.5]         | A [8.6]         | A [8.6]         | A [8.7]         | A [8.6]           | A [8.9]         |
|  |                     | Richmond Highway                          | EBTR              | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBLU              | A [9.2]         | A [8.4]         | A [9.3]         | A [8.5]         | A [9.4]           | A [8.7]         |
|  |                     | Richmond Highway                          | WBT               | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBR               | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | <b>Lagrange Industrial Drive Driveway</b> | NBLTR             | B [14.3]        | B [12.5]        | B [14.7]        | B [12.8]        | C [15.3]          | B [13.2]        |
|  |                     |   | SBLTR             | B [13.2]        | B [13.7]        | B [13.4]        | B [14.1]        | B [13.8]          | B [14.7]        |
| 2 Richmond Highway/ <b>Mt. Clement Road</b>          | STOP                | Richmond Highway                          | EBT               | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBTR              | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | <b>Mt. Clement Road</b>                   | SBR               | A [0.0]         | B [10.1]        | A [0.0]         | B [10.3]        | A [0.0]           | B [10.9]        |
| 3 Richmond Highway/ <b>Site Entrance</b>             | STOP                | Richmond Highway                          | EBT               | N/A             | N/A             | N/A             | N/A             | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBT               | N/A             | N/A             | N/A             | N/A             | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBR               | N/A             | N/A             | N/A             | N/A             | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | SBR               | N/A             | N/A             | N/A             | N/A             | B [10.5]          | B [12.1]        |
| 4 <b>Main Street</b> / Side Street                   | STOP                | Side Street                               | EBLTR             | N/A             | N/A             | N/A             | N/A             | A [8.5]           | A [8.6]         |
|  |                     | Side Street                               | WBLTR             | N/A             | N/A             | N/A             | N/A             | B [10.1]          | B [10.8]        |
|  |                     | <b>Main Street</b>                        | NBLTR             | N/A             | N/A             | N/A             | N/A             | A [1.7]           | A [1.7]         |
|  |                     | <b>Main Street</b>                        | SBLTR             | N/A             | N/A             | N/A             | N/A             | A [0.0]           | A [0.0]         |
| 6 Richmond Highway/ <b>Hospital Road</b>             | STOP                | Richmond Highway                          | WBLT              | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | Richmond Highway                          | WBR               | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]         | A [0.0]           | A [0.0]         |
|  |                     | <b>Median</b>                             | NBLT              | B [14.5]        | B [14.2]        | B [14.8]        | B [14.6]        | B [15.0]          | C [16.3]        |
|  |                     | <b>Hospital Road</b>                      | SBTR              | B [12.5]        | C [15.8]        | B [12.8]        | C [16.3]        | B [14.0]          | C [18.4]        |
| 7 Richmond Highway/ <b>Tidewater Trail</b>           | Signal              | Richmond Highway                          | EBT               | D (36.1)        | D (42.2)        | D (36.0)        | D (45.0)        | D (36.1)          | D (53.1)        |
|  |                     | Tidewater Trail                           | WBT               | D (45.8)        | D (46.5)        | D (46.0)        | D (46.6)        | D (43.1)          | D (50.1)        |
|  |                     | <b>Tidewater Trail</b>                    | SBT               | <u>C (29.8)</u> | <u>D (40.4)</u> | <u>C (31.6)</u> | <u>D (41.1)</u> | <u>D (37.7)</u>   | <u>D (53.3)</u> |
|  |                     |   | <b>Overall</b>    | <b>D (35.2)</b> | <b>D (41.7)</b> | <b>D (35.6)</b> | <b>D (43.4)</b> | <b>D (37.4)</b>   | <b>D (53.0)</b> |
|  |                     |   |                   |                 |                 |                 |                 |                   |                 |

Note: (1) Numbers in parentheses ( ) represent delay at signalized intersections in seconds per vehicle.  
 (2) Numbers in brackets [ ] represent delay at unsignalized intersections in seconds per vehicle.  
 (3) Roadway names in bold are considered north/south for purposes of this analysis

Table 2  
 Mt. Clement Property  
 Intersection Queuing Summary (1) (2)

| Intersection   | Operating Condition | Street Name                               | Approach/Movement | Available Storage (ft) | Existing 2022 |     | Background 2027 |     | Total Future 2027 |     |
|--|---------------------|---|-------------------|------------------------|---------------|-----|-----------------|-----|-------------------|-----|
|  |                     |   |                   |                        | AM            | PM  | AM              | PM  | AM                | PM  |
| 1 Richmond Highway/ <b>Lagrange Industrial Drive</b> | STOP                | Richmond Highway                          | EBLU              | 330                    | 1             | 0   | 1               | 0   | 1                 | 0   |
|  |                     | Richmond Highway                          | EBTR              | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | Richmond Highway                          | WBLU              | 250                    | 1             | 0   | 1               | 0   | 1                 | 0   |
|  |                     | Richmond Highway                          | WBT               | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | Richmond Highway                          | WBR               | 355                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | <b>Lagrange Industrial Drive Driveway</b> | NBLTR             | N/A                    | 1             | 2   | 1               | 2   | 2                 | 2   |
|  |                     |   | SBLTR             | N/A                    | 3             | 6   | 3               | 6   | 3                 | 7   |
| 2 Richmond Highway/ <b>Mt. Clement Road</b>          | STOP                | Richmond Highway                          | EBT               | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | Richmond Highway                          | WBTR              | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | <b>Mt. Clement Road</b>                   | SBR               | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
| 3 Richmond Highway/ <b>Site Entrance</b>             | STOP                | Richmond Highway                          | EBT               | N/A                    | N/A           | N/A | N/A             | N/A | 0                 | 0   |
|  |                     | Richmond Highway                          | WBT               | N/A                    | N/A           | N/A | N/A             | 0   | 0                 |     |
|  |                     | Richmond Highway                          | WBR               | 200                    | N/A           | N/A | N/A             | N/A | 0                 | 0   |
|  |                     | Richmond Highway                          | SBR               | N/A                    | N/A           | N/A | N/A             | N/A | 10                | 25  |
| 4 <b>Main Street</b> / Side Street                   | STOP                | Side Street                               | EBLTR             | N/A                    | N/A           | N/A | N/A             | N/A | 2                 | 3   |
|  |                     | Side Street                               | WBLTR             | N/A                    | N/A           | N/A | N/A             | 6   | 12                |     |
|  |                     | <b>Main Street</b>                        | NBLTR             | N/A                    | N/A           | N/A | N/A             | 2   | 1                 |     |
|  |                     | <b>Main Street</b>                        | SBLTR             | N/A                    | N/A           | N/A | N/A             | 0   | 0                 |     |
| 6 Richmond Highway/ <b>Hospital Road</b>             | STOP                | Richmond Highway                          | WBLT              | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | Richmond Highway                          | WBR               | N/A                    | 0             | 0   | 0               | 0   | 0                 | 0   |
|  |                     | <b>Median</b>                             | NBLT              | 250                    | 7             | 1   | 7               | 1   | 23                | 12  |
|  |                     | <b>Hospital Road</b>                      | SBTR              | N/A                    | 7             | 32  | 8               | 33  | 9                 | 39  |
| 7 Richmond Highway/ <b>Tidewater Trail</b>           | Signal              | Richmond Highway                          | EBT               | N/A                    | 339           | 535 | 364             | 577 | 430               | 697 |
|  |                     | Tidewater Trail                           | WBT               | N/A                    | 95            | 65  | 98              | 67  | 122               | 94  |
|  |                     | <b>Tidewater Trail</b>                    | SBT               | N/A                    | 266           | 466 | 285             | 467 | 285               | 504 |

Notes: (1) Queue length is based on the 95th percentile queue in feet as reported by Synchro, Version 11.  
 (2) Roadway names in bold are considered north/south for purposes of this analysis

# WELLS + ASSOCIATES

## MEMORANDUM

performance. The remaining site entrance would operate at acceptable lane group levels of service under site build-out conditions (LOS “B” or better). Copies of the Synchro reports are provided in Attachment 3.

Based on the results of this Addendum, the overall conclusions documented in the December 2022 TIA remain consistent. Overall intersection and certain movement delays under site build-out conditions would experience minor increases over background conditions, but overall levels of service would remain consistent with background future conditions. Turning movement 95<sup>th</sup> percentile queues under 2027 total future conditions would continue to be contained within the available storage lengths, consistent with 2027 background future conditions.

Questions related to this Addendum should be directed to Will Johnson at 703.676.3653 or at [wfjohnson@wellsandassociates.com](mailto:wfjohnson@wellsandassociates.com).

Attachments: a/s



# COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION  
87 Deacon Road  
Fredericksburg, Virginia 22405

Stephen C. Brich, P.E.  
COMMISSIONER

March 31, 2023

Essex County Planning & Zoning  
Attn: Rob Hodges

Re: Essex Point @ Mount Clements  
1<sup>st</sup> Rezoning TIA & Preliminary Plan Reviews  
Essex County, Rt. 360

Dear Mr. Hodges:

This office has reviewed the referenced traffic impact analysis (Dated 12-30-2022) and preliminary plan (Dated 2-24-2023) in accordance with the minimum standards as received on March 16, 2023, and we offer the following comments:

1. The traffic impact analysis is found to be acceptable.
2. This site has approximately 560' of frontage along Rt. 360. The minimum entrance spacing along principal arterial highways with a 45MPH speed limit is 305' for partial access entrances per the VDOT RDM, Appendix F, Table 2-2. Therefore, the design will need to remove the right-in only entrance or provide the minimum entrance spacing.
3. Due to the existing steep vertical grade along this section of Rt. 360 and a slight crest at one location, it is recommended to verify the minimum required sight distance for all proposed access locations at this time. Refer to the VDOT RDM Appendix F, Table 2-5 for the minimum required intersection sight distance.
4. Turn lane lengths shall be in accordance with the VDOT RDM, Appendix F, Figure 3-1.
5. The right-in/right-out island can be removed on future plans as Rt. 360 is divided.
6. The doghouse manhole will need to be located out of the right turn lane/entrance movement.

Once these comments are addressed, submit revised documents with the applicant's comment response letter to this office for review. Should you have any questions concerning the plan review, contact Chad Brooks directly at (804) 761-2148.

Sincerely,

*Robert Butler*

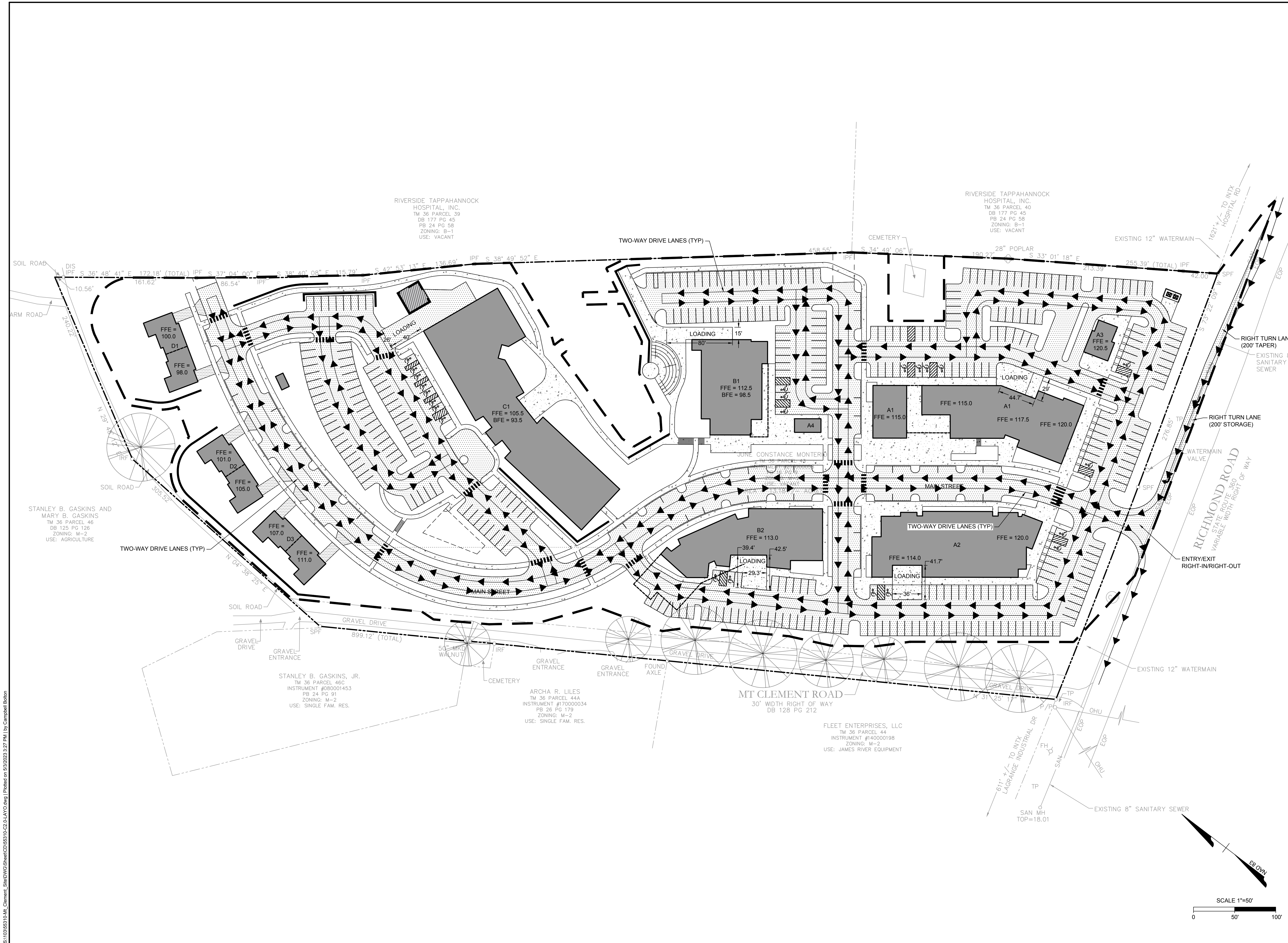
Robert Butler, P.E.  
Asst. Resident Engineer-Land Use

Cc: Wells & Associates, William Johnson, P.E.  
Timmons Group, Craig Kotarski, P.E.  
VDOT, Peter Hedrich, P.E.



VDOT, Lee McKnight





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2/24/2023

DRAWN BY  
C. BOLTON

DESIGNED BY  
C. BOLTON

CHECKED BY  
C. KOTARSKI

SCALE  
1" = 50'

REVISION DESCRIPTION  
REVISED PER VDOT COMMENTS

# TIMMONS GROUP

ESSEX POINT AT MOUNT CLEMENT  
 TAPPAHANNOCK, VIRGINIA  
 TRAFFIC CIRCULATION PLAN




















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HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

Attachment 3  
 Existing Conditions  
 AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|--|
| Movement                          | EBL   | EBT   | EBR   | WBU   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR   | SBL   | SBT   |  |
| Lane Configurations               |  |  |   |   |  |  |  |   |  |   |   |  |  |
| Traffic Volume (veh/h)            | 15  | 481   | 9   | 7   | 6   | 406   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Future Volume (Veh/h)             | 15  | 481   | 9   | 7   | 6   | 406   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Sign Control                      | Free  |   |   | Free  |   |   |  | Stop  |   |   | Stop  |   |  |
| Grade                             | 0%  |   |   | 0%  |   |   |  | 0%  |   |   | -3%   |   |  |
| Peak Hour Factor                  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |  |
| Hourly flow rate (vph)            | 15  | 491   | 9   | 0   | 6   | 414   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Median type                       | Raised  |   |   |   | Raised  |   |  |   |   |   |   |   |  |
| Median storage (veh)              | 2   |   |   |   | 2   |   |  |   |   |   |   |   |  |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| pX, platoon unblocked             | 0.00  |   |   |   |   |   |  |   |   |   |   |   |  |
| vC, conflicting volume            | 432   |   |   | 0   | 500   |   |  | 750   | 970   | 250   | 705   | 956   |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   | 526   | 526   |   |   |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   | 224   | 444   |   |   |  |
| vCu, unblocked vol                | 432   |   |   | 0   | 500   |   |  | 750   | 970   | 250   | 705   | 956   |  |
| tC, single (s)                    | 4.4   |   |   | 0.0   | 4.8   |   |  | 9.5   | 6.5   | 8.2   | 8.4   | 6.5   |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   | 8.5   | 5.5   |   |   |  |
| tF (s)                            | 2.3   |   |   | 0.0   | 2.5   |   |  | 4.5   | 4.0   | 4.0   | 3.9   | 4.0   |  |
| p0 queue free %                   | 99  |   |   | 0   | 99  |   |  | 99  | 100   | 99  | 97  | 100   |  |
| cM capacity (veh/h)               | 1050  |   |   | 0   | 871   |   |  | 289   | 433   | 585   | 417   | 438   |  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | WB 4   | NB 1  | SB 1  |   |   |   |  |
| Volume Total                      | 15  | 327   | 173   | 6   | 207   | 207   | 18   | 7   | 19  |   |   |   |  |
| Volume Left                       | 15  | 0   | 0   | 6   | 0   | 0   | 0  | 3   | 14  |   |   |   |  |
| Volume Right                      | 0   | 0   | 9   | 0   | 0   | 0   | 18   | 3   | 5   |   |   |   |  |
| cSH                               | 1050  | 1700  | 1700  | 871   | 1700  | 1700  | 1700   | 393   | 460   |   |   |   |  |
| Volume to Capacity                | 0.01  | 0.19  | 0.10  | 0.01  | 0.12  | 0.12  | 0.01   | 0.02  | 0.04  |   |   |   |  |
| Queue Length 95th (ft)            | 1   | 0   | 0   | 1   | 0   | 0   | 0  | 1   | 3   |   |   |   |  |
| Control Delay (s)                 | 8.5   | 0.0   | 0.0   | 9.2   | 0.0   | 0.0   | 0.0  | 14.3  | 13.2  |   |   |   |  |
| Lane LOS                          | A   |   |   | A   |   |   |  | B   |   | B   |   |   |  |
| Approach Delay (s)                | 0.2   |   |   |   | 0.1   |   |  |   | 14.3  | 13.2  |   |   |  |
| Approach LOS                      |   |   |   |   |   |   |  |   | B   | B   |   |   |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Average Delay                     |   |   | 0.5   |   |   |   |  |   |   |   |   |   |  |
| Intersection Capacity Utilization |   |   | 23.6%   |   | ICU Level of Service  |   |  |   | A   |   |   |   |  |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |  |

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

|                        |      |
|------------------------|------|
| Movement               | SBR  |
| Lane Configurations    |      |
| Traffic Volume (veh/h) | 5    |
| Future Volume (Veh/h)  | 5    |
| Sign Control           |      |
| Grade                  |      |
| Peak Hour Factor       | 0.98 |
| Hourly flow rate (vph) | 5    |
| Pedestrians            |      |
| Lane Width (ft)        |      |
| Walking Speed (ft/s)   |      |
| Percent Blockage       |      |
| Right turn flare (veh) |      |
| Median type            |      |
| Median storage (veh)   |      |
| Upstream signal (ft)   |      |
| pX, platoon unblocked  |      |
| vC, conflicting volume | 207  |
| vC1, stage 1 conf vol  |      |
| vC2, stage 2 conf vol  |      |
| vCu, unblocked vol     | 207  |
| tC, single (s)         | 8.1  |
| tC, 2 stage (s)        |      |
| tF (s)                 | 3.9  |
| p0 queue free %        | 99   |
| cM capacity (veh/h)    | 647  |
| Direction, Lane #      |      |


















HCM Unsignalized Intersection Capacity Analysis  
2: Richmond Hwy & Mt. Clement



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↗    |
| Traffic Volume (veh/h)            | 0           | 498         | 438         | 0                    | 0           | 0    |
| Future Volume (Veh/h)             | 0           | 498         | 438         | 0                    | 0           | 0    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.98        | 0.98        | 0.98        | 0.98                 | 0.98        | 0.98 |
| Hourly flow rate (vph)            | 0           | 508         | 447         | 0                    | 0           | 0    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 447         |             |             |                      | 701         | 224  |
| vC1, stage 1 conf vol             |             |             |             |                      | 447         |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 254         |      |
| vCu, unblocked vol                | 447         |             |             |                      | 701         | 224  |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |      |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3  |
| p0 queue free %                   | 100         |             |             |                      | 100         | 100  |
| cM capacity (veh/h)               | 1110        |             |             |                      | 476         | 780  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 254         | 254         | 298         | 149                  | 0           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 1700        |      |
| Volume to Capacity                | 0.15        | 0.15        | 0.18        | 0.09                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 0.0         |      |
| Lane LOS                          |             |             |             |                      | A           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 0.0                  |             |      |
| Approach LOS                      |             |             |             |                      | A           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 17.1%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |

HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

Attachment 3  
Existing Conditions  
AM Peak Hour

|                                   |  |  |  |  |    |  |  |  |  |  |  |  |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |     |
| Lane Configurations               |   |   |   |   |   |  |  |  |   |   |  |   |     |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 428   | 118   | 0  | 32  | 0   | 0   | 33  | 10  |     |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 428   | 118   | 0  | 32  | 0   | 0   | 33  | 10  |     |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |     |
| Grade                             |   | -2%   |   |   | 2%  |   |  | 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  |     |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 465   | 128   | 0  | 35  | 0   | 0   | 36  | 11  |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Median type                       | None  |   |   |   | None  |   |  |   |   |   |   |   |     |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |     |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC, conflicting volume            | 593   |   |   |   | 0   |   |  | 262   | 593   | 0   | 482   | 465   | 232 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vCu, unblocked vol                | 593   |   |   |   | 0   |   |  | 262   | 593   | 0   | 482   | 465   | 232 |
| tC, single (s)                    | 4.1   |   |   |   | 4.1   |   |  | 7.5   | 6.6   | 6.9   | 7.5   | 6.7   | 6.9 |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| tF (s)                            | 2.2   |   |   |   | 2.2   |   |  | 3.5   | 4.0   | 3.3   | 3.5   | 4.1   | 3.3 |
| p0 queue free %                   | 100   |   |   |   | 100   |   |  | 100   | 92  | 100   | 100   | 92  | 99  |
| cM capacity (veh/h)               | 993   |   |   |   | 1636  |   |  | 628   | 415   | 1091  | 441   | 478   | 776 |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |     |
| Volume Total                      | 155   | 310   | 128   | 35  | 47  |   |  |   |   |   |   |   |     |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |  |   |   |   |   |   |     |
| Volume Right                      | 0   | 0   | 128   | 0   | 11  |   |  |   |   |   |   |   |     |
| cSH                               | 1636  | 1700  | 1700  | 415   | 525   |   |  |   |   |   |   |   |     |
| Volume to Capacity                | 0.00  | 0.18  | 0.08  | 0.08  | 0.09  |   |  |   |   |   |   |   |     |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 7   | 7   |   |  |   |   |   |   |   |     |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 14.5  | 12.5  |   |  |   |   |   |   |   |     |
| Lane LOS                          |   |   |   |   | B   | B   |  |   |   |   |   |   |     |
| Approach Delay (s)                | 0.0   |   |   |   | 14.5  | 12.5  |  |   |   |   |   |   |     |
| Approach LOS                      |   |   |   |   | B   | B   |  |   |   |   |   |   |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Average Delay                     |   |   |   | 1.6   |   |   |  |   |   |   |   |   |     |
| Intersection Capacity Utilization |   |   |   | 21.8%   | ICU Level of Service  |   |  |   |   | A   |   |   |     |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |     |

Queues

7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 84   | 253  | 495  |
| v/c Ratio               | 0.42 | 0.41 | 0.78 |
| Control Delay           | 47.4 | 34.7 | 37.1 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 47.4 | 34.7 | 37.1 |
| Queue Length 50th (ft)  | 51   | 144  | 276  |
| Queue Length 95th (ft)  | 95   | #266 | 339  |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 405  | 624  | 704  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.21 | 0.41 | 0.70 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 76    | 230   | 450   |
| Future Volume (vph)    | 76    | 230   | 450   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1827  | 1667  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1827  | 1667  | 1762  |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)        | 84    | 253   | 495   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 84    | 253   | 495   |
| Heavy Vehicles (%)     | 4%    | 14%   | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 9.5   | 36.3  | 35.9  |
| Effective Green, g (s) | 9.5   | 36.3  | 35.9  |
| Actuated g/C Ratio     | 0.10  | 0.36  | 0.36  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 173   | 605   | 632   |
| v/s Ratio Prot         | c0.05 | c0.15 | c0.28 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.49  | 0.42  | 0.78  |
| Uniform Delay, d1      | 42.9  | 23.9  | 28.6  |
| Progression Factor     | 1.00  | 1.16  | 1.00  |
| Incremental Delay, d2  | 2.9   | 2.1   | 7.5   |
| Delay (s)              | 45.8  | 29.8  | 36.1  |
| Level of Service       | D     | C     | D     |
| Approach Delay (s)     | 45.8  | 29.8  | 36.1  |
| Approach LOS           | D     | C     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 35.2  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.59  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 56.0% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR                  | SBL  | SBR  |
|-----------------------------------|------|--------|--------|----------------------|------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗                    |      | ↗    |
| Traffic Volume (veh/h)            | 0    | 498    | 429    | 6                    | 0    | 8    |
| Future Volume (Veh/h)             | 0    | 498    | 429    | 6                    | 0    | 8    |
| Sign Control                      |      | Free   | Free   |                      | Stop |      |
| Grade                             |      | 0%     | 0%     |                      | 0%   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98                 | 0.98 | 0.98 |
| Hourly flow rate (vph)            | 0    | 508    | 438    | 6                    | 0    | 8    |
| <b>Pedestrians</b>                |      |        |        |                      |      |      |
| Lane Width (ft)                   |      |        |        |                      |      |      |
| Walking Speed (ft/s)              |      |        |        |                      |      |      |
| Percent Blockage                  |      |        |        |                      |      |      |
| Right turn flare (veh)            |      |        |        |                      |      |      |
| Median type                       |      | Raised | Raised |                      |      |      |
| Median storage (veh)              |      | 1      | 1      |                      |      |      |
| Upstream signal (ft)              |      |        |        |                      |      |      |
| pX, platoon unblocked             |      |        |        |                      |      |      |
| vC, conflicting volume            | 444  |        |        |                      | 692  | 219  |
| vC1, stage 1 conf vol             |      |        |        |                      | 438  |      |
| vC2, stage 2 conf vol             |      |        |        |                      | 254  |      |
| vCu, unblocked vol                | 444  |        |        |                      | 692  | 219  |
| tC, single (s)                    | 4.1  |        |        |                      | 6.8  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |                      | 5.8  |      |
| tF (s)                            | 2.2  |        |        |                      | 3.5  | 3.3  |
| p0 queue free %                   | 100  |        |        |                      | 100  | 99   |
| cM capacity (veh/h)               | 1112 |        |        |                      | 480  | 785  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2                 | WB 3 | SB 1 |
| Volume Total                      | 254  | 254    | 219    | 219                  | 6    | 8    |
| Volume Left                       | 0    | 0      | 0      | 0                    | 0    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0                    | 6    | 8    |
| cSH                               | 1700 | 1700   | 1700   | 1700                 | 1700 | 785  |
| Volume to Capacity                | 0.15 | 0.15   | 0.13   | 0.13                 | 0.00 | 0.01 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0                    | 0    | 1    |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0                  | 0.0  | 9.6  |
| Lane LOS                          |      |        |        |                      |      | A    |
| Approach Delay (s)                | 0.0  | 0.0    |        |                      |      | 9.6  |
| Approach LOS                      |      |        |        |                      |      | A    |
| <b>Intersection Summary</b>       |      |        |        |                      |      |      |
| Average Delay                     |      |        | 0.1    |                      |      |      |
| Intersection Capacity Utilization |      |        | 21.9%  | ICU Level of Service | A    |      |
| Analysis Period (min)             |      |        | 15     |                      |      |      |

HCM Unsignalized Intersection Capacity Analysis  
9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     |      |                      |      |
| Traffic Volume (veh/h)            | 0    | 498    | 425    | 3    | 0                    | 0    |
| Future Volume (Veh/h)             | 0    | 498    | 425    | 3    | 0                    | 0    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98 | 0.98                 | 0.98 |
| Hourly flow rate (vph)            | 0    | 508    | 434    | 3    | 0                    | 0    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 437  |        |        |      | 690                  | 218  |
| vC1, stage 1 conf vol             |      |        |        |      | 436                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 254                  |      |
| vCu, unblocked vol                | 437  |        |        |      | 690                  | 218  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 100  |
| cM capacity (veh/h)               | 1119 |        |        |      | 481                  | 786  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 |                      |      |
| Volume Total                      | 254  | 254    | 289    | 148  |                      |      |
| Volume Left                       | 0    | 0      | 0      | 0    |                      |      |
| Volume Right                      | 0    | 0      | 0      | 3    |                      |      |
| cSH                               | 1700 | 1700   | 1700   | 1700 |                      |      |
| Volume to Capacity                | 0.15 | 0.15   | 0.17   | 0.09 |                      |      |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    |                      |      |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  |                      |      |
| Lane LOS                          |      |        |        |      |                      |      |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      |      |
| Approach LOS                      |      |        |        |      |                      |      |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.0    |      |                      |      |
| Intersection Capacity Utilization |      |        | 17.1%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

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HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

Attachment 3  
 Existing Conditions  
 PM Peak Hour



| Movement                          | EBU  | EBL  | EBT    | EBR  | WBU  | WBL                  | WBT    | WBR  | NBL  | NBT  | NBR  | SBL  |
|-----------------------------------|------|------|--------|------|------|----------------------|--------|------|------|------|------|------|
| Lane Configurations               |      | ↔    | ↕      |      |      | ↔                    | ↕      | ↗    |      | ↕    |      |      |
| Traffic Volume (veh/h)            | 1    | 6    | 503    | 4    | 15   | 5                    | 558    | 8    | 5    | 0    | 7    | 21   |
| Future Volume (Veh/h)             | 1    | 6    | 503    | 4    | 15   | 5                    | 558    | 8    | 5    | 0    | 7    | 21   |
| Sign Control                      |      |      | Free   |      |      |                      | Free   |      |      | Stop |      |      |
| Grade                             |      |      | 0%     |      |      |                      | 0%     |      |      | 0%   |      |      |
| Peak Hour Factor                  | 0.96 | 0.96 | 0.96   | 0.96 | 0.96 | 0.96                 | 0.96   | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph)            | 0    | 6    | 524    | 4    | 0    | 5                    | 581    | 8    | 5    | 0    | 7    | 22   |
| Pedestrians                       |      |      |        |      |      |                      |        |      |      |      |      |      |
| Lane Width (ft)                   |      |      |        |      |      |                      |        |      |      |      |      |      |
| Walking Speed (ft/s)              |      |      |        |      |      |                      |        |      |      |      |      |      |
| Percent Blockage                  |      |      |        |      |      |                      |        |      |      |      |      |      |
| Right turn flare (veh)            |      |      |        |      |      |                      |        |      |      |      |      |      |
| Median type                       |      |      | Raised |      |      |                      | Raised |      |      |      |      |      |
| Median storage (veh)              |      |      | 2      |      |      |                      | 2      |      |      |      |      |      |
| Upstream signal (ft)              |      |      |        |      |      |                      |        |      |      |      |      |      |
| pX, platoon unblocked             | 0.00 |      |        |      | 0.00 |                      |        |      |      |      |      |      |
| vC, conflicting volume            | 0    | 589  |        |      | 0    | 528                  |        |      | 850  | 1137 | 264  | 872  |
| vC1, stage 1 conf vol             |      |      |        |      |      |                      |        |      | 538  | 538  |      | 591  |
| vC2, stage 2 conf vol             |      |      |        |      |      |                      |        |      | 312  | 599  |      | 281  |
| vCu, unblocked vol                | 0    | 589  |        |      | 0    | 528                  |        |      | 850  | 1137 | 264  | 872  |
| tC, single (s)                    | 0.0  | 4.1  |        |      | 0.0  | 4.1                  |        |      | 8.3  | 6.5  | 7.5  | 7.9  |
| tC, 2 stage (s)                   |      |      |        |      |      |                      |        |      | 7.3  | 5.5  |      | 6.9  |
| tF (s)                            | 0.0  | 2.2  |        |      | 0.0  | 2.2                  |        |      | 3.9  | 4.0  | 3.6  | 3.7  |
| p0 queue free %                   | 0    | 99   |        |      | 0    | 100                  |        |      | 99   | 100  | 99   | 94   |
| cM capacity (veh/h)               | 0    | 996  |        |      | 0    | 1049                 |        |      | 361  | 392  | 659  | 382  |
| Direction, Lane #                 | EB 1 | EB 2 | EB 3   | WB 1 | WB 2 | WB 3                 | WB 4   | NB 1 | SB 1 |      |      |      |
| Volume Total                      | 6    | 349  | 179    | 5    | 290  | 290                  | 8      | 12   | 33   |      |      |      |
| Volume Left                       | 6    | 0    | 0      | 5    | 0    | 0                    | 0      | 5    | 22   |      |      |      |
| Volume Right                      | 0    | 0    | 4      | 0    | 0    | 0                    | 8      | 7    | 11   |      |      |      |
| cSH                               | 996  | 1700 | 1700   | 1049 | 1700 | 1700                 | 1700   | 490  | 448  |      |      |      |
| Volume to Capacity                | 0.01 | 0.21 | 0.11   | 0.00 | 0.17 | 0.17                 | 0.00   | 0.02 | 0.07 |      |      |      |
| Queue Length 95th (ft)            | 0    | 0    | 0      | 0    | 0    | 0                    | 0      | 2    | 6    |      |      |      |
| Control Delay (s)                 | 8.6  | 0.0  | 0.0    | 8.4  | 0.0  | 0.0                  | 0.0    | 12.5 | 13.7 |      |      |      |
| Lane LOS                          | A    |      |        | A    |      |                      |        | B    | B    |      |      |      |
| Approach Delay (s)                | 0.1  |      |        | 0.1  |      |                      |        | 12.5 | 13.7 |      |      |      |
| Approach LOS                      |      |      |        |      |      |                      |        | B    | B    |      |      |      |
| Intersection Summary              |      |      |        |      |      |                      |        |      |      |      |      |      |
| Average Delay                     |      |      | 0.6    |      |      |                      |        |      |      |      |      |      |
| Intersection Capacity Utilization |      |      | 26.6%  |      |      | ICU Level of Service |        |      |      | A    |      |      |
| Analysis Period (min)             |      |      | 15     |      |      |                      |        |      |      |      |      |      |

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy



| Movement               | SBT  | SBR  |
|------------------------|------|------|
| Lane Configurations    | ↕    |      |
| Traffic Volume (veh/h) | 0    | 11   |
| Future Volume (Veh/h)  | 0    | 11   |
| Sign Control           | Stop |      |
| Grade                  | -3%  |      |
| Peak Hour Factor       | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0    | 11   |
| Pedestrians            |      |      |
| Lane Width (ft)        |      |      |
| Walking Speed (ft/s)   |      |      |
| Percent Blockage       |      |      |
| Right turn flare (veh) |      |      |
| Median type            |      |      |
| Median storage veh)    |      |      |
| Upstream signal (ft)   |      |      |
| pX, platoon unblocked  |      |      |
| vC, conflicting volume | 1131 | 290  |
| vC1, stage 1 conf vol  | 591  |      |
| vC2, stage 2 conf vol  | 540  |      |
| vCu, unblocked vol     | 1131 | 290  |
| tC, single (s)         | 6.5  | 7.1  |
| tC, 2 stage (s)        | 5.5  |      |
| tF (s)                 | 4.0  | 3.4  |
| p0 queue free %        | 100  | 98   |
| cM capacity (veh/h)    | 395  | 686  |
| Direction, Lane #      |      |      |

















HCM Unsignalized Intersection Capacity Analysis  
 2: Richmond Hwy & Mt. Clement



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↑    |
| Traffic Volume (veh/h)            | 0           | 531         | 565         | 1                    | 0           | 2    |
| Future Volume (Veh/h)             | 0           | 531         | 565         | 1                    | 0           | 2    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96        | 0.96 |
| Hourly flow rate (vph)            | 0           | 553         | 589         | 1                    | 0           | 2    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 590         |             |             |                      | 866         | 295  |
| vC1, stage 1 conf vol             |             |             |             |                      | 590         |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 276         |      |
| vCu, unblocked vol                | 590         |             |             |                      | 866         | 295  |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |      |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3  |
| p0 queue free %                   | 100         |             |             |                      | 100         | 100  |
| cM capacity (veh/h)               | 982         |             |             |                      | 404         | 701  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 276         | 276         | 393         | 197                  | 2           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 1                    | 2           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 701         |      |
| Volume to Capacity                | 0.16        | 0.16        | 0.23        | 0.12                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 10.1        |      |
| Lane LOS                          |             |             |             |                      | B           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 10.1                 |             |      |
| Approach LOS                      |             |             |             |                      | B           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 25.6%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |

HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

Attachment 3  
Existing Conditions  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |     |
| Lane Configurations               |   |   |   |   |  |  |  |  |   |   |  |   |     |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 534   | 32  | 0  | 7   | 0   | 0   | 110   | 32  |     |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 534   | 32  | 0  | 7   | 0   | 0   | 110   | 32  |     |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |     |
| Grade                             |   | -2%   |   |   | 2%  |   |  | 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  |     |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 551   | 33  | 0  | 7   | 0   | 0   | 113   | 33  |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Median type                       | None  |   |   |   | None  |   |  |   |   |   |   |   |     |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |     |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC, conflicting volume            | 584   |   |   |   | 0   |   |  | 365   | 584   | 0   | 554   | 551   | 276 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vCu, unblocked vol                | 584   |   |   |   | 0   |   |  | 365   | 584   | 0   | 554   | 551   | 276 |
| tC, single (s)                    | 4.1   |   |   |   | 4.1   |   |  | 7.5   | 6.8   | 6.9   | 7.5   | 6.6   | 7.0 |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| tF (s)                            | 2.2   |   |   |   | 2.2   |   |  | 3.5   | 4.1   | 3.3   | 3.5   | 4.0   | 3.3 |
| p0 queue free %                   | 100   |   |   |   | 100   |   |  | 100   | 98  | 100   | 100   | 74  | 95  |
| cM capacity (veh/h)               | 1001  |   |   |   | 1636  |   |  | 436   | 398   | 1091  | 414   | 436   | 716 |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |     |
| Volume Total                      | 184   | 367   | 33  | 7   | 146   |   |  |   |   |   |   |   |     |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |  |   |   |   |   |   |     |
| Volume Right                      | 0   | 0   | 33  | 0   | 33  |   |  |   |   |   |   |   |     |
| cSH                               | 1636  | 1700  | 1700  | 398   | 479   |   |  |   |   |   |   |   |     |
| Volume to Capacity                | 0.00  | 0.22  | 0.02  | 0.02  | 0.31  |   |  |   |   |   |   |   |     |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 1   | 32  |   |  |   |   |   |   |   |     |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 14.2  | 15.8  |   |  |   |   |   |   |   |     |
| Lane LOS                          |   |   |   |   | B   | C   |  |   |   |   |   |   |     |
| Approach Delay (s)                | 0.0   |   |   |   | 14.2  | 15.8  |  |   |   |   |   |   |     |
| Approach LOS                      |   |   |   |   | B   | C   |  |   |   |   |   |   |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Average Delay                     |   |   |   | 3.3   |   |   |  |   |   |   |   |   |     |
| Intersection Capacity Utilization |   |   |   | 29.2%   | ICU Level of Service  |   |  |   |   | A   |   |   |     |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |     |

Queues

7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 49   | 472  | 590  |
| v/c Ratio               | 0.33 | 0.72 | 0.88 |
| Control Delay           | 48.0 | 42.0 | 44.5 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 48.0 | 42.0 | 44.5 |
| Queue Length 50th (ft)  | 30   | 321  | 326  |
| Queue Length 95th (ft)  | 65   | #466 | #535 |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 181  | 660  | 700  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.27 | 0.72 | 0.84 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 46    | 444   | 555   |
| Future Volume (vph)    | 46    | 444   | 555   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1624  | 1792  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1624  | 1792  | 1762  |
| Peak-hour factor, PHF  | 0.94  | 0.94  | 0.94  |
| Adj. Flow (vph)        | 49    | 472   | 590   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 49    | 472   | 590   |
| Heavy Vehicles (%)     | 17%   | 6%    | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 7.8   | 35.7  | 38.2  |
| Effective Green, g (s) | 7.8   | 35.7  | 38.2  |
| Actuated g/C Ratio     | 0.08  | 0.36  | 0.38  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 126   | 639   | 673   |
| v/s Ratio Prot         | c0.03 | c0.26 | c0.33 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.39  | 0.74  | 0.88  |
| Uniform Delay, d1      | 43.8  | 28.1  | 28.7  |
| Progression Factor     | 1.00  | 1.18  | 1.00  |
| Incremental Delay, d2  | 2.7   | 7.3   | 13.5  |
| Delay (s)              | 46.5  | 40.4  | 42.2  |
| Level of Service       | D     | D     | D     |
| Approach Delay (s)     | 46.5  | 40.4  | 42.2  |
| Approach LOS           | D     | D     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 41.7  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.77  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 72.8% | ICU Level of Service      | C    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          | ↗                    |             | ↗           |
| Traffic Volume (veh/h)            | 0           | 531         | 560         | 3                    | 0           | 17          |
| Future Volume (Veh/h)             | 0           | 531         | 560         | 3                    | 0           | 17          |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96        | 0.96        |
| Hourly flow rate (vph)            | 0           | 553         | 583         | 3                    | 0           | 18          |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| Lane Width (ft)                   |             |             |             |                      |             |             |
| Walking Speed (ft/s)              |             |             |             |                      |             |             |
| Percent Blockage                  |             |             |             |                      |             |             |
| Right turn flare (veh)            |             |             |             |                      |             |             |
| Median type                       |             | Raised      | Raised      |                      |             |             |
| Median storage (veh)              |             | 1           | 1           |                      |             |             |
| Upstream signal (ft)              |             |             |             |                      |             |             |
| pX, platoon unblocked             |             |             |             |                      |             |             |
| vC, conflicting volume            | 586         |             |             |                      | 860         | 292         |
| vC1, stage 1 conf vol             |             |             |             |                      | 583         |             |
| vC2, stage 2 conf vol             |             |             |             |                      | 276         |             |
| vCu, unblocked vol                | 586         |             |             |                      | 860         | 292         |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 7.1         |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.4         |
| p0 queue free %                   | 100         |             |             |                      | 100         | 97          |
| cM capacity (veh/h)               | 985         |             |             |                      | 407         | 676         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>WB 3</b> | <b>SB 1</b> |
| Volume Total                      | 276         | 276         | 292         | 292                  | 3           | 18          |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 3           | 18          |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 1700        | 676         |
| Volume to Capacity                | 0.16        | 0.16        | 0.17        | 0.17                 | 0.00        | 0.03        |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           | 2           |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 0.0         | 10.5        |
| Lane LOS                          |             |             |             |                      |             | B           |
| Approach Delay (s)                | 0.0         | 0.0         |             |                      |             | 10.5        |
| Approach LOS                      |             |             |             |                      |             | B           |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 0.2         |                      |             |             |
| Intersection Capacity Utilization |             |             | 25.5%       | ICU Level of Service | A           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

HCM Unsignalized Intersection Capacity Analysis  
 9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     |      |                      |      |
| Traffic Volume (veh/h)            | 0    | 531    | 563    | 4    | 0                    | 0    |
| Future Volume (Veh/h)             | 0    | 531    | 563    | 4    | 0                    | 0    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.96 | 0.96   | 0.96   | 0.96 | 0.96                 | 0.96 |
| Hourly flow rate (vph)            | 0    | 553    | 586    | 4    | 0                    | 0    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 590  |        |        |      | 864                  | 295  |
| vC1, stage 1 conf vol             |      |        |        |      | 588                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 276                  |      |
| vCu, unblocked vol                | 590  |        |        |      | 864                  | 295  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 100  |
| cM capacity (veh/h)               | 982  |        |        |      | 405                  | 701  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 |                      |      |
| Volume Total                      | 276  | 276    | 391    | 199  |                      |      |
| Volume Left                       | 0    | 0      | 0      | 0    |                      |      |
| Volume Right                      | 0    | 0      | 0      | 4    |                      |      |
| cSH                               | 1700 | 1700   | 1700   | 1700 |                      |      |
| Volume to Capacity                | 0.16 | 0.16   | 0.23   | 0.12 |                      |      |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    |                      |      |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  |                      |      |
| Lane LOS                          |      |        |        |      |                      |      |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      |      |
| Approach LOS                      |      |        |        |      |                      |      |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.0    |      |                      |      |
| Intersection Capacity Utilization |      |        | 19.0%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |



Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.




















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# HCM Unsignalized Intersection Capacity Analysis

## 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

2027 Background Conditions

AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|--|
| Movement                          | EBL   | EBT   | EBR   | WBU   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR   | SBL   | SBT   |  |
| Lane Configurations               |  |  |   |   |  |  |  |   |  |   |   |  |  |
| Traffic Volume (veh/h)            | 15  | 506   | 9   | 7   | 6   | 427   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Future Volume (Veh/h)             | 15  | 506   | 9   | 7   | 6   | 427   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Sign Control                      |   | Free  |   |   |   | Free  |  |   | Stop  |   |   | Stop  |  |
| Grade                             |   | 0%  |   |   |   | 0%  |  |   | 0%  |   |   | -3%   |  |
| Peak Hour Factor                  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |  |
| Hourly flow rate (vph)            | 15  | 516   | 9   | 0   | 6   | 436   | 18   | 3   | 1   | 3   | 14  | 0   |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Median type                       |   | Raised  |   |   |   |   |  | Raised  |   |   |   |   |  |
| Median storage (veh)              |   | 2   |   |   |   |   |  | 2   |   |   |   |   |  |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| pX, platoon unblocked             |   |   |   | 0.00  |   |   |  |   |   |   |   |   |  |
| vC, conflicting volume            | 454   |   |   | 0   | 525   |   |  | 786   | 1016  | 262   | 740   | 1003  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  | 550   | 550   |   | 448   | 448   |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  | 235   | 466   |   | 292   | 555   |  |
| vCu, unblocked vol                | 454   |   |   | 0   | 525   |   |  | 786   | 1016  | 262   | 740   | 1003  |  |
| tC, single (s)                    | 4.4   |   |   | 0.0   | 4.8   |   |  | 9.5   | 6.5   | 8.2   | 8.4   | 6.5   |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  | 8.5   | 5.5   |   | 7.4   | 5.5   |  |
| tF (s)                            | 2.3   |   |   | 0.0   | 2.5   |   |  | 4.5   | 4.0   | 4.0   | 3.9   | 4.0   |  |
| p0 queue free %                   | 99  |   |   | 0   | 99  |   |  | 99  | 100   | 99  | 97  | 100   |  |
| cM capacity (veh/h)               | 1029  |   |   | 0   | 850   |   |  | 276   | 420   | 573   | 403   | 425   |  |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | WB 4   | NB 1  | SB 1  |   |   |   |  |
| Volume Total                      | 15  | 344   | 181   | 6   | 218   | 218   | 18   | 7   | 19  |   |   |   |  |
| Volume Left                       | 15  | 0   | 0   | 6   | 0   | 0   | 0  | 3   | 14  |   |   |   |  |
| Volume Right                      | 0   | 0   | 9   | 0   | 0   | 0   | 18   | 3   | 5   |   |   |   |  |
| cSH                               | 1029  | 1700  | 1700  | 850   | 1700  | 1700  | 1700   | 378   | 445   |   |   |   |  |
| Volume to Capacity                | 0.01  | 0.20  | 0.11  | 0.01  | 0.13  | 0.13  | 0.01   | 0.02  | 0.04  |   |   |   |  |
| Queue Length 95th (ft)            | 1   | 0   | 0   | 1   | 0   | 0   | 0  | 1   | 3   |   |   |   |  |
| Control Delay (s)                 | 8.6   | 0.0   | 0.0   | 9.3   | 0.0   | 0.0   | 0.0  | 14.7  | 13.4  |   |   |   |  |
| Lane LOS                          | A   |   |   | A   |   |   |  | B   | B   |   |   |   |  |
| Approach Delay (s)                | 0.2   |   |   | 0.1   |   |   |  | 14.7  | 13.4  |   |   |   |  |
| Approach LOS                      |   |   |   |   |   |   |  | B   | B   |   |   |   |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Average Delay                     |   |   | 0.5   |   |   |   |  |   |   |   |   |   |  |
| Intersection Capacity Utilization |   | 24.3%   |   |   | ICU Level of Service  |   |  |   |   | A   |   |   |  |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |  |

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

|                        |      |
|------------------------|------|
| Movement               | SBR  |
| Lane Configurations    |      |
| Traffic Volume (veh/h) | 5    |
| Future Volume (Veh/h)  | 5    |
| Sign Control           |      |
| Grade                  |      |
| Peak Hour Factor       | 0.98 |
| Hourly flow rate (vph) | 5    |
| Pedestrians            |      |
| Lane Width (ft)        |      |
| Walking Speed (ft/s)   |      |
| Percent Blockage       |      |
| Right turn flare (veh) |      |
| Median type            |      |
| Median storage (veh)   |      |
| Upstream signal (ft)   |      |
| pX, platoon unblocked  |      |
| vC, conflicting volume | 218  |
| vC1, stage 1 conf vol  |      |
| vC2, stage 2 conf vol  |      |
| vCu, unblocked vol     | 218  |
| tC, single (s)         | 8.1  |
| tC, 2 stage (s)        |      |
| tF (s)                 | 3.9  |
| p0 queue free %        | 99   |
| cM capacity (veh/h)    | 635  |
| Direction, Lane #      |      |

HCM Unsignalized Intersection Capacity Analysis  
2: Richmond Hwy & Mt. Clement



















| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↗    |
| Traffic Volume (veh/h)            | 0           | 523         | 460         | 0                    | 0           | 0    |
| Future Volume (Veh/h)             | 0           | 523         | 460         | 0                    | 0           | 0    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.98        | 0.98        | 0.98        | 0.98                 | 0.98        | 0.98 |
| Hourly flow rate (vph)            | 0           | 534         | 469         | 0                    | 0           | 0    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 469         |             |             |                      | 736         | 234  |
| vC1, stage 1 conf vol             |             |             |             |                      | 469         |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 267         |      |
| vCu, unblocked vol                | 469         |             |             |                      | 736         | 234  |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |      |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3  |
| p0 queue free %                   | 100         |             |             |                      | 100         | 100  |
| cM capacity (veh/h)               | 1089        |             |             |                      | 461         | 767  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 267         | 267         | 313         | 156                  | 0           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 1700        |      |
| Volume to Capacity                | 0.16        | 0.16        | 0.18        | 0.09                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 0.0         |      |
| Lane LOS                          |             |             |             |                      | A           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 0.0                  |             |      |
| Approach LOS                      |             |             |             |                      | A           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 17.8%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |



HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

Attachment 3  
2027 Background Conditions  
AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |  |
| Lane Configurations               |   |   |   |   |  |  |  |  |   |   |  |   |  |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 450   | 118   | 0  | 32  | 0   | 0   | 33  | 10  |  |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 450   | 118   | 0  | 32  | 0   | 0   | 33  | 10  |  |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |  |
| Grade                             |   | -2%   |   |   | 2%  |   |  | 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  |  |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 489   | 128   | 0  | 35  | 0   | 0   | 36  | 11  |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Median type                       | None  |   |   |   | None  |   |  |   |   |   |   |   |  |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |  |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |  |
| vC, conflicting volume            | 617   | 0   |   |   | 274   |   |  | 617   | 0   | 506   | 489   | 244   |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |  |
| vCu, unblocked vol                | 617   | 0   |   |   | 274   |   |  | 617   | 0   | 506   | 489   | 244   |  |
| tC, single (s)                    | 4.1   | 4.1   |   |   | 7.5   |   |  | 6.6   | 6.9   | 7.5   | 6.7   | 6.9   |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |  |
| tF (s)                            | 2.2   | 2.2   |   |   | 3.5   |   |  | 4.0   | 3.3   | 3.5   | 4.1   | 3.3   |  |
| p0 queue free %                   | 100   | 100   |   |   | 100   |   |  | 91  | 100   | 100   | 92  | 99  |  |
| cM capacity (veh/h)               | 973   | 1636  |   |   | 614   |   |  | 402   | 1091  | 423   | 463   | 762   |  |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |  |
| Volume Total                      | 163   | 326   | 128   | 35  | 47  |   |  |   |   |   |   |   |  |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |  |   |   |   |   |   |  |
| Volume Right                      | 0   | 0   | 128   | 0   | 11  |   |  |   |   |   |   |   |  |
| cSH                               | 1636  | 1700  | 1700  | 402   | 510   |   |  |   |   |   |   |   |  |
| Volume to Capacity                | 0.00  | 0.19  | 0.08  | 0.09  | 0.09  |   |  |   |   |   |   |   |  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 7   | 8   |   |  |   |   |   |   |   |  |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 14.8  | 12.8  |   |  |   |   |   |   |   |  |
| Lane LOS                          |   |   |   |   | B   |   |  |   | B   |   |   |   |  |
| Approach Delay (s)                | 0.0   |   |   |   | 14.8  |   |  |   | 12.8  |   |   |   |  |
| Approach LOS                      |   |   |   |   | B   |   |  |   | B   |   |   |   |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |  |
| Average Delay                     | 1.6   |   |   |   |   |   |  |   |   |   |   |   |  |
| Intersection Capacity Utilization | 22.4%   |   |   | ICU Level of Service  |   |   |  |   | A   |   |   |   |  |
| Analysis Period (min)             | 15  |   |   |   |   |   |  |   |   |   |   |   |  |

Queues

7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 88   | 266  | 520  |
| v/c Ratio               | 0.44 | 0.44 | 0.80 |
| Control Delay           | 47.5 | 36.2 | 37.2 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 47.5 | 36.2 | 37.2 |
| Queue Length 50th (ft)  | 53   | 159  | 288  |
| Queue Length 95th (ft)  | 98   | #285 | 364  |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 405  | 602  | 709  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.22 | 0.44 | 0.73 |

Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 80    | 242   | 473   |
| Future Volume (vph)    | 80    | 242   | 473   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1827  | 1667  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1827  | 1667  | 1762  |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)        | 88    | 266   | 520   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 88    | 266   | 520   |
| Heavy Vehicles (%)     | 4%    | 14%   | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 9.6   | 35.0  | 37.1  |
| Effective Green, g (s) | 9.6   | 35.0  | 37.1  |
| Actuated g/C Ratio     | 0.10  | 0.35  | 0.37  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 175   | 583   | 653   |
| v/s Ratio Prot         | c0.05 | c0.16 | c0.30 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.50  | 0.46  | 0.80  |
| Uniform Delay, d1      | 42.9  | 25.1  | 28.1  |
| Progression Factor     | 1.00  | 1.15  | 1.00  |
| Incremental Delay, d2  | 3.1   | 2.5   | 7.9   |
| Delay (s)              | 46.0  | 31.6  | 36.0  |
| Level of Service       | D     | C     | D     |
| Approach Delay (s)     | 46.0  | 31.6  | 36.0  |
| Approach LOS           | D     | C     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 35.6  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.62  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 57.9% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗    |                      | ↗    |
| Traffic Volume (veh/h)            | 0    | 523    | 451    | 6    | 0                    | 8    |
| Future Volume (Veh/h)             | 0    | 523    | 451    | 6    | 0                    | 8    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98 | 0.98                 | 0.98 |
| Hourly flow rate (vph)            | 0    | 534    | 460    | 6    | 0                    | 8    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 466  |        |        |      | 727                  | 230  |
| vC1, stage 1 conf vol             |      |        |        |      | 460                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 267                  |      |
| vCu, unblocked vol                | 466  |        |        |      | 727                  | 230  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 99   |
| cM capacity (veh/h)               | 1092 |        |        |      | 465                  | 772  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 | WB 3                 | SB 1 |
| Volume Total                      | 267  | 267    | 230    | 230  | 6                    | 8    |
| Volume Left                       | 0    | 0      | 0      | 0    | 0                    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0    | 6                    | 8    |
| cSH                               | 1700 | 1700   | 1700   | 1700 | 1700                 | 772  |
| Volume to Capacity                | 0.16 | 0.16   | 0.14   | 0.14 | 0.00                 | 0.01 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    | 0                    | 1    |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  | 0.0                  | 9.7  |
| Lane LOS                          |      |        |        |      |                      | A    |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      | 9.7  |
| Approach LOS                      |      |        |        |      |                      | A    |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.1    |      |                      |      |
| Intersection Capacity Utilization |      |        | 22.5%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

HCM Unsignalized Intersection Capacity Analysis  
 9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     |      |                      |      |
| Traffic Volume (veh/h)            | 0    | 523    | 457    | 3    | 0                    | 0    |
| Future Volume (Veh/h)             | 0    | 523    | 457    | 3    | 0                    | 0    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98 | 0.98                 | 0.98 |
| Hourly flow rate (vph)            | 0    | 534    | 466    | 3    | 0                    | 0    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 469  |        |        |      | 734                  | 234  |
| vC1, stage 1 conf vol             |      |        |        |      | 468                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 267                  |      |
| vCu, unblocked vol                | 469  |        |        |      | 734                  | 234  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 100  |
| cM capacity (veh/h)               | 1089 |        |        |      | 461                  | 767  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 |                      |      |
| Volume Total                      | 267  | 267    | 311    | 158  |                      |      |
| Volume Left                       | 0    | 0      | 0      | 0    |                      |      |
| Volume Right                      | 0    | 0      | 0      | 3    |                      |      |
| cSH                               | 1700 | 1700   | 1700   | 1700 |                      |      |
| Volume to Capacity                | 0.16 | 0.16   | 0.18   | 0.09 |                      |      |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    |                      |      |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  |                      |      |
| Lane LOS                          |      |        |        |      |                      |      |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      |      |
| Approach LOS                      |      |        |        |      |                      |      |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.0    |      |                      |      |
| Intersection Capacity Utilization |      |        | 17.8%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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


















Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis  
1: Driveway/Lagrange Industrial Dr & Richmond Hwy

2027 Background Conditions  
PM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBU   | EBL   | EBT   | EBR   | WBU   | WBL   | WBT  | WBR   | NBL   | NBT   | NBR   | SBL   |
| Lane Configurations               |   |  |  |  |   |  |  |  |   |  |   |   |
| Traffic Volume (veh/h)            | 1   | 6   | 529   | 4   | 15  | 5   | 589  | 8   | 5   | 0   | 7   | 21  |
| Future Volume (Veh/h)             | 1   | 6   | 529   | 4   | 15  | 5   | 589  | 8   | 5   | 0   | 7   | 21  |
| Sign Control                      |   |   | Free  |   |   |   | Free   |   |   | Stop  |   |   |
| Grade                             |   |   | 0%  |   |   |   | 0%   |   |   | 0%  |   |   |
| Peak Hour Factor                  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  | 0.96   | 0.96  | 0.96  | 0.96  | 0.96  | 0.96  |
| Hourly flow rate (vph)            | 0   | 6   | 551   | 4   | 0   | 5   | 614  | 8   | 5   | 0   | 7   | 22  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Median storage veh                |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             | 0.00  |   |   |   | 0.00  |   |  |   |   |   |   |   |
| vC, conflicting volume            | 0   | 622   |   |   | 0   | 555   |  |   | 893   | 1197  | 278   | 918   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   | 565   | 565   |   | 624   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   | 328   | 632   |   | 294   |
| vCu, unblocked vol                | 0   | 622   |   |   | 0   | 555   |  |   | 893   | 1197  | 278   | 918   |
| tC, single (s)                    | 0.0   | 4.1   |   |   | 0.0   | 4.1   |  |   | 8.3   | 6.5   | 7.5   | 7.9   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   | 7.3   | 5.5   |   | 6.9   |
| tF (s)                            | 0.0   | 2.2   |   |   | 0.0   | 2.2   |  |   | 3.9   | 4.0   | 3.6   | 3.7   |
| p0 queue free %                   | 0   | 99  |   |   | 0   | 100   |  |   | 99  | 100   | 99  | 94  |
| cM capacity (veh/h)               | 0   | 969   |   |   | 0   | 1026  |  |   | 345   | 377   | 645   | 364   |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | WB 4   | NB 1  | SB 1  |   |   |   |
| Volume Total                      | 6   | 367   | 188   | 5   | 307   | 307   | 8  | 12  | 33  |   |   |   |
| Volume Left                       | 6   | 0   | 0   | 5   | 0   | 0   | 0  | 5   | 22  |   |   |   |
| Volume Right                      | 0   | 0   | 4   | 0   | 0   | 0   | 8  | 7   | 11  |   |   |   |
| cSH                               | 969   | 1700  | 1700  | 1026  | 1700  | 1700  | 1700   | 474   | 429   |   |   |   |
| Volume to Capacity                | 0.01  | 0.22  | 0.11  | 0.00  | 0.18  | 0.18  | 0.00   | 0.03  | 0.08  |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 0   | 0   | 0   | 0  | 2   | 6   |   |   |   |
| Control Delay (s)                 | 8.7   | 0.0   | 0.0   | 8.5   | 0.0   | 0.0   | 0.0  | 12.8  | 14.1  |   |   |   |
| Lane LOS                          | A   |   |   | A   |   |   |  | B   | B   |   |   |   |
| Approach Delay (s)                | 0.1   |   |   | 0.1   |   |   |  | 12.8  | 14.1  |   |   |   |
| Approach LOS                      |   |   |   |   |   |   |  | B   | B   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 0.6   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 26.6%   |   |   | ICU Level of Service  |  |   |   | A   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy




















| Movement               | SBT  | SBR  |
|------------------------|------|------|
| Lane Configurations    |      |      |
| Traffic Volume (veh/h) | 0    | 11   |
| Future Volume (Veh/h)  | 0    | 11   |
| Sign Control           | Stop |      |
| Grade                  | -3%  |      |
| Peak Hour Factor       | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0    | 11   |
| Pedestrians            |      |      |
| Lane Width (ft)        |      |      |
| Walking Speed (ft/s)   |      |      |
| Percent Blockage       |      |      |
| Right turn flare (veh) |      |      |
| Median type            |      |      |
| Median storage veh)    |      |      |
| Upstream signal (ft)   |      |      |
| pX, platoon unblocked  |      |      |
| vC, conflicting volume | 1191 | 307  |
| vC1, stage 1 conf vol  | 624  |      |
| vC2, stage 2 conf vol  | 567  |      |
| vCu, unblocked vol     | 1191 | 307  |
| tC, single (s)         | 6.5  | 7.1  |
| tC, 2 stage (s)        | 5.5  |      |
| tF (s)                 | 4.0  | 3.4  |
| p0 queue free %        | 100  | 98   |
| cM capacity (veh/h)    | 380  | 669  |
| Direction, Lane #      |      |      |

HCM Unsignalized Intersection Capacity Analysis  
2: Richmond Hwy & Mt. Clement



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↗    |
| Traffic Volume (veh/h)            | 0           | 558         | 594         | 1                    | 0           | 2    |
| Future Volume (Veh/h)             | 0           | 558         | 594         | 1                    | 0           | 2    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96        | 0.96 |
| Hourly flow rate (vph)            | 0           | 581         | 619         | 1                    | 0           | 2    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 620         |             |             |                      | 910         | 310  |
| vC1, stage 1 conf vol             |             |             |             |                      | 620         |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 290         |      |
| vCu, unblocked vol                | 620         |             |             |                      | 910         | 310  |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |      |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3  |
| p0 queue free %                   | 100         |             |             |                      | 100         | 100  |
| cM capacity (veh/h)               | 956         |             |             |                      | 388         | 686  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 290         | 290         | 413         | 207                  | 2           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 1                    | 2           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 686         |      |
| Volume to Capacity                | 0.17        | 0.17        | 0.24        | 0.12                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 10.3        |      |
| Lane LOS                          |             |             |             |                      | B           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 10.3                 |             |      |
| Approach LOS                      |             |             |             |                      | B           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 26.5%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |

HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

|                                   |  |  |  |  |    |  |  |  |  |  |  |  |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|-----|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |     |
| Lane Configurations               |   |   |   |   |   |  |  |  |   |   |  |   |     |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 561   | 32  | 0  | 7   | 0   | 0   | 110   | 32  |     |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 561   | 32  | 0  | 7   | 0   | 0   | 110   | 32  |     |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |     |
| Grade                             |   | -2%   |   |   | 2%  |   |  | 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  |     |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 578   | 33  | 0  | 7   | 0   | 0   | 113   | 33  |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Median type                       | None  |   |   |   | None  |   |  |   |   |   |   |   |     |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |     |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC, conflicting volume            | 611   |   |   |   | 0   |   |  | 378   | 611   | 0   | 582   | 578   | 289 |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |     |
| vCu, unblocked vol                | 611   |   |   |   | 0   |   |  | 378   | 611   | 0   | 582   | 578   | 289 |
| tC, single (s)                    | 4.1   |   |   |   | 4.1   |   |  | 7.5   | 6.8   | 6.9   | 7.5   | 6.6   | 7.0 |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| tF (s)                            | 2.2   |   |   |   | 2.2   |   |  | 3.5   | 4.1   | 3.3   | 3.5   | 4.0   | 3.3 |
| p0 queue free %                   | 100   |   |   |   | 100   |   |  | 100   | 98  | 100   | 100   | 73  | 95  |
| cM capacity (veh/h)               | 978   |   |   |   | 1636  |   |  | 422   | 383   | 1091  | 395   | 421   | 702 |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |     |
| Volume Total                      | 193   | 385   | 33  | 7   | 146   |   |  |   |   |   |   |   |     |
| Volume Left                       | 0   | 0   | 0   | 0   | 0   |   |  |   |   |   |   |   |     |
| Volume Right                      | 0   | 0   | 33  | 0   | 33  |   |  |   |   |   |   |   |     |
| cSH                               | 1636  | 1700  | 1700  | 383   | 463   |   |  |   |   |   |   |   |     |
| Volume to Capacity                | 0.00  | 0.23  | 0.02  | 0.02  | 0.32  |   |  |   |   |   |   |   |     |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 1   | 33  |   |  |   |   |   |   |   |     |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 14.6  | 16.3  |   |  |   |   |   |   |   |     |
| Lane LOS                          |   |   |   |   | B   | C   |  |   |   |   |   |   |     |
| Approach Delay (s)                | 0.0   |   |   |   | 14.6  | 16.3  |  |   |   |   |   |   |     |
| Approach LOS                      |   |   |   |   | B   | C   |  |   |   |   |   |   |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Average Delay                     |   |   |   | 3.3   |   |   |  |   |   |   |   |   |     |
| Intersection Capacity Utilization |   |   |   | 29.9%   | ICU Level of Service  |   |  |   |   | A   |   |   |     |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |     |

## Queues

## 7: Richmond Hwy NB &amp; Church Ln SB &amp; Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 51   | 472  | 620  |
| v/c Ratio               | 0.34 | 0.73 | 0.90 |
| Control Delay           | 48.2 | 42.2 | 47.0 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 48.2 | 42.2 | 47.0 |
| Queue Length 50th (ft)  | 31   | 320  | 352  |
| Queue Length 95th (ft)  | 67   | #467 | #577 |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 181  | 643  | 704  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.28 | 0.73 | 0.88 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 48    | 444   | 583   |
| Future Volume (vph)    | 48    | 444   | 583   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1624  | 1792  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1624  | 1792  | 1762  |
| Peak-hour factor, PHF  | 0.94  | 0.94  | 0.94  |
| Adj. Flow (vph)        | 51    | 472   | 620   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 51    | 472   | 620   |
| Heavy Vehicles (%)     | 17%   | 6%    | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 7.9   | 34.8  | 39.0  |
| Effective Green, g (s) | 7.9   | 34.8  | 39.0  |
| Actuated g/C Ratio     | 0.08  | 0.35  | 0.39  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 128   | 623   | 687   |
| v/s Ratio Prot         | c0.03 | c0.26 | c0.35 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.40  | 0.76  | 0.90  |
| Uniform Delay, d1      | 43.8  | 28.9  | 28.7  |
| Progression Factor     | 1.00  | 1.14  | 1.00  |
| Incremental Delay, d2  | 2.8   | 8.2   | 16.3  |
| Delay (s)              | 46.6  | 41.1  | 45.0  |
| Level of Service       | D     | D     | D     |
| Approach Delay (s)     | 46.6  | 41.1  | 45.0  |
| Approach LOS           | D     | D     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 43.4  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.79  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 74.3% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group



HCM Unsignalized Intersection Capacity Analysis  
8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR         |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|-------------|
| Lane Configurations               |             | ↑↑          | ↑↑          | ↗                    |             | ↗           |
| Traffic Volume (veh/h)            | 0           | 558         | 589         | 3                    | 0           | 17          |
| Future Volume (Veh/h)             | 0           | 558         | 589         | 3                    | 0           | 17          |
| Sign Control                      |             | Free        | Free        |                      | Stop        |             |
| Grade                             |             | 0%          | 0%          |                      | 0%          |             |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96        | 0.96        |
| Hourly flow rate (vph)            | 0           | 581         | 614         | 3                    | 0           | 18          |
| <b>Pedestrians</b>                |             |             |             |                      |             |             |
| Lane Width (ft)                   |             |             |             |                      |             |             |
| Walking Speed (ft/s)              |             |             |             |                      |             |             |
| Percent Blockage                  |             |             |             |                      |             |             |
| Right turn flare (veh)            |             |             |             |                      |             |             |
| Median type                       |             | Raised      | Raised      |                      |             |             |
| Median storage (veh)              |             | 1           | 1           |                      |             |             |
| Upstream signal (ft)              |             |             |             |                      |             |             |
| pX, platoon unblocked             |             |             |             |                      |             |             |
| vC, conflicting volume            | 617         |             |             |                      | 904         | 307         |
| vC1, stage 1 conf vol             |             |             |             |                      | 614         |             |
| vC2, stage 2 conf vol             |             |             |             |                      | 290         |             |
| vCu, unblocked vol                | 617         |             |             |                      | 904         | 307         |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 7.1         |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |             |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.4         |
| p0 queue free %                   | 100         |             |             |                      | 100         | 97          |
| cM capacity (veh/h)               | 959         |             |             |                      | 390         | 660         |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>WB 3</b> | <b>SB 1</b> |
| Volume Total                      | 290         | 290         | 307         | 307                  | 3           | 18          |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           | 0           |
| Volume Right                      | 0           | 0           | 0           | 0                    | 3           | 18          |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 1700        | 660         |
| Volume to Capacity                | 0.17        | 0.17        | 0.18        | 0.18                 | 0.00        | 0.03        |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           | 2           |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 0.0         | 10.6        |
| Lane LOS                          |             |             |             |                      |             | B           |
| Approach Delay (s)                | 0.0         | 0.0         |             |                      |             | 10.6        |
| Approach LOS                      |             |             |             |                      |             | B           |
| <b>Intersection Summary</b>       |             |             |             |                      |             |             |
| Average Delay                     |             |             | 0.2         |                      |             |             |
| Intersection Capacity Utilization |             |             | 26.3%       | ICU Level of Service | A           |             |
| Analysis Period (min)             |             |             | 15          |                      |             |             |

HCM Unsignalized Intersection Capacity Analysis  
 9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL  | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 558         | 592         | 4                    | 0    | 0    |
| Future Volume (Veh/h)             | 0           | 558         | 592         | 4                    | 0    | 0    |
| Sign Control                      |             | Free        | Free        |                      | Stop |      |
| Grade                             |             | 0%          | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96 | 0.96 |
| Hourly flow rate (vph)            | 0           | 581         | 617         | 4                    | 0    | 0    |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| Lane Width (ft)                   |             |             |             |                      |      |      |
| Walking Speed (ft/s)              |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             | Raised      | Raised      |                      |      |      |
| Median storage (veh)              |             | 1           | 1           |                      |      |      |
| Upstream signal (ft)              |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 621         |             |             | 910                  | 310  |      |
| vC1, stage 1 conf vol             |             |             |             |                      | 619  |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 290  |      |
| vCu, unblocked vol                | 621         |             |             | 910                  | 310  |      |
| tC, single (s)                    | 4.1         |             |             | 6.8                  | 6.9  |      |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8  |      |
| tF (s)                            | 2.2         |             |             | 3.5                  | 3.3  |      |
| p0 queue free %                   | 100         |             |             | 100                  | 100  |      |
| cM capacity (veh/h)               | 956         |             |             | 388                  | 685  |      |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          |      |      |
| Volume Total                      | 290         | 290         | 411         | 210                  |      |      |
| Volume Left                       | 0           | 0           | 0           | 0                    |      |      |
| Volume Right                      | 0           | 0           | 0           | 4                    |      |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 |      |      |
| Volume to Capacity                | 0.17        | 0.17        | 0.24        | 0.12                 |      |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  |      |      |
| <b>Lane LOS</b>                   |             |             |             |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         |             |                      |      |      |
| <b>Approach LOS</b>               |             |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 19.8%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

Attachment 3  
 2027 Total Future Conditions  
 AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |     |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|-----|
| Movement                          | EBL   | EBT   | EBR   | WBU   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR   | SBL   | SBT   |     |
| Lane Configurations               |  |  |   |   |  |  |  |   |  |   |   |  |     |
| Traffic Volume (veh/h)            | 15  | 546   | 9   | 67  | 6   | 453   | 18   | 3   | 1   | 3   | 14  | 0   |     |
| Future Volume (Veh/h)             | 15  | 546   | 9   | 67  | 6   | 453   | 18   | 3   | 1   | 3   | 14  | 0   |     |
| Sign Control                      | Free  |   |   | Free  |   |   |  | Stop  |   |   | Stop  |   |     |
| Grade                             | 0%  |   |   | 0%  |   |   |  | 0%  |   |   | -3%   |   |     |
| Peak Hour Factor                  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  | 0.98   | 0.98  | 0.98  | 0.98  | 0.98  | 0.98  |     |
| Hourly flow rate (vph)            | 15  | 557   | 9   | 0   | 6   | 462   | 18   | 3   | 1   | 3   | 14  | 0   |     |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Median type                       | Raised  |   |   | Raised  |   |   |  |   |   |   |   |   |     |
| Median storage veh                | 2   |   |   | 2   |   |   |  |   |   |   |   |   |     |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| pX, platoon unblocked             |   |   |   | 0.00  |   |   |  |   |   |   |   |   |     |
| vC, conflicting volume            | 480   |   |   | 0   | 566   |   |  | 840   | 1084  | 283   | 786   | 1070  |     |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  | 592   | 592   |   |   | 474   | 474 |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  | 248   | 492   |   |   | 312   | 596 |
| vCu, unblocked vol                | 480   |   |   | 0   | 566   |   |  | 840   | 1084  | 283   | 786   | 1070  |     |
| tC, single (s)                    | 4.4   |   |   | 0.0   | 4.8   |   |  | 9.5   | 6.5   | 8.2   | 8.4   | 6.5   |     |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  | 8.5   | 5.5   |   |   | 7.4   | 5.5 |
| tF (s)                            | 2.3   |   |   | 0.0   | 2.5   |   |  | 4.5   | 4.0   | 4.0   | 3.9   | 4.0   |     |
| p0 queue free %                   | 99  |   |   | 0   | 99  |   |  | 99  | 100   | 99  | 96  | 100   |     |
| cM capacity (veh/h)               | 1005  |   |   | 0   | 816   |   |  | 256   | 401   | 552   | 384   | 405   |     |
| Direction, Lane #                 | EB 1  | EB 2  | EB 3  | WB 1  | WB 2  | WB 3  | WB 4   | NB 1  | SB 1  |   |   |   |     |
| Volume Total                      | 15  | 371   | 195   | 6   | 231   | 231   | 18   | 7   | 19  |   |   |   |     |
| Volume Left                       | 15  | 0   | 0   | 6   | 0   | 0   | 0  | 3   | 14  |   |   |   |     |
| Volume Right                      | 0   | 0   | 9   | 0   | 0   | 0   | 18   | 3   | 5   |   |   |   |     |
| cSH                               | 1005  | 1700  | 1700  | 816   | 1700  | 1700  | 1700   | 356   | 427   |   |   |   |     |
| Volume to Capacity                | 0.01  | 0.22  | 0.11  | 0.01  | 0.14  | 0.14  | 0.01   | 0.02  | 0.04  |   |   |   |     |
| Queue Length 95th (ft)            | 1   | 0   | 0   | 1   | 0   | 0   | 0  | 2   | 3   |   |   |   |     |
| Control Delay (s)                 | 8.6   | 0.0   | 0.0   | 9.4   | 0.0   | 0.0   | 0.0  | 15.3  | 13.8  |   |   |   |     |
| Lane LOS                          | A   |   |   | A   |   |   |  | C   |   | B   |   |   |     |
| Approach Delay (s)                | 0.2   |   |   | 0.1   |   |   |  | 15.3  |   | 13.8  |   |   |     |
| Approach LOS                      |   |   |   |   |   |   |  | C   |   | B   |   |   |     |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |     |
| Average Delay                     |   |   |   | 0.5   |   |   |  |   |   |   |   |   |     |
| Intersection Capacity Utilization |   |   |   | 32.8%   |   |   |  | ICU Level of Service  |   | A   |   |   |     |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |     |



HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

|                        |      |
|------------------------|------|
| Movement               | SBR  |
| Lane Configurations    |      |
| Traffic Volume (veh/h) | 5    |
| Future Volume (Veh/h)  | 5    |
| Sign Control           |      |
| Grade                  |      |
| Peak Hour Factor       | 0.98 |
| Hourly flow rate (vph) | 5    |
| Pedestrians            |      |
| Lane Width (ft)        |      |
| Walking Speed (ft/s)   |      |
| Percent Blockage       |      |
| Right turn flare (veh) |      |
| Median type            |      |
| Median storage (veh)   |      |
| Upstream signal (ft)   |      |
| pX, platoon unblocked  |      |
| vC, conflicting volume | 231  |
| vC1, stage 1 conf vol  |      |
| vC2, stage 2 conf vol  |      |
| vCu, unblocked vol     | 231  |
| tC, single (s)         | 8.1  |
| tC, 2 stage (s)        |      |
| tF (s)                 | 3.9  |
| p0 queue free %        | 99   |
| cM capacity (veh/h)    | 621  |
| Direction, Lane #      |      |

HCM Unsignalized Intersection Capacity Analysis  
2: Richmond Hwy & Mt. Clement



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↗    |
| Traffic Volume (veh/h)            | 0           | 623         | 545         | 0                    | 0           | 0    |
| Future Volume (Veh/h)             | 0           | 623         | 545         | 0                    | 0           | 0    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.98        | 0.98        | 0.98        | 0.98                 | 0.98        | 0.98 |
| Hourly flow rate (vph)            | 0           | 636         | 556         | 0                    | 0           | 0    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 556         |             |             |                      | 874         | 278  |
| vC1, stage 1 conf vol             |             |             |             |                      | 556         |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 318         |      |
| vCu, unblocked vol                | 556         |             |             |                      | 874         | 278  |
| tC, single (s)                    | 4.1         |             |             |                      | 6.8         | 6.9  |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8         |      |
| tF (s)                            | 2.2         |             |             |                      | 3.5         | 3.3  |
| p0 queue free %                   | 100         |             |             |                      | 100         | 100  |
| cM capacity (veh/h)               | 1011        |             |             |                      | 407         | 719  |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 318         | 318         | 371         | 185                  | 0           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 0                    | 0           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 1700        |      |
| Volume to Capacity                | 0.19        | 0.19        | 0.22        | 0.11                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 0.0         |      |
| Lane LOS                          |             |             |             |                      | A           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 0.0                  |             |      |
| Approach LOS                      |             |             |             |                      | A           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 20.6%       | ICU Level of Service | A           |      |
| Analysis Period (min)             |             |             | 15          |                      |             |      |

















HCM Unsignalized Intersection Capacity Analysis  
3: Richmond Hwy & Western Site Entrance



















| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗    |                      | ↗    |
| Traffic Volume (veh/h)            | 0    | 623    | 460    | 134  | 0                    | 85   |
| Future Volume (Veh/h)             | 0    | 623    | 460    | 134  | 0                    | 85   |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.92 | 0.92   | 0.92   | 0.92 | 0.92                 | 0.92 |
| Hourly flow rate (vph)            | 0    | 677    | 500    | 146  | 0                    | 92   |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 646  |        |        |      | 838                  | 250  |
| vC1, stage 1 conf vol             |      |        |        |      | 500                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 338                  |      |
| vCu, unblocked vol                | 646  |        |        |      | 838                  | 250  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 88   |
| cM capacity (veh/h)               | 935  |        |        |      | 424                  | 750  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 | WB 3                 | SB 1 |
| Volume Total                      | 338  | 338    | 250    | 250  | 146                  | 92   |
| Volume Left                       | 0    | 0      | 0      | 0    | 0                    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0    | 146                  | 92   |
| cSH                               | 1700 | 1700   | 1700   | 1700 | 1700                 | 750  |
| Volume to Capacity                | 0.20 | 0.20   | 0.15   | 0.15 | 0.09                 | 0.12 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    | 0                    | 10   |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  | 0.0                  | 10.5 |
| Lane LOS                          |      |        |        |      |                      | B    |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      | 10.5 |
| Approach LOS                      |      |        |        |      |                      | B    |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.7    |      |                      |      |
| Intersection Capacity Utilization |      |        | 24.6%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

HCM Unsignalized Intersection Capacity Analysis  
 4: Western Site Entrance/Main Street & Side Street

Attachment 3  
 2027 Total Future Conditions  
 AM Peak Hour

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 0   | 23  | 49  | 0   | 0   | 29   | 28  | 76  | 0   | 13  | 0   |
| Future Volume (Veh/h)             | 0   | 0   | 23  | 49  | 0   | 0   | 29   | 28  | 76  | 0   | 13  | 0   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 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  |
| Hourly flow rate (vph)            | 0   | 0   | 25  | 53  | 0   | 0   | 32   | 30  | 83  | 0   | 14  | 0   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None   |   |   |   | None  |   |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 150   | 191   | 14  | 174   | 150   | 72  | 14   |   |   | 113   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 150   | 191   | 14  | 174   | 150   | 72  | 14   |   |   | 113   |   |   |
| tC, single (s)                    | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   | 4.1  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   | 2.2   |   |   |
| p0 queue free %                   | 100   | 100   | 98  | 93  | 100   | 100   | 98   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 806   | 690   | 1066  | 758   | 727   | 991   | 1604   |   |   | 1476  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 25  | 53  | 145   | 14  |   |   |  |   |   |   |   |   |
| Volume Left                       | 0   | 53  | 32  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 25  | 0   | 83  | 0   |   |   |  |   |   |   |   |   |
| cSH                               | 1066  | 758   | 1604  | 1476  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.02  | 0.07  | 0.02  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 2   | 6   | 2   | 0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 8.5   | 10.1  | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | A   | B   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 8.5   | 10.1  | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | A   | B   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 4.2   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 30.5%   |   | ICU Level of Service  |   |  |   | A   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |      |  |  |     |  |  |     |  |  |     |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|------|--|--|-----|--|--|-----|--|--|-----|--|--|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |      |  |  |     |  |  |     |  |  |     |  |  |
| Lane Configurations               |   |   |   |   |  |  |  |  |   |   |  |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 544   | 118   | 72   | 32  | 0   | 0   | 33  | 10  |      |  |  |     |  |  |     |  |  |     |  |  |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 544   | 118   | 72   | 32  | 0   | 0   | 33  | 10  |      |  |  |     |  |  |     |  |  |     |  |  |
| Sign Control                      |   | Free  |   |   | Free  |   |  | Stop  |   |   | Stop  |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Grade                             |   | -2%   |   |   | 2%  |   |  | 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  |      |  |  |     |  |  |     |  |  |     |  |  |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 591   | 128   | 78   | 35  | 0   | 0   | 36  | 11  |      |  |  |     |  |  |     |  |  |     |  |  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Median type                       | None  |   |   |   |   | None  |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| vC, conflicting volume            | 719   |   |   | 0   |   |   | 324  |   |   | 719   |   |   | 0    |  |  | 608 |  |  | 591 |  |  | 296 |  |  |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| vCu, unblocked vol                | 719   |   |   | 0   |   |   | 324  |   |   | 719   |   |   | 0    |  |  | 608 |  |  | 591 |  |  | 296 |  |  |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  |   |   | 6.6   |   |   | 6.9  |  |  | 7.5 |  |  | 6.7 |  |  | 6.9 |  |  |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  |   |   | 4.0   |   |   | 3.3  |  |  | 3.5 |  |  | 4.1 |  |  | 3.3 |  |  |
| p0 queue free %                   | 100   |   |   | 100   |   |   | 86   |   |   | 90  |   |   | 100  |  |  | 100 |  |  | 91  |  |  | 98  |  |  |
| cM capacity (veh/h)               | 892   |   |   | 1636  |   |   | 560  |   |   | 351   |   |   | 1091 |  |  | 354 |  |  | 404 |  |  | 707 |  |  |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Volume Total                      | 197   | 394   | 128   | 113   | 47  |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Volume Left                       | 0   | 0   | 0   | 78  | 0   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Volume Right                      | 0   | 0   | 128   | 0   | 11  |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| cSH                               | 1636  | 1700  | 1700  | 472   | 449   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Volume to Capacity                | 0.00  | 0.23  | 0.08  | 0.24  | 0.10  |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 23  | 9   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 15.0  | 14.0  |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Lane LOS                          |   |   |   |   | B   | B   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Approach Delay (s)                | 0.0   |   |   |   | 15.0  | 14.0  |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Approach LOS                      |   |   |   |   | B   | B   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Average Delay                     |   |   |   | 2.7   |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Intersection Capacity Utilization |   |   |   | 34.0%   |   |   | ICU Level of Service   |   |   | A   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |      |  |  |     |  |  |     |  |  |     |  |  |

## Queues

## 7: Richmond Hwy NB &amp; Church Ln SB &amp; Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 118  | 266  | 566  |
| v/c Ratio               | 0.51 | 0.54 | 0.82 |
| Control Delay           | 47.8 | 41.6 | 37.6 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 47.8 | 41.6 | 37.6 |
| Queue Length 50th (ft)  | 71   | 162  | 312  |
| Queue Length 95th (ft)  | 122  | #285 | 430  |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 405  | 496  | 720  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.29 | 0.54 | 0.79 |

## Intersection Summary

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 107   | 242   | 515   |
| Future Volume (vph)    | 107   | 242   | 515   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1827  | 1667  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1827  | 1667  | 1762  |
| Peak-hour factor, PHF  | 0.91  | 0.91  | 0.91  |
| Adj. Flow (vph)        | 118   | 266   | 566   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 118   | 266   | 566   |
| Heavy Vehicles (%)     | 4%    | 14%   | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 12.7  | 29.8  | 39.2  |
| Effective Green, g (s) | 12.7  | 29.8  | 39.2  |
| Actuated g/C Ratio     | 0.13  | 0.30  | 0.39  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 232   | 496   | 690   |
| v/s Ratio Prot         | c0.06 | c0.16 | c0.32 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.51  | 0.54  | 0.82  |
| Uniform Delay, d1      | 40.7  | 29.3  | 27.2  |
| Progression Factor     | 1.00  | 1.14  | 1.00  |
| Incremental Delay, d2  | 2.4   | 4.1   | 8.8   |
| Delay (s)              | 43.1  | 37.7  | 36.1  |
| Level of Service       | D     | D     | D     |
| Approach Delay (s)     | 43.1  | 37.7  | 36.1  |
| Approach LOS           | D     | D     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 37.4  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.67  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 60.7% | ICU Level of Service      | B    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗    |                      | ↗    |
| Traffic Volume (veh/h)            | 0    | 623    | 536    | 6    | 0                    | 8    |
| Future Volume (Veh/h)             | 0    | 623    | 536    | 6    | 0                    | 8    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98 | 0.98                 | 0.98 |
| Hourly flow rate (vph)            | 0    | 636    | 547    | 6    | 0                    | 8    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 553  |        |        |      | 865                  | 274  |
| vC1, stage 1 conf vol             |      |        |        |      | 547                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 318                  |      |
| vCu, unblocked vol                | 553  |        |        |      | 865                  | 274  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 99   |
| cM capacity (veh/h)               | 1013 |        |        |      | 410                  | 724  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 | WB 3                 | SB 1 |
| Volume Total                      | 318  | 318    | 274    | 274  | 6                    | 8    |
| Volume Left                       | 0    | 0      | 0      | 0    | 0                    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0    | 6                    | 8    |
| cSH                               | 1700 | 1700   | 1700   | 1700 | 1700                 | 724  |
| Volume to Capacity                | 0.19 | 0.19   | 0.16   | 0.16 | 0.00                 | 0.01 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    | 0                    | 1    |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  | 0.0                  | 10.0 |
| Lane LOS                          |      |        |        |      |                      | B    |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      | 10.0 |
| Approach LOS                      |      |        |        |      |                      | B    |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.1    |      |                      |      |
| Intersection Capacity Utilization |      |        | 24.8%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |



HCM Unsignalized Intersection Capacity Analysis  
 9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     |      |                      |      |
| Traffic Volume (veh/h)            | 0    | 623    | 542    | 3    | 0                    | 0    |
| Future Volume (Veh/h)             | 0    | 623    | 542    | 3    | 0                    | 0    |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.98 | 0.98   | 0.98   | 0.98 | 0.98                 | 0.98 |
| Hourly flow rate (vph)            | 0    | 636    | 553    | 3    | 0                    | 0    |
| Pedestrians                       |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 556  |        |        |      | 872                  | 278  |
| vC1, stage 1 conf vol             |      |        |        |      | 554                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 318                  |      |
| vCu, unblocked vol                | 556  |        |        |      | 872                  | 278  |
| tC, single (s)                    | 4.1  |        |        |      | 6.8                  | 6.9  |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        |      | 3.5                  | 3.3  |
| p0 queue free %                   | 100  |        |        |      | 100                  | 100  |
| cM capacity (veh/h)               | 1011 |        |        |      | 407                  | 719  |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 |                      |      |
| Volume Total                      | 318  | 318    | 369    | 187  |                      |      |
| Volume Left                       | 0    | 0      | 0      | 0    |                      |      |
| Volume Right                      | 0    | 0      | 0      | 3    |                      |      |
| cSH                               | 1700 | 1700   | 1700   | 1700 |                      |      |
| Volume to Capacity                | 0.19 | 0.19   | 0.22   | 0.11 |                      |      |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    |                      |      |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  |                      |      |
| Lane LOS                          |      |        |        |      |                      |      |
| Approach Delay (s)                | 0.0  |        | 0.0    |      |                      |      |
| Approach LOS                      |      |        |        |      |                      |      |
| Intersection Summary              |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.0    |      |                      |      |
| Intersection Capacity Utilization |      |        | 20.6%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

Intersection Sign configuration not allowed in HCM analysis.

Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

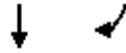
Intersection Sign configuration not allowed in HCM analysis.

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy

Attachment 3  
 2027 Total Future Conditions  
 PM Peak Hour

| Movement                          | EBU  | EBL  | EBT    | EBR  | WBU  | WBL                  | WBT    | WBR  | NBL  | NBT  | NBR  | SBL  |
|-----------------------------------|------|------|--------|------|------|----------------------|--------|------|------|------|------|------|
| Lane Configurations               |      |      |        |      |      |                      |        |      |      |      |      |      |
| Traffic Volume (veh/h)            | 1    | 6    | 567    | 4    | 124  | 5                    | 633    | 8    | 5    | 0    | 7    | 21   |
| Future Volume (Veh/h)             | 1    | 6    | 567    | 4    | 124  | 5                    | 633    | 8    | 5    | 0    | 7    | 21   |
| Sign Control                      |      |      | Free   |      |      |                      | Free   |      |      | Stop |      |      |
| Grade                             |      |      | 0%     |      |      |                      | 0%     |      |      | 0%   |      |      |
| Peak Hour Factor                  | 0.96 | 0.96 | 0.96   | 0.96 | 0.96 | 0.96                 | 0.96   | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph)            | 0    | 6    | 591    | 4    | 0    | 5                    | 659    | 8    | 5    | 0    | 7    | 22   |
| Pedestrians                       |      |      |        |      |      |                      |        |      |      |      |      |      |
| Lane Width (ft)                   |      |      |        |      |      |                      |        |      |      |      |      |      |
| Walking Speed (ft/s)              |      |      |        |      |      |                      |        |      |      |      |      |      |
| Percent Blockage                  |      |      |        |      |      |                      |        |      |      |      |      |      |
| Right turn flare (veh)            |      |      |        |      |      |                      |        |      |      |      |      |      |
| Median type                       |      |      | Raised |      |      |                      | Raised |      |      |      |      |      |
| Median storage (veh)              |      |      | 2      |      |      |                      | 2      |      |      |      |      |      |
| Upstream signal (ft)              |      |      |        |      |      |                      |        |      |      |      |      |      |
| pX, platoon unblocked             | 0.00 |      |        |      | 0.00 |                      |        |      |      |      |      |      |
| vC, conflicting volume            | 0    | 667  |        |      | 0    | 595                  |        |      | 956  | 1282 | 298  | 984  |
| vC1, stage 1 conf vol             |      |      |        |      |      |                      |        |      | 605  | 605  |      | 669  |
| vC2, stage 2 conf vol             |      |      |        |      |      |                      |        |      | 350  | 677  |      | 314  |
| vCu, unblocked vol                | 0    | 667  |        |      | 0    | 595                  |        |      | 956  | 1282 | 298  | 984  |
| tC, single (s)                    | 0.0  | 4.1  |        |      | 0.0  | 4.1                  |        |      | 8.3  | 6.5  | 7.5  | 7.9  |
| tC, 2 stage (s)                   |      |      |        |      |      |                      |        |      | 7.3  | 5.5  |      | 6.9  |
| tF (s)                            | 0.0  | 2.2  |        |      | 0.0  | 2.2                  |        |      | 3.9  | 4.0  | 3.6  | 3.7  |
| p0 queue free %                   | 0    | 99   |        |      | 0    | 99                   |        |      | 98   | 100  | 99   | 94   |
| cM capacity (veh/h)               | 0    | 932  |        |      | 0    | 991                  |        |      | 324  | 356  | 625  | 341  |
| Direction, Lane #                 | EB 1 | EB 2 | EB 3   | WB 1 | WB 2 | WB 3                 | WB 4   | NB 1 | SB 1 |      |      |      |
| Volume Total                      | 6    | 394  | 201    | 5    | 330  | 330                  | 8      | 12   | 33   |      |      |      |
| Volume Left                       | 6    | 0    | 0      | 5    | 0    | 0                    | 0      | 5    | 22   |      |      |      |
| Volume Right                      | 0    | 0    | 4      | 0    | 0    | 0                    | 8      | 7    | 11   |      |      |      |
| cSH                               | 932  | 1700 | 1700   | 991  | 1700 | 1700                 | 1700   | 450  | 405  |      |      |      |
| Volume to Capacity                | 0.01 | 0.23 | 0.12   | 0.01 | 0.19 | 0.19                 | 0.00   | 0.03 | 0.08 |      |      |      |
| Queue Length 95th (ft)            | 0    | 0    | 0      | 0    | 0    | 0                    | 0      | 2    | 7    |      |      |      |
| Control Delay (s)                 | 8.9  | 0.0  | 0.0    | 8.7  | 0.0  | 0.0                  | 0.0    | 13.2 | 14.7 |      |      |      |
| Lane LOS                          | A    |      |        | A    |      |                      |        | B    | B    |      |      |      |
| Approach Delay (s)                | 0.1  |      |        | 0.1  |      |                      |        | 13.2 | 14.7 |      |      |      |
| Approach LOS                      |      |      |        |      |      |                      |        | B    | B    |      |      |      |
| Intersection Summary              |      |      |        |      |      |                      |        |      |      |      |      |      |
| Average Delay                     |      |      | 0.6    |      |      |                      |        |      |      |      |      |      |
| Intersection Capacity Utilization |      |      | 36.3%  |      |      | ICU Level of Service |        |      | A    |      |      |      |
| Analysis Period (min)             |      |      | 15     |      |      |                      |        |      |      |      |      |      |

HCM Unsignalized Intersection Capacity Analysis  
 1: Driveway/Lagrange Industrial Dr & Richmond Hwy



| Movement               | SBT  | SBR  |
|------------------------|------|------|
| Lane Configurations    | ↕    |      |
| Traffic Volume (veh/h) | 0    | 11   |
| Future Volume (Veh/h)  | 0    | 11   |
| Sign Control           | Stop |      |
| Grade                  | -3%  |      |
| Peak Hour Factor       | 0.96 | 0.96 |
| Hourly flow rate (vph) | 0    | 11   |
| Pedestrians            |      |      |
| Lane Width (ft)        |      |      |
| Walking Speed (ft/s)   |      |      |
| Percent Blockage       |      |      |
| Right turn flare (veh) |      |      |
| Median type            |      |      |
| Median storage (veh)   |      |      |
| Upstream signal (ft)   |      |      |
| pX, platoon unblocked  |      |      |
| vC, conflicting volume | 1276 | 330  |
| vC1, stage 1 conf vol  | 669  |      |
| vC2, stage 2 conf vol  | 607  |      |
| vCu, unblocked vol     | 1276 | 330  |
| tC, single (s)         | 6.5  | 7.1  |
| tC, 2 stage (s)        | 5.5  |      |
| tF (s)                 | 4.0  | 3.4  |
| p0 queue free %        | 100  | 98   |
| cM capacity (veh/h)    | 359  | 646  |
| Direction, Lane #      |      |      |



HCM Unsignalized Intersection Capacity Analysis  
2: Richmond Hwy & Mt. Clement



















| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL         | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|-------------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |             | ↗    |
| Traffic Volume (veh/h)            | 0           | 704         | 749         | 0                    | 0           | 2    |
| Future Volume (Veh/h)             | 0           | 704         | 749         | 0                    | 0           | 2    |
| Sign Control                      |             | Free        | Free        |                      | Stop        |      |
| Grade                             |             | 0%          | 0%          |                      | 0%          |      |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96        | 0.96 |
| Hourly flow rate (vph)            | 0           | 733         | 780         | 0                    | 0           | 2    |
| <b>Pedestrians</b>                |             |             |             |                      |             |      |
| Lane Width (ft)                   |             |             |             |                      |             |      |
| Walking Speed (ft/s)              |             |             |             |                      |             |      |
| Percent Blockage                  |             |             |             |                      |             |      |
| Right turn flare (veh)            |             |             |             |                      |             |      |
| Median type                       |             | Raised      | Raised      |                      |             |      |
| Median storage (veh)              |             | 1           | 1           |                      |             |      |
| Upstream signal (ft)              |             |             |             |                      |             |      |
| pX, platoon unblocked             |             |             |             |                      |             |      |
| vC, conflicting volume            | 780         |             |             | 1146                 | 390         |      |
| vC1, stage 1 conf vol             |             |             |             | 780                  |             |      |
| vC2, stage 2 conf vol             |             |             |             | 366                  |             |      |
| vCu, unblocked vol                | 780         |             |             | 1146                 | 390         |      |
| tC, single (s)                    | 4.1         |             |             | 6.8                  | 6.9         |      |
| tC, 2 stage (s)                   |             |             |             | 5.8                  |             |      |
| tF (s)                            | 2.2         |             |             | 3.5                  | 3.3         |      |
| p0 queue free %                   | 100         |             |             | 100                  | 100         |      |
| cM capacity (veh/h)               | 833         |             |             | 313                  | 609         |      |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          | <b>SB 1</b> |      |
| Volume Total                      | 366         | 366         | 520         | 260                  | 2           |      |
| Volume Left                       | 0           | 0           | 0           | 0                    | 0           |      |
| Volume Right                      | 0           | 0           | 0           | 0                    | 2           |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 | 609         |      |
| Volume to Capacity                | 0.22        | 0.22        | 0.31        | 0.15                 | 0.00        |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    | 0           |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  | 10.9        |      |
| Lane LOS                          |             |             |             |                      | B           |      |
| Approach Delay (s)                | 0.0         | 0.0         |             | 10.9                 |             |      |
| Approach LOS                      |             |             |             |                      | B           |      |
| <b>Intersection Summary</b>       |             |             |             |                      |             |      |
| Average Delay                     |             |             | 0.0         |                      |             |      |
| Intersection Capacity Utilization |             |             | 30.7%       | ICU Level of Service |             | A    |
| Analysis Period (min)             |             |             | 15          |                      |             |      |

HCM Unsignalized Intersection Capacity Analysis  
3: Richmond Hwy & Western Site Entrance




















| Movement                          | EBL  | EBT    | WBT    | WBR                  | SBL  | SBR  |
|-----------------------------------|------|--------|--------|----------------------|------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗                    |      | ↘    |
| Traffic Volume (veh/h)            | 0    | 704    | 595    | 126                  | 0    | 155  |
| Future Volume (Veh/h)             | 0    | 704    | 595    | 126                  | 0    | 155  |
| Sign Control                      |      | Free   | Free   |                      | Stop |      |
| Grade                             |      | 0%     | 0%     |                      | 0%   |      |
| Peak Hour Factor                  | 0.92 | 0.92   | 0.92   | 0.92                 | 0.92 | 0.92 |
| Hourly flow rate (vph)            | 0    | 765    | 647    | 137                  | 0    | 168  |
| <b>Pedestrians</b>                |      |        |        |                      |      |      |
| Lane Width (ft)                   |      |        |        |                      |      |      |
| Walking Speed (ft/s)              |      |        |        |                      |      |      |
| Percent Blockage                  |      |        |        |                      |      |      |
| Right turn flare (veh)            |      |        |        |                      |      |      |
| Median type                       |      | Raised | Raised |                      |      |      |
| Median storage (veh)              |      | 1      | 1      |                      |      |      |
| Upstream signal (ft)              |      |        |        |                      |      |      |
| pX, platoon unblocked             |      |        |        |                      |      |      |
| vC, conflicting volume            | 784  |        |        | 1030                 | 324  |      |
| vC1, stage 1 conf vol             |      |        |        | 647                  |      |      |
| vC2, stage 2 conf vol             |      |        |        | 382                  |      |      |
| vCu, unblocked vol                | 784  |        |        | 1030                 | 324  |      |
| tC, single (s)                    | 4.1  |        |        | 6.8                  | 6.9  |      |
| tC, 2 stage (s)                   |      |        |        | 5.8                  |      |      |
| tF (s)                            | 2.2  |        |        | 3.5                  | 3.3  |      |
| p0 queue free %                   | 100  |        |        | 100                  | 75   |      |
| cM capacity (veh/h)               | 830  |        |        | 355                  | 672  |      |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2                 | WB 3 | SB 1 |
| Volume Total                      | 382  | 382    | 324    | 324                  | 137  | 168  |
| Volume Left                       | 0    | 0      | 0      | 0                    | 0    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0                    | 137  | 168  |
| cSH                               | 1700 | 1700   | 1700   | 1700                 | 1700 | 672  |
| Volume to Capacity                | 0.23 | 0.23   | 0.19   | 0.19                 | 0.08 | 0.25 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0                    | 0    | 25   |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0                  | 0.0  | 12.1 |
| Lane LOS                          |      |        |        |                      |      | B    |
| Approach Delay (s)                | 0.0  | 0.0    |        |                      |      | 12.1 |
| Approach LOS                      |      |        |        |                      |      | B    |
| <b>Intersection Summary</b>       |      |        |        |                      |      |      |
| Average Delay                     |      |        | 1.2    |                      |      |      |
| Intersection Capacity Utilization |      |        | 32.7%  | ICU Level of Service | A    |      |
| Analysis Period (min)             |      |        | 15     |                      |      |      |

HCM Unsignalized Intersection Capacity Analysis  
 4: Western Site Entrance/Main Street & Side Street

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |  |   |   |  |   |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 0   | 42  | 90  | 0   | 0   | 28   | 26  | 72  | 0   | 23  | 0   |
| Future Volume (Veh/h)             | 0   | 0   | 42  | 90  | 0   | 0   | 28   | 26  | 72  | 0   | 23  | 0   |
| Sign Control                      |   | Stop  |   |   | Stop  |   |  | Free  |   |   | Free  |   |
| Grade                             |   | 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  |
| Hourly flow rate (vph)            | 0   | 0   | 46  | 98  | 0   | 0   | 30   | 28  | 78  | 0   | 25  | 0   |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       |   |   |   |   |   |   | None   |   |   |   | None  |   |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              |   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 152   | 191   | 25  | 198   | 152   | 67  | 25   |   |   | 106   |   |   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 152   | 191   | 25  | 198   | 152   | 67  | 25   |   |   | 106   |   |   |
| tC, single (s)                    | 7.1   | 6.5   | 6.2   | 7.1   | 6.5   | 6.2   | 4.1  |   |   | 4.1   |   |   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 3.5   | 4.0   | 3.3   | 3.5   | 4.0   | 3.3   | 2.2  |   |   | 2.2   |   |   |
| p0 queue free %                   | 100   | 100   | 96  | 86  | 100   | 100   | 98   |   |   | 100   |   |   |
| cM capacity (veh/h)               | 804   | 691   | 1051  | 717   | 726   | 997   | 1589   |   |   | 1485  |   |   |
| Direction, Lane #                 | EB 1  | WB 1  | NB 1  | SB 1  |   |   |  |   |   |   |   |   |
| Volume Total                      | 46  | 98  | 136   | 25  |   |   |  |   |   |   |   |   |
| Volume Left                       | 0   | 98  | 30  | 0   |   |   |  |   |   |   |   |   |
| Volume Right                      | 46  | 0   | 78  | 0   |   |   |  |   |   |   |   |   |
| cSH                               | 1051  | 717   | 1589  | 1485  |   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.04  | 0.14  | 0.02  | 0.00  |   |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 3   | 12  | 1   | 0   |   |   |  |   |   |   |   |   |
| Control Delay (s)                 | 8.6   | 10.8  | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Lane LOS                          | A   | B   | A   |   |   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 8.6   | 10.8  | 1.7   | 0.0   |   |   |  |   |   |   |   |   |
| Approach LOS                      | A   | B   |   |   |   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   | 5.5   |   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   | 32.3%   |   | ICU Level of Service  |   |  |   | A   |   |   |   |
| Analysis Period (min)             |   |   | 15  |   |   |   |  |   |   |   |   |   |

HCM Unsignalized Intersection Capacity Analysis  
6: Median/Hospital Rd & Richmond Hwy

|                                   |  |  |  |  |    |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement                          | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations               |   |   |   |   |   |  |  |  |   |   |  |   |
| Traffic Volume (veh/h)            | 0   | 0   | 0   | 0   | 649   | 32  | 45   | 7   | 0   | 0   | 110   | 32  |
| Future Volume (Veh/h)             | 0   | 0   | 0   | 0   | 649   | 32  | 45   | 7   | 0   | 0   | 110   | 32  |
| Sign Control                      | Free  |   |   | Free  |   |   | Stop   |   |   | Stop  |   |   |
| Grade                             | -2%   |   |   | 2%  |   |   | 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  |
| Hourly flow rate (vph)            | 0   | 0   | 0   | 0   | 669   | 33  | 46   | 7   | 0   | 0   | 113   | 33  |
| Pedestrians                       |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Width (ft)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| Walking Speed (ft/s)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Percent Blockage                  |   |   |   |   |   |   |  |   |   |   |   |   |
| Right turn flare (veh)            |   |   |   |   |   |   |  |   |   |   |   |   |
| Median type                       | None  |   |   | None  |   |   |  |   |   |   |   |   |
| Median storage (veh)              |   |   |   |   |   |   |  |   |   |   |   |   |
| Upstream signal (ft)              | 481   |   |   |   |   |   |  |   |   |   |   |   |
| pX, platoon unblocked             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC, conflicting volume            | 702   |   |   | 0   |   |   | 424  | 702   | 0   | 672   | 669   | 334   |
| vC1, stage 1 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vC2, stage 2 conf vol             |   |   |   |   |   |   |  |   |   |   |   |   |
| vCu, unblocked vol                | 702   |   |   | 0   |   |   | 424  | 702   | 0   | 672   | 669   | 334   |
| tC, single (s)                    | 4.1   |   |   | 4.1   |   |   | 7.5  | 6.8   | 6.9   | 7.5   | 6.6   | 7.0   |
| tC, 2 stage (s)                   |   |   |   |   |   |   |  |   |   |   |   |   |
| tF (s)                            | 2.2   |   |   | 2.2   |   |   | 3.5  | 4.1   | 3.3   | 3.5   | 4.0   | 3.3   |
| p0 queue free %                   | 100   |   |   | 100   |   |   | 88   | 98  | 100   | 100   | 70  | 95  |
| cM capacity (veh/h)               | 905   |   |   | 1636  |   |   | 377  | 338   | 1091  | 340   | 373   | 655   |
| Direction, Lane #                 | WB 1  | WB 2  | WB 3  | NB 1  | SB 1  |   |  |   |   |   |   |   |
| Volume Total                      | 223   | 446   | 33  | 53  | 146   |   |  |   |   |   |   |   |
| Volume Left                       | 0   | 0   | 0   | 46  | 0   |   |  |   |   |   |   |   |
| Volume Right                      | 0   | 0   | 33  | 0   | 33  |   |  |   |   |   |   |   |
| cSH                               | 1636  | 1700  | 1700  | 371   | 413   |   |  |   |   |   |   |   |
| Volume to Capacity                | 0.00  | 0.26  | 0.02  | 0.14  | 0.35  |   |  |   |   |   |   |   |
| Queue Length 95th (ft)            | 0   | 0   | 0   | 12  | 39  |   |  |   |   |   |   |   |
| Control Delay (s)                 | 0.0   | 0.0   | 0.0   | 16.3  | 18.4  |   |  |   |   |   |   |   |
| Lane LOS                          |   |   |   | C   | C   |   |  |   |   |   |   |   |
| Approach Delay (s)                | 0.0   |   |   | 16.3  | 18.4  |   |  |   |   |   |   |   |
| Approach LOS                      |   |   |   | C   | C   |   |  |   |   |   |   |   |
| Intersection Summary              |   |   |   |   |   |   |  |   |   |   |   |   |
| Average Delay                     |   |   |   | 3.9   |   |   |  |   |   |   |   |   |
| Intersection Capacity Utilization |   |   |   | 39.0%   | ICU Level of Service  | A   |  |   |   |   |   |   |
| Analysis Period (min)             |   |   |   | 15  |   |   |  |   |   |   |   |   |

## Queues

## 7: Richmond Hwy NB &amp; Church Ln SB &amp; Tidewater Trail WB



| Lane Group              | WBT  | SBT  | NET  |
|-------------------------|------|------|------|
| Lane Group Flow (vph)   | 78   | 497  | 703  |
| v/c Ratio               | 0.48 | 0.85 | 0.96 |
| Control Delay           | 52.5 | 50.6 | 55.8 |
| Queue Delay             | 0.0  | 0.0  | 0.0  |
| Total Delay             | 52.5 | 50.6 | 55.8 |
| Queue Length 50th (ft)  | 47   | 337  | ~453 |
| Queue Length 95th (ft)  | 94   | #504 | #697 |
| Internal Link Dist (ft) | 188  | 437  | 380  |
| Turn Bay Length (ft)    |      |      |      |
| Base Capacity (vph)     | 181  | 587  | 731  |
| Starvation Cap Reductn  | 0    | 0    | 0    |
| Spillback Cap Reductn   | 0    | 0    | 0    |
| Storage Cap Reductn     | 0    | 0    | 0    |
| Reduced v/c Ratio       | 0.43 | 0.85 | 0.96 |

## Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis  
 7: Richmond Hwy NB & Church Ln SB & Tidewater Trail WB



| Movement               | WBT   | SBT   | NET   |
|------------------------|-------|-------|-------|
| Lane Configurations    | ↑     | ↑     | ↑     |
| Traffic Volume (vph)   | 73    | 467   | 661   |
| Future Volume (vph)    | 73    | 467   | 661   |
| Ideal Flow (vphpl)     | 1900  | 1900  | 1900  |
| Lane Width             | 12    | 12    | 14    |
| Total Lost time (s)    | 5.8   | 5.8   | 6.7   |
| Lane Util. Factor      | 1.00  | 1.00  | 1.00  |
| Frt                    | 1.00  | 1.00  | 1.00  |
| Flt Protected          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (prot)      | 1624  | 1792  | 1762  |
| Flt Permitted          | 1.00  | 1.00  | 1.00  |
| Satd. Flow (perm)      | 1624  | 1792  | 1762  |
| Peak-hour factor, PHF  | 0.94  | 0.94  | 0.94  |
| Adj. Flow (vph)        | 78    | 497   | 703   |
| RTOR Reduction (vph)   | 0     | 0     | 0     |
| Lane Group Flow (vph)  | 78    | 497   | 703   |
| Heavy Vehicles (%)     | 17%   | 6%    | 15%   |
| Turn Type              | NA    | NA    | NA    |
| Protected Phases       | 3     | 2     | 4     |
| Permitted Phases       |       |       |       |
| Actuated Green, G (s)  | 8.6   | 31.6  | 41.5  |
| Effective Green, g (s) | 8.6   | 31.6  | 41.5  |
| Actuated g/C Ratio     | 0.09  | 0.32  | 0.42  |
| Clearance Time (s)     | 5.8   | 5.8   | 6.7   |
| Vehicle Extension (s)  | 4.0   | 5.0   | 5.5   |
| Lane Grp Cap (vph)     | 139   | 566   | 731   |
| v/s Ratio Prot         | c0.05 | c0.28 | c0.40 |
| v/s Ratio Perm         |       |       |       |
| v/c Ratio              | 0.56  | 0.88  | 0.96  |
| Uniform Delay, d1      | 43.9  | 32.4  | 28.5  |
| Progression Factor     | 1.00  | 1.12  | 1.00  |
| Incremental Delay, d2  | 6.2   | 17.1  | 24.6  |
| Delay (s)              | 50.1  | 53.3  | 53.1  |
| Level of Service       | D     | D     | D     |
| Approach Delay (s)     | 50.1  | 53.3  | 53.1  |
| Approach LOS           | D     | D     | D     |

| Intersection Summary              |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 53.0  | HCM 2000 Level of Service | D    |
| HCM 2000 Volume to Capacity ratio | 0.89  |                           |      |
| Actuated Cycle Length (s)         | 100.0 | Sum of lost time (s)      | 18.3 |
| Intersection Capacity Utilization | 79.6% | ICU Level of Service      | D    |
| Analysis Period (min)             | 15    |                           |      |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis  
 8: Richmond Hwy & West Off Site Driveway



| Movement                          | EBL  | EBT    | WBT    | WBR  | SBL                  | SBR  |
|-----------------------------------|------|--------|--------|------|----------------------|------|
| Lane Configurations               |      | ↑↑     | ↑↑     | ↗    |                      | ↗    |
| Traffic Volume (veh/h)            | 0    | 704    | 744    | 3    | 0                    | 17   |
| Future Volume (Veh/h)             | 0    | 704    | 744    | 3    | 0                    | 17   |
| Sign Control                      |      | Free   | Free   |      | Stop                 |      |
| Grade                             |      | 0%     | 0%     |      | 0%                   |      |
| Peak Hour Factor                  | 0.96 | 0.96   | 0.96   | 0.96 | 0.96                 | 0.96 |
| Hourly flow rate (vph)            | 0    | 733    | 775    | 3    | 0                    | 18   |
| <b>Pedestrians</b>                |      |        |        |      |                      |      |
| Lane Width (ft)                   |      |        |        |      |                      |      |
| Walking Speed (ft/s)              |      |        |        |      |                      |      |
| Percent Blockage                  |      |        |        |      |                      |      |
| Right turn flare (veh)            |      |        |        |      |                      |      |
| Median type                       |      | Raised | Raised |      |                      |      |
| Median storage (veh)              |      | 1      | 1      |      |                      |      |
| Upstream signal (ft)              |      |        |        |      |                      |      |
| pX, platoon unblocked             |      |        |        |      |                      |      |
| vC, conflicting volume            | 778  |        |        | 1142 | 388                  |      |
| vC1, stage 1 conf vol             |      |        |        |      | 775                  |      |
| vC2, stage 2 conf vol             |      |        |        |      | 366                  |      |
| vCu, unblocked vol                | 778  |        |        | 1142 | 388                  |      |
| tC, single (s)                    | 4.1  |        |        | 6.8  | 7.1                  |      |
| tC, 2 stage (s)                   |      |        |        |      | 5.8                  |      |
| tF (s)                            | 2.2  |        |        | 3.5  | 3.4                  |      |
| p0 queue free %                   | 100  |        |        | 100  | 97                   |      |
| cM capacity (veh/h)               | 834  |        |        | 315  | 583                  |      |
| Direction, Lane #                 | EB 1 | EB 2   | WB 1   | WB 2 | WB 3                 | SB 1 |
| Volume Total                      | 366  | 366    | 388    | 388  | 3                    | 18   |
| Volume Left                       | 0    | 0      | 0      | 0    | 0                    | 0    |
| Volume Right                      | 0    | 0      | 0      | 0    | 3                    | 18   |
| cSH                               | 1700 | 1700   | 1700   | 1700 | 1700                 | 583  |
| Volume to Capacity                | 0.22 | 0.22   | 0.23   | 0.23 | 0.00                 | 0.03 |
| Queue Length 95th (ft)            | 0    | 0      | 0      | 0    | 0                    | 2    |
| Control Delay (s)                 | 0.0  | 0.0    | 0.0    | 0.0  | 0.0                  | 11.4 |
| Lane LOS                          |      |        |        |      |                      | B    |
| Approach Delay (s)                | 0.0  | 0.0    |        |      |                      | 11.4 |
| Approach LOS                      |      |        |        |      |                      | B    |
| <b>Intersection Summary</b>       |      |        |        |      |                      |      |
| Average Delay                     |      |        | 0.1    |      |                      |      |
| Intersection Capacity Utilization |      |        | 30.6%  |      | ICU Level of Service | A    |
| Analysis Period (min)             |      |        | 15     |      |                      |      |

HCM Unsignalized Intersection Capacity Analysis  
 9: Richmond Hwy & East Off Site Driveway



| Movement                          | EBL         | EBT         | WBT         | WBR                  | SBL  | SBR  |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations               |             | ↑↑          | ↑↑          |                      |      |      |
| Traffic Volume (veh/h)            | 0           | 704         | 747         | 4                    | 0    | 0    |
| Future Volume (Veh/h)             | 0           | 704         | 747         | 4                    | 0    | 0    |
| Sign Control                      |             | Free        | Free        |                      | Stop |      |
| Grade                             |             | 0%          | 0%          |                      | 0%   |      |
| Peak Hour Factor                  | 0.96        | 0.96        | 0.96        | 0.96                 | 0.96 | 0.96 |
| Hourly flow rate (vph)            | 0           | 733         | 778         | 4                    | 0    | 0    |
| <b>Pedestrians</b>                |             |             |             |                      |      |      |
| Lane Width (ft)                   |             |             |             |                      |      |      |
| Walking Speed (ft/s)              |             |             |             |                      |      |      |
| Percent Blockage                  |             |             |             |                      |      |      |
| Right turn flare (veh)            |             |             |             |                      |      |      |
| Median type                       |             | Raised      | Raised      |                      |      |      |
| Median storage (veh)              |             | 1           | 1           |                      |      |      |
| Upstream signal (ft)              |             |             |             |                      |      |      |
| pX, platoon unblocked             |             |             |             |                      |      |      |
| vC, conflicting volume            | 782         |             |             | 1146                 | 391  |      |
| vC1, stage 1 conf vol             |             |             |             |                      | 780  |      |
| vC2, stage 2 conf vol             |             |             |             |                      | 366  |      |
| vCu, unblocked vol                | 782         |             |             | 1146                 | 391  |      |
| tC, single (s)                    | 4.1         |             |             | 6.8                  | 6.9  |      |
| tC, 2 stage (s)                   |             |             |             |                      | 5.8  |      |
| tF (s)                            | 2.2         |             |             | 3.5                  | 3.3  |      |
| p0 queue free %                   | 100         |             |             | 100                  | 100  |      |
| cM capacity (veh/h)               | 832         |             |             | 313                  | 608  |      |
| <b>Direction, Lane #</b>          | <b>EB 1</b> | <b>EB 2</b> | <b>WB 1</b> | <b>WB 2</b>          |      |      |
| Volume Total                      | 366         | 366         | 519         | 263                  |      |      |
| Volume Left                       | 0           | 0           | 0           | 0                    |      |      |
| Volume Right                      | 0           | 0           | 0           | 4                    |      |      |
| cSH                               | 1700        | 1700        | 1700        | 1700                 |      |      |
| Volume to Capacity                | 0.22        | 0.22        | 0.31        | 0.15                 |      |      |
| Queue Length 95th (ft)            | 0           | 0           | 0           | 0                    |      |      |
| Control Delay (s)                 | 0.0         | 0.0         | 0.0         | 0.0                  |      |      |
| <b>Lane LOS</b>                   |             |             |             |                      |      |      |
| Approach Delay (s)                | 0.0         | 0.0         |             |                      |      |      |
| <b>Approach LOS</b>               |             |             |             |                      |      |      |
| <b>Intersection Summary</b>       |             |             |             |                      |      |      |
| Average Delay                     |             |             | 0.0         |                      |      |      |
| Intersection Capacity Utilization |             |             | 24.1%       | ICU Level of Service | A    |      |
| Analysis Period (min)             |             |             | 15          |                      |      |      |



Intersection Sign configuration not allowed in HCM analysis.

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Intersection Sign configuration not allowed in HCM analysis.

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