

Grade Separation on Kingwood Drive  
1: Trailwood Village Dr. & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBT   | EBR   | WBL   | WBT   | NBL   | NBR   | ø2   | ø3  | ø4  | ø5  | ø7  | ø8  |
|----------------------------|-------|-------|-------|-------|-------|-------|------|-----|-----|-----|-----|-----|
| Lane Configurations        | ↑↑    |       | ↙     | ↑↑    | ↘     | ↗     |      |     |     |     |     |     |
| Volume (vph)               | 640   | 76    | 19    | 1845  | 140   | 49    |      |     |     |     |     |     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |      |     |     |     |     |     |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00  | 0.95  | 1.00  | 0.95  |      |     |     |     |     |     |
| Frt                        | 0.984 |       |       |       | 0.995 | 0.850 |      |     |     |     |     |     |
| Flt Protected              |       |       | 0.950 |       | 0.954 |       |      |     |     |     |     |     |
| Satd. Flow (prot)          | 3483  | 0     | 1770  | 3539  | 1768  | 1504  |      |     |     |     |     |     |
| Flt Permitted              |       |       | 0.950 |       | 0.954 |       |      |     |     |     |     |     |
| Satd. Flow (perm)          | 3483  | 0     | 1770  | 3539  | 1768  | 1504  |      |     |     |     |     |     |
| Right Turn on Red          |       | Yes   |       |       |       | Yes   |      |     |     |     |     |     |
| Satd. Flow (RTOR)          | 11    |       |       |       | 1     | 56    |      |     |     |     |     |     |
| Link Speed (mph)           | 40    |       |       | 40    | 30    |       |      |     |     |     |     |     |
| Link Distance (ft)         | 225   |       |       | 355   | 1092  |       |      |     |     |     |     |     |
| Travel Time (s)            | 3.8   |       |       | 6.1   | 24.8  |       |      |     |     |     |     |     |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |      |     |     |     |     |     |
| Growth Factor              | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  |      |     |     |     |     |     |
| Adj. Flow (vph)            | 814   | 97    | 24    | 2346  | 178   | 62    |      |     |     |     |     |     |
| Shared Lane Traffic (%)    |       |       |       |       |       | 10%   |      |     |     |     |     |     |
| Lane Group Flow (vph)      | 911   | 0     | 24    | 2346  | 184   | 56    |      |     |     |     |     |     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |      |     |     |     |     |     |
| Lane Alignment             | Left  | Right | Left  | Left  | Left  | Right |      |     |     |     |     |     |
| Median Width(ft)           | 40    |       |       | 40    | 12    |       |      |     |     |     |     |     |
| Link Offset(ft)            | 0     |       |       | 0     | 0     |       |      |     |     |     |     |     |
| Crosswalk Width(ft)        | 16    |       |       | 16    | 16    |       |      |     |     |     |     |     |
| Two way Left Turn Lane     |       |       |       |       |       |       |      |     |     |     |     |     |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |      |     |     |     |     |     |
| Turning Speed (mph)        |       | 9     | 15    |       | 15    | 9     |      |     |     |     |     |     |
| Number of Detectors        | 2     |       | 1     | 2     | 1     | 1     |      |     |     |     |     |     |
| Detector Template          | Thru  |       | Left  | Thru  | Left  | Right |      |     |     |     |     |     |
| Leading Detector (ft)      | 100   |       | 20    | 100   | 20    | 20    |      |     |     |     |     |     |
| Trailing Detector (ft)     | 0     |       | 0     | 0     | 0     | 0     |      |     |     |     |     |     |
| Detector 1 Position(ft)    | 0     |       | 0     | 0     | 0     | 0     |      |     |     |     |     |     |
| Detector 1 Size(ft)        | 6     |       | 20    | 6     | 20    | 20    |      |     |     |     |     |     |
| Detector 1 Type            | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |      |     |     |     |     |     |
| Detector 1 Channel         |       |       |       |       |       |       |      |     |     |     |     |     |
| Detector 1 Extend (s)      | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   |      |     |     |     |     |     |
| Detector 1 Queue (s)       | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   |      |     |     |     |     |     |
| Detector 1 Delay (s)       | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   |      |     |     |     |     |     |
| Detector 2 Position(ft)    | 94    |       |       | 94    |       |       |      |     |     |     |     |     |
| Detector 2 Size(ft)        | 6     |       |       | 6     |       |       |      |     |     |     |     |     |
| Detector 2 Type            | Cl+Ex |       |       | Cl+Ex |       |       |      |     |     |     |     |     |
| Detector 2 Channel         |       |       |       |       |       |       |      |     |     |     |     |     |
| Detector 2 Extend (s)      | 0.0   |       |       | 0.0   |       |       |      |     |     |     |     |     |
| Turn Type                  | NA    |       | Prot  | NA    | NA    | Perm  |      |     |     |     |     |     |
| Protected Phases           | 2 7   |       | 1     | 6     | 3 8   |       | 2    | 3   | 4   | 5   | 7   | 8   |
| Permitted Phases           |       |       |       |       |       | 3 8   |      |     |     |     |     |     |
| Detector Phase             | 2 7   |       | 1     | 6     | 3 8   | 3 8   |      |     |     |     |     |     |
| Switch Phase               |       |       |       |       |       |       |      |     |     |     |     |     |
| Minimum Initial (s)        |       |       | 3.0   | 2.0   |       |       | 10.0 | 1.0 | 5.0 | 3.0 | 1.0 | 5.0 |

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AM Peak Hour

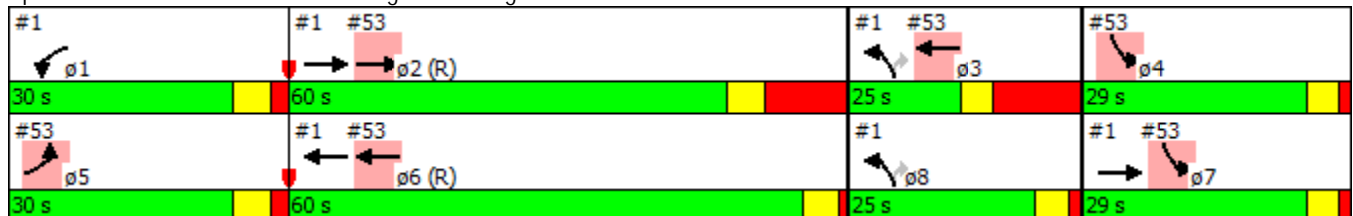


| Lane Group              | EBT  | EBR | WBL   | WBT   | NBL   | NBR  | ø2    | ø3   | ø4   | ø5   | ø7   | ø8   |
|-------------------------|------|-----|-------|-------|-------|------|-------|------|------|------|------|------|
| Minimum Split (s)       |      |     | 10.0  | 21.0  |       |      | 29.0  | 14.0 | 10.0 | 9.0  | 6.0  | 10.0 |
| Total Split (s)         |      |     | 30.0  | 60.0  |       |      | 60.0  | 25.0 | 29.0 | 30.0 | 29.0 | 25.0 |
| Total Split (%)         |      |     | 20.8% | 41.7% |       |      | 42%   | 17%  | 20%  | 21%  | 20%  | 17%  |
| Maximum Green (s)       |      |     | 24.0  | 55.0  |       |      | 47.0  | 12.0 | 24.0 | 24.0 | 24.0 | 20.0 |
| Yellow Time (s)         |      |     | 4.0   | 4.0   |       |      | 4.0   | 3.5  | 3.5  | 4.0  | 3.5  | 3.5  |
| All-Red Time (s)        |      |     | 2.0   | 1.0   |       |      | 9.0   | 9.5  | 1.5  | 2.0  | 1.5  | 1.5  |
| Lost Time Adjust (s)    |      |     | 0.0   | 0.0   |       |      |       |      |      |      |      |      |
| Total Lost Time (s)     |      |     | 6.0   | 5.0   |       |      |       |      |      |      |      |      |
| Lead/Lag                |      |     | Lead  | Lag   |       |      | Lag   |      |      | Lead |      |      |
| Lead-Lag Optimize?      |      |     | Yes   | Yes   |       |      | Yes   |      |      | Yes  |      |      |
| Vehicle Extension (s)   |      |     | 3.0   | 3.0   |       |      | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  |
| Recall Mode             |      |     | None  | C-Max |       |      | C-Max | None | None | None | None | None |
| Walk Time (s)           |      |     |       | 5.0   |       |      | 5.0   |      |      |      |      |      |
| Flash Dont Walk (s)     |      |     |       | 11.0  |       |      | 11.0  |      |      |      |      |      |
| Pedestrian Calls (#/hr) |      |     |       | 0     |       |      | 0     |      |      |      |      |      |
| Act Effect Green (s)    | 89.5 |     | 7.5   | 74.3  | 12.0  | 12.0 |       |      |      |      |      |      |
| Actuated g/C Ratio      | 0.62 |     | 0.05  | 0.52  | 0.08  | 0.08 |       |      |      |      |      |      |
| v/c Ratio               | 0.42 |     | 0.26  | 1.29  | 1.24  | 0.32 |       |      |      |      |      |      |
| Control Delay           | 1.8  |     | 72.0  | 164.1 | 205.1 | 19.8 |       |      |      |      |      |      |
| Queue Delay             | 0.0  |     | 0.0   | 0.8   | 23.4  | 0.0  |       |      |      |      |      |      |
| Total Delay             | 1.9  |     | 72.0  | 164.8 | 228.5 | 19.8 |       |      |      |      |      |      |
| LOS                     | A    |     | E     | F     | F     | B    |       |      |      |      |      |      |
| Approach Delay          | 1.9  |     |       | 163.9 | 179.8 |      |       |      |      |      |      |      |
| Approach LOS            | A    |     |       | F     | F     |      |       |      |      |      |      |      |

Intersection Summary

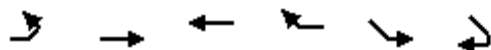
Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.29  
 Intersection Signal Delay: 123.0 Intersection LOS: F  
 Intersection Capacity Utilization 84.9% ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 1: Trailwood Village Dr. & Kingwood Dr.



Grade Separation on Kingwood Drive  
2: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | WBT  | WBR   | SEL  | SER   |
|----------------------------|------|------|------|-------|------|-------|
| Lane Configurations        |      | ↑↑   | ↑↑   |       |      |       |
| Volume (vph)               | 0    | 0    | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.95 | 0.95 | 1.00  | 1.00 | 1.00  |
| Frt                        |      |      |      |       |      |       |
| Flt Protected              |      |      |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Flt Permitted              |      |      |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Link Speed (mph)           |      | 40   | 40   |       | 40   |       |
| Link Distance (ft)         |      | 799  | 656  |       | 804  |       |
| Travel Time (s)            |      | 13.6 | 11.2 |       | 13.7 |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No   | No    | No   | No    |
| Lane Alignment             | Left | Left | Left | Right | Left | Right |
| Median Width(ft)           |      | 40   | 40   |       | 40   |       |
| Link Offset(ft)            |      | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |      |      |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |      | 9     | 15   | 9     |
| Sign Control               |      | Free | Free |       | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 6.7%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
4: Green Oak Dr. & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL  | WBT  | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|------|------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |      |      |       |      |       |       |       |       |       |
| Volume (vph)               | 40    | 636   | 62    | 0    | 0    | 0     | 0    | 104   | 25    | 100   | 40    | 0     |
| Ideal Flow (vphp)          | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 0    |      | 0     | 0    |       | 0     | 0     |       | 0     |
| Storage Lanes              | 1     |       | 0     | 0    |      | 0     | 0    |       | 1     | 1     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25   |      |       | 25   |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |       | 0.987 |       |      |      |       |      |       | 0.850 |       |       |       |
| Flt Protected              | 0.950 |       |       |      |      |       |      |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3493  | 0     | 0    | 0    | 0     | 0    | 1863  | 1583  | 1770  | 1863  | 0     |
| Flt Permitted              | 0.950 |       |       |      |      |       |      |       |       | 0.950 |       |       |
| Satd. Flow (perm)          | 1770  | 3493  | 0     | 0    | 0    | 0     | 0    | 1863  | 1583  | 1770  | 1863  | 0     |
| Right Turn on Red          |       |       | Yes   |      |      | Yes   |      |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 11    |       |      |      |       |      |       | 152   |       |       |       |
| Link Speed (mph)           |       | 40    |       |      | 40   |       |      | 30    |       |       | 30    |       |
| Link Distance (ft)         |       | 2489  |       |      | 270  |       |      | 515   |       |       | 89    |       |
| Travel Time (s)            |       | 42.4  |       |      | 4.6  |       |      | 11.7  |       |       | 2.0   |       |
| 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  |
| Growth Factor              | 117%  | 117%  | 117%  | 117% | 117% | 117%  | 117% | 117%  | 117%  | 117%  | 117%  | 117%  |
| Adj. Flow (vph)            | 51    | 809   | 79    | 0    | 0    | 0     | 0    | 132   | 32    | 127   | 51    | 0     |
| Shared Lane Traffic (%)    |       |       |       |      |      |       |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 51    | 888   | 0     | 0    | 0    | 0     | 0    | 132   | 32    | 127   | 51    | 0     |
| Enter Blocked Intersection | No    | No    | No    | No   | No   | No    | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left | Left | Right | Left | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |      | 12   |       |      | 12    |       |       | 12    |       |
| Link Offset(ft)            |       | 0     |       |      | 0    |       |      | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |      | 16   |       |      | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |      |      |       |      |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15   |      | 9     | 15   |       | 9     | 15    |       | 9     |
| Number of Detectors        | 1     | 2     |       |      |      |       |      | 2     | 1     | 1     | 2     |       |
| Detector Template          | Left  | Thru  |       |      |      |       |      | Thru  | Right | Left  | Thru  |       |
| Leading Detector (ft)      | 20    | 100   |       |      |      |       |      | 100   | 20    | 20    | 100   |       |
| Trailing Detector (ft)     | 0     | 0     |       |      |      |       |      | 0     | 0     | 0     | 0     |       |
| Detector 1 Position(ft)    | 0     | 0     |       |      |      |       |      | 0     | 0     | 0     | 0     |       |
| Detector 1 Size(ft)        | 20    | 6     |       |      |      |       |      | 6     | 20    | 20    | 6     |       |
| Detector 1 Type            | Cl+Ex | Cl+Ex |       |      |      |       |      | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       |
| Detector 1 Channel         |       |       |       |      |      |       |      |       |       |       |       |       |
| Detector 1 Extend (s)      | 0.0   | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 1 Queue (s)       | 0.0   | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 1 Delay (s)       | 0.0   | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 2 Position(ft)    |       | 94    |       |      |      |       |      | 94    |       |       | 94    |       |
| Detector 2 Size(ft)        |       | 6     |       |      |      |       |      | 6     |       |       | 6     |       |
| Detector 2 Type            |       | Cl+Ex |       |      |      |       |      | Cl+Ex |       |       | Cl+Ex |       |
| Detector 2 Channel         |       |       |       |      |      |       |      |       |       |       |       |       |
| Detector 2 Extend (s)      |       | 0.0   |       |      |      |       |      | 0.0   |       |       | 0.0   |       |
| Turn Type                  | Prot  | NA    |       |      |      |       |      | NA    | Perm  | Prot  | NA    |       |
| Protected Phases           | 15    | 2     |       |      |      |       |      | 8     |       | 1 4   | 4     |       |
| Permitted Phases           |       |       |       |      |      |       |      |       |       | 8     |       |       |

Grade Separation on Kingwood Drive  
4: Green Oak Dr. & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø1 | ø6 |
|----------------------------|----|----|
| Lane Configurations        |    |    |
| Volume (vph)               |    |    |
| Ideal Flow (vphp)          |    |    |
| Storage Length (ft)        |    |    |
| Storage Lanes              |    |    |
| Taper Length (ft)          |    |    |
| Lane Util. Factor          |    |    |
| Frt                        |    |    |
| Flt Protected              |    |    |
| Satd. Flow (prot)          |    |    |
| Flt Permitted              |    |    |
| Satd. Flow (perm)          |    |    |
| Right Turn on Red          |    |    |
| Satd. Flow (RTOR)          |    |    |
| Link Speed (mph)           |    |    |
| Link Distance (ft)         |    |    |
| Travel Time (s)            |    |    |
| Peak Hour Factor           |    |    |
| Growth Factor              |    |    |
| Adj. Flow (vph)            |    |    |
| Shared Lane Traffic (%)    |    |    |
| Lane Group Flow (vph)      |    |    |
| Enter Blocked Intersection |    |    |
| Lane Alignment             |    |    |
| Median Width(ft)           |    |    |
| Link Offset(ft)            |    |    |
| Crosswalk Width(ft)        |    |    |
| Two way Left Turn Lane     |    |    |
| Headway Factor             |    |    |
| Turning Speed (mph)        |    |    |
| Number of Detectors        |    |    |
| Detector Template          |    |    |
| Leading Detector (ft)      |    |    |
| Trailing Detector (ft)     |    |    |
| Detector 1 Position(ft)    |    |    |
| Detector 1 Size(ft)        |    |    |
| Detector 1 Type            |    |    |
| Detector 1 Channel         |    |    |
| Detector 1 Extend (s)      |    |    |
| Detector 1 Queue (s)       |    |    |
| Detector 1 Delay (s)       |    |    |
| Detector 2 Position(ft)    |    |    |
| Detector 2 Size(ft)        |    |    |
| Detector 2 Type            |    |    |
| Detector 2 Channel         |    |    |
| Detector 2 Extend (s)      |    |    |
| Turn Type                  |    |    |
| Protected Phases           | 1  | 6  |
| Permitted Phases           |    |    |

Grade Separation on Kingwood Drive  
4: Green Oak Dr. & Kingwood Dr.

AM Peak Hour

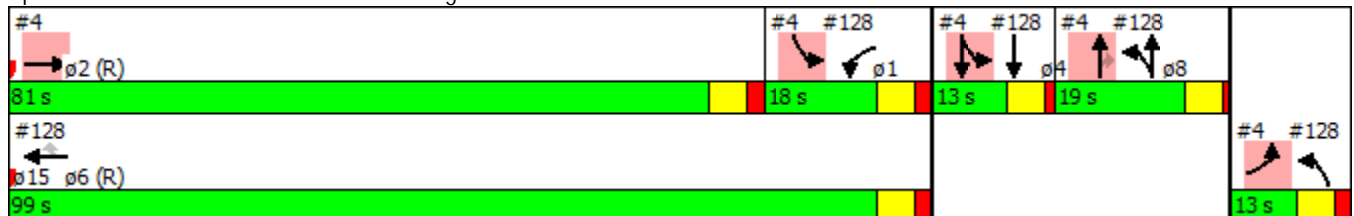


| Lane Group              | EBL  | EBT   | EBR | WBL | WBT | WBR | NBL | NBT   | NBR   | SBL  | SBT  | SBR |
|-------------------------|------|-------|-----|-----|-----|-----|-----|-------|-------|------|------|-----|
| Detector Phase          | 15   | 2     |     |     |     |     |     | 8     | 8     | 14   | 4    |     |
| Switch Phase            |      |       |     |     |     |     |     |       |       |      |      |     |
| Minimum Initial (s)     | 5.0  | 4.0   |     |     |     |     |     | 5.0   | 5.0   |      | 5.0  |     |
| Minimum Split (s)       | 11.0 | 20.0  |     |     |     |     |     | 18.0  | 18.0  |      | 10.0 |     |
| Total Split (s)         | 13.0 | 81.0  |     |     |     |     |     | 19.0  | 19.0  |      | 13.0 |     |
| Total Split (%)         | 9.0% | 56.3% |     |     |     |     |     | 13.2% | 13.2% |      | 9.0% |     |
| Maximum Green (s)       | 7.0  | 75.0  |     |     |     |     |     | 14.0  | 14.0  |      | 8.0  |     |
| Yellow Time (s)         | 4.0  | 4.0   |     |     |     |     |     | 4.0   | 4.0   |      | 4.0  |     |
| All-Red Time (s)        | 2.0  | 2.0   |     |     |     |     |     | 1.0   | 1.0   |      | 1.0  |     |
| Lost Time Adjust (s)    | 0.0  | 0.0   |     |     |     |     |     | 0.0   | 0.0   |      | 0.0  |     |
| Total Lost Time (s)     | 6.0  | 6.0   |     |     |     |     |     | 5.0   | 5.0   |      | 5.0  |     |
| Lead/Lag                |      | Lead  |     |     |     |     |     | Lag   | Lag   |      | Lead |     |
| Lead-Lag Optimize?      |      | Yes   |     |     |     |     |     | Yes   | Yes   |      | Yes  |     |
| Vehicle Extension (s)   | 3.0  | 3.0   |     |     |     |     |     | 3.0   | 3.0   |      | 3.0  |     |
| Recall Mode             | None | C-Max |     |     |     |     |     | None  | None  |      | None |     |
| Walk Time (s)           |      | 4.0   |     |     |     |     |     | 6.0   | 6.0   |      |      |     |
| Flash Dont Walk (s)     |      | 10.0  |     |     |     |     |     | 7.0   | 7.0   |      |      |     |
| Pedestrian Calls (#/hr) |      | 0     |     |     |     |     |     | 0     | 0     |      |      |     |
| Act Effct Green (s)     | 6.9  | 75.9  |     |     |     |     |     | 13.2  | 13.2  | 25.0 | 8.0  |     |
| Actuated g/C Ratio      | 0.05 | 0.53  |     |     |     |     |     | 0.09  | 0.09  | 0.17 | 0.06 |     |
| v/c Ratio               | 0.61 | 0.48  |     |     |     |     |     | 0.77  | 0.11  | 0.41 | 0.50 |     |
| Control Delay           | 76.9 | 37.1  |     |     |     |     |     | 92.0  | 0.8   | 25.9 | 34.9 |     |
| Queue Delay             | 17.4 | 0.0   |     |     |     |     |     | 0.0   | 0.0   | 0.0  | 0.0  |     |
| Total Delay             | 94.3 | 37.1  |     |     |     |     |     | 92.0  | 0.8   | 25.9 | 34.9 |     |
| LOS                     | F    | D     |     |     |     |     |     | F     | A     | C    | C    |     |
| Approach Delay          |      | 40.2  |     |     |     |     |     | 74.2  |       |      | 28.5 |     |
| Approach LOS            |      | D     |     |     |     |     |     | E     |       |      | C    |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 42.9  
 Intersection LOS: D  
 Intersection Capacity Utilization 105.0%  
 ICU Level of Service G  
 Analysis Period (min) 15

Splits and Phases: 4: Green Oak Dr. & Kingwood Dr.



Grade Separation on Kingwood Drive  
 4: Green Oak Dr. & Kingwood Dr.

AM Peak Hour

| Lane Group              | ø1   | ø6    |
|-------------------------|------|-------|
| Detector Phase          |      |       |
| Switch Phase            |      |       |
| Minimum Initial (s)     | 5.0  | 4.0   |
| Minimum Split (s)       | 11.0 | 10.0  |
| Total Split (s)         | 18.0 | 99.0  |
| Total Split (%)         | 13%  | 69%   |
| Maximum Green (s)       | 12.0 | 93.0  |
| Yellow Time (s)         | 4.0  | 4.0   |
| All-Red Time (s)        | 2.0  | 2.0   |
| Lost Time Adjust (s)    |      |       |
| Total Lost Time (s)     |      |       |
| Lead/Lag                | Lag  |       |
| Lead-Lag Optimize?      | Yes  |       |
| Vehicle Extension (s)   | 3.0  | 3.0   |
| Recall Mode             | None | C-Max |
| Walk Time (s)           |      |       |
| Flash Dont Walk (s)     |      |       |
| Pedestrian Calls (#/hr) |      |       |
| Act Effct Green (s)     |      |       |
| Actuated g/C Ratio      |      |       |
| v/c Ratio               |      |       |
| Control Delay           |      |       |
| Queue Delay             |      |       |
| Total Delay             |      |       |
| LOS                     |      |       |
| Approach Delay          |      |       |
| Approach LOS            |      |       |
| Intersection Summary    |      |       |

Grade Separation on Kingwood Drive  
6: Northpark Dr. & Sorters

AM Peak Hour



| Lane Group                 | WBL   | WBR   | NBT  | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Volume (vph)               | 93    | 120   | 71   | 0     | 362  | 248   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |       | 0.850 |      |       |      |       |
| Flt Protected              | 0.950 |       |      |       |      | 0.971 |
| Satd. Flow (prot)          | 1770  | 1583  | 1863 | 0     | 0    | 1809  |
| Flt Permitted              | 0.950 |       |      |       |      | 0.971 |
| Satd. Flow (perm)          | 1770  | 1583  | 1863 | 0     | 0    | 1809  |
| Link Speed (mph)           | 40    |       | 30   |       |      | 30    |
| Link Distance (ft)         | 1488  |       | 70   |       |      | 496   |
| Travel Time (s)            | 25.4  |       | 1.6  |       |      | 11.3  |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 114   | 147   | 87   | 0     | 445  | 305   |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 114   | 147   | 87   | 0     | 0    | 750   |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Left  |
| Median Width(ft)           | 12    |       | 0    |       |      | 0     |
| Link Offset(ft)            | 0     |       | 0    |       |      | 0     |
| Crosswalk Width(ft)        | 16    |       | 16   |       |      | 16    |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    | 9     |      | 9     | 15   |       |
| Sign Control               | Stop  |       | Free |       |      | Free  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 56.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |



Grade Separation on Kingwood Drive  
7: Lake Houston Parkway

AM Peak Hour



| Lane Group                 | NBT  | NBR   | SBL  | SBT  | NWL  | NWR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        |      |       |      | ↑↑   |      | ↑↑    |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.95 | 1.00 | 0.88  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 3539 | 0    | 3278  |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 3539 | 0    | 3278  |
| Link Speed (mph)           | 30   |       |      | 40   | 30   |       |
| Link Distance (ft)         | 506  |       |      | 1067 | 132  |       |
| Travel Time (s)            | 11.5 |       |      | 18.2 | 3.0  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 24   |       |      | 24   | 0    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9    |       | 15   | 15   |      | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                             |
|-----------------------------------|-----------------------------|
| Area Type:                        | Other                       |
| Control Type:                     | Unsignalized                |
| Intersection Capacity Utilization | 0.0% ICU Level of Service A |
| Analysis Period (min)             | 15                          |

Grade Separation on Kingwood Drive  
8: Lake Houston Parkway & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 38    | 224   | 468   | 246   | 586   | 11    | 495   | 105   | 119   | 10    | 255   | 163   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 2     |       | 0     | 2     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 0.97  | 0.95  | 0.95  | 0.97  | 0.95  | 0.95  |
| Frt                        |       | 0.899 |       |       | 0.997 |       |       | 0.920 |       |       | 0.942 |       |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3182  | 0     | 1770  | 3529  | 0     | 3433  | 3256  | 0     | 3433  | 3334  | 0     |
| Flt Permitted              | 0.313 |       |       | 0.251 |       |       | 0.456 |       |       | 0.583 |       |       |
| Satd. Flow (perm)          | 583   | 3182  | 0     | 468   | 3529  | 0     | 1648  | 3256  | 0     | 2107  | 3334  | 0     |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 397   |       |       | 6     |       |       | 146   |       |       | 100   |       |
| Link Speed (mph)           |       | 45    |       |       | 40    |       |       | 30    |       |       | 40    |       |
| Link Distance (ft)         |       | 2785  |       |       | 2651  |       |       | 1067  |       |       | 1141  |       |
| Travel Time (s)            |       | 42.2  |       |       | 45.2  |       |       | 24.3  |       |       | 19.4  |       |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 47    | 275   | 575   | 302   | 720   | 14    | 608   | 129   | 146   | 12    | 313   | 200   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 47    | 850   | 0     | 302   | 734   | 0     | 608   | 275   | 0     | 12    | 513   | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 24    |       |       | 24    |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |       |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       |
| v/c Ratio                  | 0.20  | 0.56  |       | 1.61  | 0.52  |       | 0.92  | 0.20  |       | 0.01  | 0.37  |       |

Grade Separation on Kingwood Drive  
8: Lake Houston Parkway & Northpark Dr.

AM Peak Hour

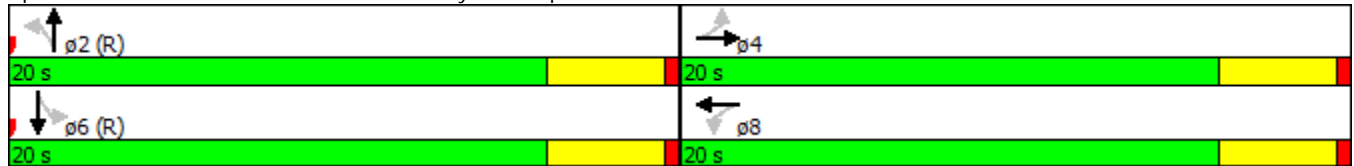


| Lane Group     | EBL | EBT | EBR | WBL   | WBT   | WBR | NBL  | NBT  | NBR | SBL | SBT | SBR |
|----------------|-----|-----|-----|-------|-------|-----|------|------|-----|-----|-----|-----|
| Control Delay  | 4.5 | 1.8 |     | 320.6 | 10.6  |     | 36.8 | 4.4  |     | 7.4 | 7.6 |     |
| Queue Delay    | 0.0 | 0.0 |     | 0.0   | 0.0   |     | 0.0  | 0.0  |     | 0.0 | 0.0 |     |
| Total Delay    | 4.5 | 1.8 |     | 320.6 | 10.6  |     | 36.8 | 4.4  |     | 7.4 | 7.6 |     |
| LOS            | A   | A   |     | F     | B     |     | D    | A    |     | A   | A   |     |
| Approach Delay |     | 1.9 |     |       | 101.0 |     |      | 26.7 |     |     | 7.6 |     |
| Approach LOS   |     | A   |     |       | F     |     |      | C    |     |     | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 55  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.61  |
| Intersection Signal Delay:        | 40.1  |
| Intersection LOS:                 | D   |
| Intersection Capacity Utilization | 82.6%   |
| ICU Level of Service              | E   |
| Analysis Period (min)             | 15  |

Splits and Phases: 8: Lake Houston Parkway & Northpark Dr.



Grade Separation on Kingwood Drive  
11: Woodland Hills & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 37    | 537   | 190   | 174   | 1414  | 79    | 381   | 228   | 140   | 94    | 268   | 145   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 2     |       | 0     | 1     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 0.97  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  |
| Frt                        |       | 0.961 |       |       | 0.992 |       |       | 0.943 |       |       | 0.947 |       |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3401  | 0     | 1770  | 3511  | 0     | 3433  | 3337  | 0     | 1770  | 3352  | 0     |
| Flt Permitted              | 0.250 |       |       | 0.250 |       |       | 0.460 |       |       | 0.491 |       |       |
| Satd. Flow (perm)          | 466   | 3401  | 0     | 466   | 3511  | 0     | 1662  | 3337  | 0     | 915   | 3352  | 0     |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 147   |       |       | 17    |       |       | 123   |       |       |       | 2     |
| Link Speed (mph)           |       | 45    |       |       | 45    |       |       | 35    |       |       |       | 35    |
| Link Distance (ft)         |       | 944   |       |       | 4882  |       |       | 3685  |       |       |       | 2491  |
| Travel Time (s)            |       | 14.3  |       |       | 74.0  |       |       | 71.8  |       |       |       | 48.5  |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 45    | 660   | 233   | 214   | 1737  | 97    | 468   | 280   | 172   | 115   | 329   | 178   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 45    | 893   | 0     | 214   | 1834  | 0     | 468   | 452   | 0     | 115   | 507   | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 24    |       |       |       | 24    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       |       | 16    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |       |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       |
| v/c Ratio                  | 0.24  | 0.62  |       | 1.15  | 1.30  |       | 0.70  | 0.32  |       | 0.31  | 0.38  |       |

Grade Separation on Kingwood Drive  
11: Woodland Hills & Northpark Dr.

AM Peak Hour

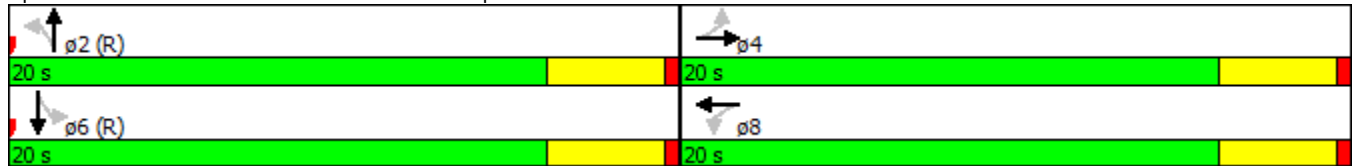


| Lane Group     | EBL  | EBT  | EBR | WBL   | WBT   | WBR | NBL  | NBT  | NBR | SBL  | SBT | SBR |
|----------------|------|------|-----|-------|-------|-----|------|------|-----|------|-----|-----|
| Control Delay  | 12.1 | 10.1 |     | 113.6 | 151.7 |     | 18.4 | 7.4  |     | 11.2 | 9.5 |     |
| Queue Delay    | 0.0  | 0.0  |     | 0.0   | 0.0   |     | 0.0  | 0.0  |     | 0.0  | 0.0 |     |
| Total Delay    | 12.1 | 10.1 |     | 113.6 | 151.7 |     | 18.4 | 7.4  |     | 11.2 | 9.5 |     |
| LOS            | B    | B    |     | F     | F     |     | B    | A    |     | B    | A   |     |
| Approach Delay |      | 10.2 |     |       | 147.7 |     |      | 13.0 |     |      | 9.8 |     |
| Approach LOS   |      | B    |     |       | F     |     |      | B    |     |      | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 60  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.30  |
| Intersection Signal Delay:        | 72.9  |
| Intersection Capacity Utilization | 89.6%   |
| Analysis Period (min)             | 15  |
| Intersection LOS:                 | E   |
| ICU Level of Service              | E   |

Splits and Phases: 11: Woodland Hills & Northpark Dr.



Grade Separation on Kingwood Drive  
14: US 59 SBFR & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL     | WBT    | WBR   | NBL  | NBT  | NBR   | SBL   | SBT   | SBR   |
|----------------------------|------|-------|-------|---------|--------|-------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑↑↑  |       | ↔↔      | ↑↑     |       |      |      |       | ↔     | ↑↑↑↑  | ↔     |
| Volume (vph)               | 0    | 228   | 192   | 1764    | 333    | 0     | 0    | 0    | 0     | 452   | 311   | 124   |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900    | 1900   | 1900  | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0    |       | 150   | 0       |        | 0     | 0    |      | 0     | 0     |       | 0     |
| Storage Lanes              | 0    |       | 2     | 2       |        | 0     | 0    |      | 0     | 1     |       | 1     |
| Taper Length (ft)          | 25   |       |       | 25      |        |       | 25   |      |       | 25    |       |       |
| Lane Util. Factor          | 1.00 | 0.86  | 0.86  | 0.97    | 0.95   | 1.00  | 1.00 | 1.00 | 1.00  | 0.86  | 0.81  | 0.86  |
| Frt                        |      | 0.931 |       |         |        |       |      |      |       |       | 0.997 | 0.850 |
| Flt Protected              |      |       |       | 0.950   |        |       |      |      |       | 0.950 | 0.980 |       |
| Satd. Flow (prot)          | 0    | 5966  | 0     | 3433    | 3539   | 0     | 0    | 0    | 0     | 1522  | 4423  | 1362  |
| Flt Permitted              |      |       |       | 0.950   |        |       |      |      |       | 0.950 | 0.980 |       |
| Satd. Flow (perm)          | 0    | 5966  | 0     | 3433    | 3539   | 0     | 0    | 0    | 0     | 1522  | 4423  | 1362  |
| Right Turn on Red          |      |       | Yes   |         |        | Yes   |      |      | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |      | 33    |       |         |        |       |      |      |       |       | 2     | 232   |
| Link Speed (mph)           |      | 40    |       |         | 30     |       |      | 55   |       |       | 55    |       |
| Link Distance (ft)         |      | 3907  |       |         | 296    |       |      | 398  |       |       | 255   |       |
| Travel Time (s)            |      | 66.6  |       |         | 6.7    |       |      | 4.9  |       |       | 3.2   |       |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113%    | 113%   | 113%  | 113% | 113% | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 280   | 236   | 2167    | 409    | 0     | 0    | 0    | 0     | 555   | 382   | 152   |
| Shared Lane Traffic (%)    |      |       |       |         |        |       |      |      |       | 50%   |       | 10%   |
| Lane Group Flow (vph)      | 0    | 516   | 0     | 2167    | 409    | 0     | 0    | 0    | 0     | 277   | 675   | 137   |
| Enter Blocked Intersection | No   | No    | No    | No      | No     | No    | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left    | Left   | Right | Left | Left | Right | Left  | Left  | Right |
| Median Width(ft)           |      | 24    |       |         | 24     |       |      | 12   |       |       | 12    |       |
| Link Offset(ft)            |      | 0     |       |         | 0      |       |      | 0    |       |       | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |         | 16     |       |      | 16   |       |       | 16    |       |
| Two way Left Turn Lane     |      |       |       |         |        |       |      |      |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00    | 1.00   | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15      |        | 9     | 15   |      | 9     | 15    |       | 9     |
| Number of Detectors        |      | 2     |       | 1       | 2      |       |      |      |       | 1     | 2     | 1     |
| Detector Template          |      | Thru  |       | Left    | Thru   |       |      |      |       | Left  | Thru  | Right |
| Leading Detector (ft)      |      | 100   |       | 20      | 100    |       |      |      |       | 20    | 100   | 20    |
| Trailing Detector (ft)     |      | 0     |       | 0       | 0      |       |      |      |       | 0     | 0     | 0     |
| Detector 1 Position(ft)    |      | 0     |       | 0       | 0      |       |      |      |       | 0     | 0     | 0     |
| Detector 1 Size(ft)        |      | 6     |       | 20      | 6      |       |      |      |       | 20    | 6     | 20    |
| Detector 1 Type            |      | Cl+Ex |       | Cl+Ex   | Cl+Ex  |       |      |      |       | Cl+Ex | Cl+Ex | Cl+Ex |
| Detector 1 Channel         |      |       |       |         |        |       |      |      |       |       |       |       |
| Detector 1 Extend (s)      |      | 0.0   |       | 0.0     | 0.0    |       |      |      |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Queue (s)       |      | 0.0   |       | 0.0     | 0.0    |       |      |      |       | 0.0   | 0.0   | 0.0   |
| Detector 1 Delay (s)       |      | 0.0   |       | 0.0     | 0.0    |       |      |      |       | 0.0   | 0.0   | 0.0   |
| Detector 2 Position(ft)    |      | 94    |       |         | 94     |       |      |      |       |       | 94    |       |
| Detector 2 Size(ft)        |      | 6     |       |         | 6      |       |      |      |       |       | 6     |       |
| Detector 2 Type            |      | Cl+Ex |       |         | Cl+Ex  |       |      |      |       |       | Cl+Ex |       |
| Detector 2 Channel         |      |       |       |         |        |       |      |      |       |       |       |       |
| Detector 2 Extend (s)      |      | 0.0   |       |         | 0.0    |       |      |      |       |       | 0.0   |       |
| Turn Type                  |      | NA    |       | Prot    | NA     |       |      |      |       | Perm  | NA    | Perm  |
| Protected Phases           |      | 2     |       | 1 11 21 | 1 2 11 |       |      |      |       |       | 3 4   |       |
| Permitted Phases           |      |       |       |         |        |       |      |      |       | 3 4   |       | 3 4   |



Grade Separation on Kingwood Drive  
14: US 59 SBFR & Northpark Dr.

AM Peak Hour



| Lane Group              | EBL | EBT    | EBR | WBL     | WBT    | WBR | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|-------------------------|-----|--------|-----|---------|--------|-----|-----|-----|-----|------|------|------|
| Detector Phase          |     | 2      |     | 1 11 21 | 1 2 11 |     |     |     |     | 3 4  | 3 4  | 3 4  |
| Switch Phase            |     |        |     |         |        |     |     |     |     |      |      |      |
| Minimum Initial (s)     |     | 7.0    |     |         |        |     |     |     |     |      |      |      |
| Minimum Split (s)       |     | 14.0   |     |         |        |     |     |     |     |      |      |      |
| Total Split (s)         |     | 15.0   |     |         |        |     |     |     |     |      |      |      |
| Total Split (%)         |     | 10.4%  |     |         |        |     |     |     |     |      |      |      |
| Maximum Green (s)       |     | 9.7    |     |         |        |     |     |     |     |      |      |      |
| Yellow Time (s)         |     | 3.6    |     |         |        |     |     |     |     |      |      |      |
| All-Red Time (s)        |     | 1.7    |     |         |        |     |     |     |     |      |      |      |
| Lost Time Adjust (s)    |     | 0.0    |     |         |        |     |     |     |     |      |      |      |
| Total Lost Time (s)     |     | 5.3    |     |         |        |     |     |     |     |      |      |      |
| Lead/Lag                |     |        |     |         |        |     |     |     |     |      |      |      |
| Lead-Lag Optimize?      |     |        |     |         |        |     |     |     |     |      |      |      |
| Vehicle Extension (s)   |     | 3.0    |     |         |        |     |     |     |     |      |      |      |
| Recall Mode             |     | None   |     |         |        |     |     |     |     |      |      |      |
| Walk Time (s)           |     |        |     |         |        |     |     |     |     |      |      |      |
| Flash Dont Walk (s)     |     |        |     |         |        |     |     |     |     |      |      |      |
| Pedestrian Calls (#/hr) |     |        |     |         |        |     |     |     |     |      |      |      |
| Act Effect Green (s)    |     | 9.7    |     | 86.7    | 89.4   |     |     |     |     | 31.3 | 31.3 | 31.3 |
| Actuated g/C Ratio      |     | 0.07   |     | 0.60    | 0.62   |     |     |     |     | 0.22 | 0.22 | 0.22 |
| v/c Ratio               |     | 1.70dr |     | 1.05    | 0.19   |     |     |     |     | 0.84 | 0.70 | 0.29 |
| Control Delay           |     | 159.6  |     | 46.0    | 1.0    |     |     |     |     | 76.2 | 56.4 | 1.5  |
| Queue Delay             |     | 0.0    |     | 21.3    | 0.2    |     |     |     |     | 0.0  | 0.0  | 0.0  |
| Total Delay             |     | 159.6  |     | 67.3    | 1.2    |     |     |     |     | 76.2 | 56.4 | 1.5  |
| LOS                     |     | F      |     | E       | A      |     |     |     |     | E    | E    | A    |
| Approach Delay          |     | 159.6  |     |         | 56.8   |     |     |     |     |      | 54.6 |      |
| Approach LOS            |     | F      |     |         | E      |     |     |     |     |      | D    |      |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 110 (76%), Referenced to phase 1:WBTL and 6:, Start of Green  
 Natural Cycle: 140  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.19  
 Intersection Signal Delay: 68.9  
 Intersection LOS: E  
 Intersection Capacity Utilization 79.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 14: US 59 SBFR & Northpark Dr.

|                      |                      |  |  |
|----------------------|----------------------|--|--|
| #14<br>← ρ2<br>15 s  | #14<br>↓ ρ4<br>30 s  | #14   #14<br>↓ ρ3 ρ1 (R)<br>7 s   74 s | #14   #14<br>↙ ρ21 ↖ ρ11<br>7 s   11 s |
| #17<br>↑ ρ7<br>7 s   | #17<br>↗ ρ5<br>8 s   | #17<br>↗ ρ15<br>30 s                   | #17<br>← ρ5 (R)<br>27 s                |
| #17<br>↗ ρ15<br>30 s | #17<br>← ρ16<br>54 s | #17<br>↑ ρ8<br>8 s                     |  |



Grade Separation on Kingwood Drive  
 14: US 59 SBFR & Northpark Dr.

AM Peak Hour

| Lane Group              | ø1    | ø3   | ø4   | ø5   | ø6    | ø7   | ø8   | ø11  | ø15  | ø16  | ø21  |
|-------------------------|-------|------|------|------|-------|------|------|------|------|------|------|
| Detector Phase          |       |      |      |      |       |      |      |      |      |      |      |
| Switch Phase            |       |      |      |      |       |      |      |      |      |      |      |
| Minimum Initial (s)     | 3.0   | 1.0  | 5.0  | 2.7  | 5.0   | 1.0  | 1.0  | 3.0  | 3.0  | 4.0  | 1.0  |
| Minimum Split (s)       | 21.3  | 7.0  | 22.7 | 8.0  | 26.3  | 7.0  | 8.0  | 8.3  | 8.3  | 20.0 | 7.0  |
| Total Split (s)         | 74.0  | 7.0  | 30.0 | 8.0  | 27.0  | 7.0  | 8.0  | 11.0 | 30.0 | 54.0 | 7.0  |
| Total Split (%)         | 51%   | 5%   | 21%  | 6%   | 19%   | 5%   | 6%   | 8%   | 21%  | 38%  | 5%   |
| Maximum Green (s)       | 68.7  | 1.3  | 23.3 | 2.7  | 21.7  | 1.3  | 1.3  | 5.7  | 24.7 | 48.7 | 1.7  |
| Yellow Time (s)         | 3.6   | 4.7  | 4.7  | 3.6  | 3.6   | 3.7  | 4.7  | 3.6  | 3.6  | 3.6  | 3.6  |
| All-Red Time (s)        | 1.7   | 1.0  | 2.0  | 1.7  | 1.7   | 2.0  | 2.0  | 1.7  | 1.7  | 1.7  | 1.7  |
| Lost Time Adjust (s)    |       |      |      |      |       |      |      |      |      |      |      |
| Total Lost Time (s)     |       |      |      |      |       |      |      |      |      |      |      |
| Lead/Lag                | Lag   | Lead |      | Lag  | Lead  | Lead |      | Lag  |      | Lag  | Lead |
| Lead-Lag Optimize?      | Yes   | Yes  |      | Yes  | Yes   | Yes  |      | Yes  |      | Yes  | Yes  |
| Vehicle Extension (s)   | 3.0   | 3.0  | 3.0  | 3.0  | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  |
| Recall Mode             | C-Max | None | None | None | C-Max | None | None | None | None | None | None |
| Walk Time (s)           |       |      | 5.0  |      | 5.0   |      |      |      |      |      |      |
| Flash Dont Walk (s)     |       |      | 11.0 |      | 16.0  |      |      |      |      |      |      |
| Pedestrian Calls (#/hr) |       |      | 0    |      | 0     |      |      |      |      |      |      |
| Act Effect Green (s)    |       |      |      |      |       |      |      |      |      |      |      |
| Actuated g/C Ratio      |       |      |      |      |       |      |      |      |      |      |      |
| v/c Ratio               |       |      |      |      |       |      |      |      |      |      |      |
| Control Delay           |       |      |      |      |       |      |      |      |      |      |      |
| Queue Delay             |       |      |      |      |       |      |      |      |      |      |      |
| Total Delay             |       |      |      |      |       |      |      |      |      |      |      |
| LOS                     |       |      |      |      |       |      |      |      |      |      |      |
| Approach Delay          |       |      |      |      |       |      |      |      |      |      |      |
| Approach LOS            |       |      |      |      |       |      |      |      |      |      |      |
| Intersection Summary    |       |      |      |      |       |      |      |      |      |      |      |

Grade Separation on Kingwood Drive  
17: US 59 NBFR & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT    | EBR   | WBL  | WBT   | WBR   | NBL   | NBT   | NBR   | SBL  | SBT  | SBR   |
|----------------------------|-------|--------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| Lane Configurations        | ↔↔    | ↑↑     |       |      | ↑↑↑   |       | ↔↔    | ↑↑    | ↔↔    |      |      |       |
| Volume (vph)               | 71    | 617    | 0     | 0    | 1823  | 226   | 145   | 126   | 434   | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900   | 1900  | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  |
| Storage Length (ft)        | 0     |        | 0     | 0    |       | 150   | 0     |       | 0     | 0    |      | 0     |
| Storage Lanes              | 2     |        | 0     | 0    |       | 2     | 2     |       | 2     | 0    |      | 0     |
| Taper Length (ft)          | 25    |        |       | 25   |       |       | 25    |       |       | 25   |      |       |
| Lane Util. Factor          | 0.97  | 0.95   | 1.00  | 1.00 | 0.86  | 0.86  | 0.97  | 0.95  | 0.88  | 1.00 | 1.00 | 1.00  |
| Frt                        |       |        |       |      | 0.983 |       |       |       | 0.850 |      |      |       |
| Flt Protected              | 0.950 |        |       |      |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (prot)          | 3433  | 3539   | 0     | 0    | 6299  | 0     | 3433  | 3539  | 2787  | 0    | 0    | 0     |
| Flt Permitted              | 0.950 |        |       |      |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (perm)          | 3433  | 3539   | 0     | 0    | 6299  | 0     | 3433  | 3539  | 2787  | 0    | 0    | 0     |
| Right Turn on Red          |       |        | Yes   |      |       | Yes   |       |       | Yes   |      |      | Yes   |
| Satd. Flow (RTOR)          |       |        |       |      | 32    |       |       |       | 533   |      |      |       |
| Link Speed (mph)           |       | 30     |       |      | 45    |       |       | 55    |       |      | 55   |       |
| Link Distance (ft)         |       | 296    |       |      | 1797  |       |       | 365   |       |      | 309  |       |
| Travel Time (s)            |       | 6.7    |       |      | 27.2  |       |       | 4.5   |       |      | 3.8  |       |
| 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  |
| Growth Factor              | 113%  | 113%   | 113%  | 113% | 113%  | 113%  | 113%  | 113%  | 113%  | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 87    | 758    | 0     | 0    | 2239  | 278   | 178   | 155   | 533   | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |       |        |       |      |       |       |       |       |       |      |      |       |
| Lane Group Flow (vph)      | 87    | 758    | 0     | 0    | 2517  | 0     | 178   | 155   | 533   | 0    | 0    | 0     |
| Enter Blocked Intersection | No    | No     | No    | No   | No    | No    | No    | No    | No    | No   | No   | No    |
| Lane Alignment             | Left  | Left   | Right | Left | Left  | Right | Left  | Left  | Right | Left | Left | Right |
| Median Width(ft)           |       | 24     |       |      | 24    |       |       | 24    |       |      | 24   |       |
| Link Offset(ft)            |       | 0      |       |      | 0     |       |       | 0     |       |      | 0    |       |
| Crosswalk Width(ft)        |       | 16     |       |      | 16    |       |       | 16    |       |      | 16   |       |
| Two way Left Turn Lane     |       |        |       |      |       |       |       |       |       |      |      |       |
| Headway Factor             | 1.00  | 1.00   | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    |        | 9     | 15   |       | 9     | 15    |       | 9     | 15   |      | 9     |
| Number of Detectors        | 1     | 2      |       |      | 2     |       | 1     | 2     | 1     |      |      |       |
| Detector Template          | Left  | Thru   |       |      | Thru  |       | Left  | Thru  | Right |      |      |       |
| Leading Detector (ft)      | 20    | 100    |       |      | 100   |       | 20    | 100   | 20    |      |      |       |
| Trailing Detector (ft)     | 0     | 0      |       |      | 0     |       | 0     | 0     | 0     |      |      |       |
| Detector 1 Position(ft)    | 0     | 0      |       |      | 0     |       | 0     | 0     | 0     |      |      |       |
| Detector 1 Size(ft)        | 20    | 6      |       |      | 6     |       | 20    | 6     | 20    |      |      |       |
| Detector 1 Type            | Cl+Ex | Cl+Ex  |       |      | Cl+Ex |       | Cl+Ex | Cl+Ex | Cl+Ex |      |      |       |
| Detector 1 Channel         |       |        |       |      |       |       |       |       |       |      |      |       |
| Detector 1 Extend (s)      | 0.0   | 0.0    |       |      | 0.0   |       | 0.0   | 0.0   | 0.0   |      |      |       |
| Detector 1 Queue (s)       | 0.0   | 0.0    |       |      | 0.0   |       | 0.0   | 0.0   | 0.0   |      |      |       |
| Detector 1 Delay (s)       | 0.0   | 0.0    |       |      | 0.0   |       | 0.0   | 0.0   | 0.0   |      |      |       |
| Detector 2 Position(ft)    |       | 94     |       |      | 94    |       |       | 94    |       |      |      |       |
| Detector 2 Size(ft)        |       | 6      |       |      | 6     |       |       | 6     |       |      |      |       |
| Detector 2 Type            |       | Cl+Ex  |       |      | Cl+Ex |       |       | Cl+Ex |       |      |      |       |
| Detector 2 Channel         |       |        |       |      |       |       |       |       |       |      |      |       |
| Detector 2 Extend (s)      |       | 0.0    |       |      | 0.0   |       |       | 0.0   |       |      |      |       |
| Turn Type                  | Prot  | NA     |       |      | NA    |       | Perm  | NA    | Perm  |      |      |       |
| Protected Phases           | 5 15  | 5 6 15 |       |      | 6 16  |       |       | 7 8   |       |      |      |       |
| Permitted Phases           |       |        |       |      |       |       | 7 8   |       | 7 8   |      |      |       |



Grade Separation on Kingwood Drive  
17: US 59 NBFR & Northpark Dr.

AM Peak Hour

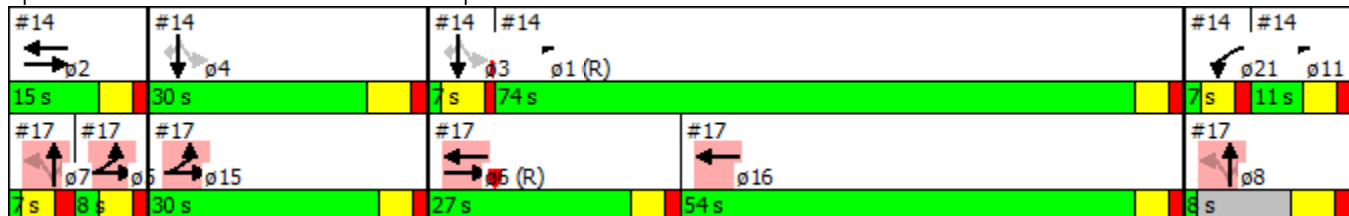


| Lane Group              | EBL  | EBT    | EBR | WBL | WBT  | WBR | NBL  | NBT  | NBR  | SBL | SBT | SBR |
|-------------------------|------|--------|-----|-----|------|-----|------|------|------|-----|-----|-----|
| Detector Phase          | 5 15 | 5 6 15 |     |     | 6 16 |     | 7 8  | 7 8  | 7 8  |     |     |     |
| Switch Phase            |      |        |     |     |      |     |      |      |      |     |     |     |
| Minimum Initial (s)     |      |        |     |     |      |     |      |      |      |     |     |     |
| Minimum Split (s)       |      |        |     |     |      |     |      |      |      |     |     |     |
| Total Split (s)         |      |        |     |     |      |     |      |      |      |     |     |     |
| Total Split (%)         |      |        |     |     |      |     |      |      |      |     |     |     |
| Maximum Green (s)       |      |        |     |     |      |     |      |      |      |     |     |     |
| Yellow Time (s)         |      |        |     |     |      |     |      |      |      |     |     |     |
| All-Red Time (s)        |      |        |     |     |      |     |      |      |      |     |     |     |
| Lost Time Adjust (s)    |      |        |     |     |      |     |      |      |      |     |     |     |
| Total Lost Time (s)     |      |        |     |     |      |     |      |      |      |     |     |     |
| Lead/Lag                |      |        |     |     |      |     |      |      |      |     |     |     |
| Lead-Lag Optimize?      |      |        |     |     |      |     |      |      |      |     |     |     |
| Vehicle Extension (s)   |      |        |     |     |      |     |      |      |      |     |     |     |
| Recall Mode             |      |        |     |     |      |     |      |      |      |     |     |     |
| Walk Time (s)           |      |        |     |     |      |     |      |      |      |     |     |     |
| Flash Dont Walk (s)     |      |        |     |     |      |     |      |      |      |     |     |     |
| Pedestrian Calls (#/hr) |      |        |     |     |      |     |      |      |      |     |     |     |
| Act Effct Green (s)     | 32.5 | 59.7   |     |     | 75.9 |     | 19.3 | 19.3 | 19.3 |     |     |     |
| Actuated g/C Ratio      | 0.23 | 0.41   |     |     | 0.53 |     | 0.13 | 0.13 | 0.13 |     |     |     |
| v/c Ratio               | 0.11 | 0.52   |     |     | 0.75 |     | 0.39 | 0.33 | 0.64 |     |     |     |
| Control Delay           | 22.2 | 1.8    |     |     | 28.2 |     | 59.7 | 58.6 | 8.2  |     |     |     |
| Queue Delay             | 0.0  | 1.3    |     |     | 0.2  |     | 0.0  | 0.0  | 0.0  |     |     |     |
| Total Delay             | 22.2 | 3.1    |     |     | 28.4 |     | 59.7 | 58.6 | 8.2  |     |     |     |
| LOS                     | C    | A      |     |     | C    |     | E    | E    | A    |     |     |     |
| Approach Delay          |      | 5.1    |     |     | 28.4 |     |      | 27.8 |      |     |     |     |
| Approach LOS            |      | A      |     |     | C    |     |      | C    |      |     |     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 110 (76%), Referenced to phase 1:WBTL and 6:, Start of Green |
| Natural Cycle:                    | 140  |
| Control Type:                     | Actuated-Coordinated   |
| Maximum v/c Ratio:                | 1.19   |
| Intersection Signal Delay:        | 23.6   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 79.5%  |
| ICU Level of Service              | D  |
| Analysis Period (min)             | 15   |

Splits and Phases: 17: US 59 NBFR & Northpark Dr.




















Grade Separation on Kingwood Drive  
17: US 59 NBFR & Northpark Dr.

AM Peak Hour

| Lane Group              | ø1    | ø2   | ø3   | ø4   | ø5   | ø6    | ø7   | ø8   | ø11  | ø15  | ø16  | ø21  |     |  |      |  |
|-------------------------|-------|------|------|------|------|-------|------|------|------|------|------|------|-----|--|------|--|
| Detector Phase          |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Switch Phase            |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Minimum Initial (s)     | 3.0   | 7.0  | 1.0  | 5.0  | 2.7  | 5.0   | 1.0  | 1.0  | 3.0  | 3.0  | 4.0  | 1.0  |     |  |      |  |
| Minimum Split (s)       | 21.3  | 14.0 | 7.0  | 22.7 | 8.0  | 26.3  | 7.0  | 8.0  | 8.3  | 8.3  | 20.0 | 7.0  |     |  |      |  |
| Total Split (s)         | 74.0  | 15.0 | 7.0  | 30.0 | 8.0  | 27.0  | 7.0  | 8.0  | 11.0 | 30.0 | 54.0 | 7.0  |     |  |      |  |
| Total Split (%)         | 51%   | 10%  | 5%   | 21%  | 6%   | 19%   | 5%   | 6%   | 8%   | 21%  | 38%  | 5%   |     |  |      |  |
| Maximum Green (s)       | 68.7  | 9.7  | 1.3  | 23.3 | 2.7  | 21.7  | 1.3  | 1.3  | 5.7  | 24.7 | 48.7 | 1.7  |     |  |      |  |
| Yellow Time (s)         | 3.6   | 3.6  | 4.7  | 4.7  | 3.6  | 3.6   | 3.7  | 4.7  | 3.6  | 3.6  | 3.6  | 3.6  |     |  |      |  |
| All-Red Time (s)        | 1.7   | 1.7  | 1.0  | 2.0  | 1.7  | 1.7   | 2.0  | 2.0  | 1.7  | 1.7  | 1.7  | 1.7  |     |  |      |  |
| Lost Time Adjust (s)    |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Total Lost Time (s)     |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Lead/Lag                | Lag   |      | Lead |      | Lag  |       | Lead |      | Lead |      | Lag  |      | Lag |  | Lead |  |
| Lead-Lag Optimize?      | Yes   |      | Yes  |      | Yes  |       | Yes  |      | Yes  |      | Yes  |      | Yes |  | Yes  |  |
| Vehicle Extension (s)   | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  |     |  |      |  |
| Recall Mode             | C-Max | None | None | None | None | C-Max | None | None | None | None | None | None |     |  |      |  |
| Walk Time (s)           |       |      |      |      | 5.0  |       | 5.0  |      |      |      |      |      |     |  |      |  |
| Flash Dont Walk (s)     |       |      |      |      | 11.0 |       | 16.0 |      |      |      |      |      |     |  |      |  |
| Pedestrian Calls (#/hr) |       |      |      |      | 0    |       | 0    |      |      |      |      |      |     |  |      |  |
| Act Effect Green (s)    |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Actuated g/C Ratio      |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| v/c Ratio               |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Control Delay           |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Queue Delay             |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Total Delay             |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| LOS                     |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Approach Delay          |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Approach LOS            |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |
| Intersection Summary    |       |      |      |      |      |       |      |      |      |      |      |      |     |  |      |  |

Grade Separation on Kingwood Drive  
19: US 59 NBFR & Hamblen

AM Peak Hour

|                            |  |  |  |  |  |  |  |   |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|--|---|---|---|---|
| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT  | NBR   | SBL   | SBT   | SBR   |
| Lane Configurations        |   |  |   |   |   |  |  | <br> |  |   |   |   |
| Volume (vph)               | 3   | 43  | 0   | 0   | 0   | 217   | 0  | 637  | 125   | 0   | 0   | 0   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900   | 1900  | 1900  | 1900  | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 0.95   | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |   |   |   |   |   | 0.865   |  |  | 0.850   |   |   |   |
| Flt Protected              |   | 0.997   |   |   |   |   |  |  |   |   |   |   |
| Satd. Flow (prot)          | 0   | 1857  | 0   | 0   | 0   | 1611  | 0  | 3539   | 1583  | 0   | 0   | 0   |
| Flt Permitted              |   | 0.997   |   |   |   |   |  |  |   |   |   |   |
| Satd. Flow (perm)          | 0   | 1857  | 0   | 0   | 0   | 1611  | 0  | 3539   | 1583  | 0   | 0   | 0   |
| Link Speed (mph)           |   | 35  |   |   | 35  |   |  | 55   |   |   | 55  |   |
| Link Distance (ft)         |   | 168   |   |   | 123   |   |  | 612  |   |   | 7207  |   |
| Travel Time (s)            |   | 3.3   |   |   | 2.4   |   |  | 7.6  |   |   | 89.3  |   |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%   | 113%   | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 4   | 53  | 0   | 0   | 0   | 267   | 0  | 782  | 154   | 0   | 0   | 0   |
| Shared Lane Traffic (%)    |   |   |   |   |   |   |  |  |   |   |   |   |
| Lane Group Flow (vph)      | 0   | 57  | 0   | 0   | 0   | 267   | 0  | 782  | 154   | 0   | 0   | 0   |
| Enter Blocked Intersection | No  | No  | No  | No  | No  | No  | No   | No   | No  | No  | No  | No  |
| Lane Alignment             | Left  | Left  | Right   | Left  | Left  | Right   | Left   | Left   | Right   | Left  | Left  | Right   |
| Median Width(ft)           |   | 0   |   |   | 0   |   |  | 0  |   |   | 0   |   |
| Link Offset(ft)            |   | 0   |   |   | 0   |   |  | 0  |   |   | 0   |   |
| Crosswalk Width(ft)        |   | 16  |   |   | 16  |   |  | 16   |   |   | 16  |   |
| Two way Left Turn Lane     |   |   |   |   |   |   |  |  |   |   |   |   |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15  |   | 9   | 15  |   | 9   | 15   |  | 9   | 15  |   | 9   |
| Sign Control               |   | Stop  |   |   | Stop  |   |  | Free   |   |   | Free  |   |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 48.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
20: Loop 494 & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 40    | 862   | 108   | 191   | 1731  | 72    | 40    | 60    | 146   | 148   | 166   | 174   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 150   |       | 150   | 150   |       | 150   |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |       | 0.983 |       |       | 0.994 |       |       |       | 0.850 |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3479  | 0     | 1770  | 3518  | 0     | 1770  | 1863  | 1583  | 1770  | 1863  | 1583  |
| Flt Permitted              | 0.250 |       |       | 0.250 |       |       | 0.630 |       |       | 0.709 |       |       |
| Satd. Flow (perm)          | 466   | 3479  | 0     | 466   | 3518  | 0     | 1174  | 1863  | 1583  | 1321  | 1863  | 1583  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 40    |       |       | 12    |       |       |       | 30    |       |       | 27    |
| Link Speed (mph)           |       | 45    |       |       | 45    |       |       | 30    |       |       |       | 30    |
| Link Distance (ft)         |       | 1797  |       |       | 1638  |       |       | 3315  |       |       |       | 2861  |
| Travel Time (s)            |       | 27.2  |       |       | 24.8  |       |       | 75.3  |       |       |       | 65.0  |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 49    | 1059  | 133   | 235   | 2126  | 88    | 49    | 74    | 179   | 182   | 204   | 214   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 49    | 1192  | 0     | 235   | 2214  | 0     | 49    | 74    | 179   | 182   | 204   | 214   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       |       | 12    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       |       | 16    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       |       | 6     |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       | 2     | 6     |       | 6     |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     | 0     | 0     | 0     | 0     |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  |
| v/c Ratio                  | 0.26  | 0.84  |       | 1.26  | 1.57  |       | 0.10  | 0.10  | 0.27  | 0.34  | 0.27  | 0.33  |

Grade Separation on Kingwood Drive  
20: Loop 494 & Northpark Dr.

AM Peak Hour

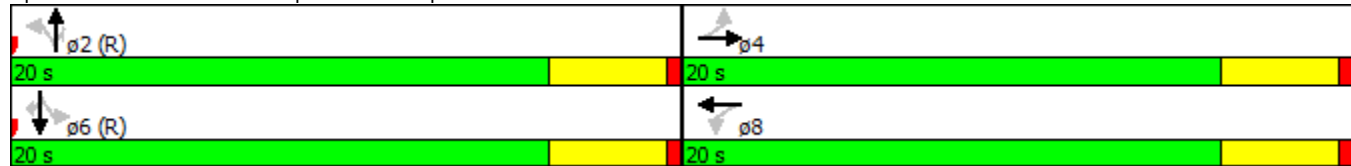


| Lane Group     | EBL  | EBT  | EBR | WBL   | WBT   | WBR | NBL | NBT | NBR | SBL  | SBT | SBR |
|----------------|------|------|-----|-------|-------|-----|-----|-----|-----|------|-----|-----|
| Control Delay  | 12.6 | 18.5 |     | 176.7 | 276.8 |     | 8.3 | 8.0 | 8.2 | 10.7 | 9.4 | 9.0 |
| Queue Delay    | 0.0  | 0.0  |     | 0.0   | 0.0   |     | 0.0 | 0.0 | 0.0 | 0.0  | 0.0 | 0.0 |
| Total Delay    | 12.6 | 18.5 |     | 176.7 | 276.8 |     | 8.3 | 8.0 | 8.2 | 10.7 | 9.4 | 9.0 |
| LOS            | B    | B    |     | F     | F     |     | A   | A   | A   | B    | A   | A   |
| Approach Delay |      | 18.2 |     |       | 267.2 |     |     | 8.2 |     |      | 9.6 |     |
| Approach LOS   |      | B    |     |       | F     |     |     | A   |     |      | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 90  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.57  |
| Intersection Signal Delay:        | 149.2   |
| Intersection LOS:                 | F   |
| Intersection Capacity Utilization | 86.5%   |
| ICU Level of Service              | E   |
| Analysis Period (min)             | 15  |

Splits and Phases: 20: Loop 494 & Northpark Dr.





Grade Separation on Kingwood Drive  
23: Brookdale & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 55    | 684   | 22    | 7     | 1255  | 27    | 28    | 16    | 14    | 34    | 42    | 177   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 0     |       | 0     | 0     |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 0     |       | 0     | 0     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Frt                        |       | 0.995 |       |       | 0.997 |       |       | 0.964 |       |       | 0.895 |       |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       |       | 0.977 |       |       | 0.993 |       |
| Satd. Flow (prot)          | 1770  | 3522  | 0     | 1770  | 3529  | 0     | 0     | 3333  | 0     | 0     | 3145  | 0     |
| Flt Permitted              | 0.250 |       |       | 0.250 |       |       |       | 0.811 |       |       | 0.918 |       |
| Satd. Flow (perm)          | 466   | 3522  | 0     | 466   | 3529  | 0     | 0     | 2767  | 0     | 0     | 2908  | 0     |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 9     |       |       | 6     |       |       | 17    |       |       | 5     |       |
| Link Speed (mph)           |       | 45    |       |       | 45    |       |       | 30    |       |       | 30    |       |
| Link Distance (ft)         |       | 4882  |       |       | 2785  |       |       | 1365  |       |       | 843   |       |
| Travel Time (s)            |       | 74.0  |       |       | 42.2  |       |       | 31.0  |       |       | 19.2  |       |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 68    | 840   | 27    | 9     | 1541  | 33    | 34    | 20    | 17    | 42    | 52    | 217   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 68    | 867   | 0     | 9     | 1574  | 0     | 0     | 71    | 0     | 0     | 311   | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 0     |       |       | 0     |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |       |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       |
| v/c Ratio                  | 0.37  | 0.61  |       | 0.05  | 1.11  |       | 0.06  |       |       |       | 0.27  |       |

Grade Separation on Kingwood Drive  
23: Brookdale & Northpark Dr.

AM Peak Hour

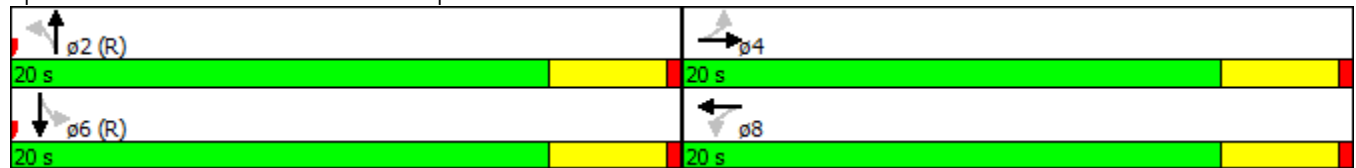


| Lane Group     | EBL  | EBT  | EBR | WBL | WBT  | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------|------|------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| Control Delay  | 13.3 | 9.9  |     | 7.0 | 75.3 |     |     | 6.3 |     |     | 8.7 |     |
| Queue Delay    | 0.0  | 0.0  |     | 0.0 | 0.0  |     |     | 0.0 |     |     | 0.0 |     |
| Total Delay    | 13.3 | 9.9  |     | 7.0 | 75.3 |     |     | 6.3 |     |     | 8.7 |     |
| LOS            | B    | A    |     | A   | E    |     |     | A   |     |     | A   |     |
| Approach Delay |      | 10.1 |     |     | 74.9 |     |     | 6.3 |     |     | 8.7 |     |
| Approach LOS   |      | B    |     |     | E    |     |     | A   |     |     | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 60  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.11  |
| Intersection Signal Delay:        | 45.2  |
| Intersection Capacity Utilization | 69.2%   |
| Analysis Period (min)             | 15  |
| Intersection LOS:                 | D   |
| ICU Level of Service              | C   |

Splits and Phases: 23: Brookdale & Northpark Dr.



Grade Separation on Kingwood Drive  
26: Northpark Dr. & Mills Branch

AM Peak Hour



| Lane Group                 | WBL   | WBR   | SEL  | SER   | NEL  | NER   |
|----------------------------|-------|-------|------|-------|------|-------|
| Lane Configurations        |       |       |      |       |      |       |
| Volume (vph)               | 0     | 0     | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |       |       |      |       |      |       |
| Flt Protected              |       |       |      |       |      |       |
| Satd. Flow (prot)          | 0     | 0     | 0    | 0     | 0    | 0     |
| Flt Permitted              |       |       |      |       |      |       |
| Satd. Flow (perm)          | 0     | 0     | 0    | 0     | 0    | 0     |
| Right Turn on Red          | Yes   | Yes   | Yes  | Yes   | Yes  | Yes   |
| Satd. Flow (RTOR)          |       |       |      |       |      |       |
| Link Speed (mph)           | 30    |       | 30   |       | 40   |       |
| Link Distance (ft)         | 8307  |       | 3268 |       | 1785 |       |
| Travel Time (s)            | 188.8 |       | 74.3 |       | 30.4 |       |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0     | 0     | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |      |       |      |       |
| Lane Group Flow (vph)      | 0     | 0     | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No   | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left | Right | Left | Right |
| Median Width(ft)           | 0     |       | 0    |       | 12   |       |
| Link Offset(ft)            | 0     |       | 0    |       | 0    |       |
| Crosswalk Width(ft)        | 16    |       | 16   |       | 16   |       |
| Two way Left Turn Lane     |       |       |      |       |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    | 9     | 15   | 9     | 15   | 9     |
| Turn Type                  |       |       |      |       |      |       |
| Protected Phases           |       |       |      |       |      |       |
| Permitted Phases           |       |       |      |       |      |       |
| Minimum Split (s)          |       |       |      |       |      |       |
| Total Split (s)            |       |       |      |       |      |       |
| Total Split (%)            |       |       |      |       |      |       |
| Maximum Green (s)          |       |       |      |       |      |       |
| Yellow Time (s)            |       |       |      |       |      |       |
| All-Red Time (s)           |       |       |      |       |      |       |
| Lost Time Adjust (s)       |       |       |      |       |      |       |
| Total Lost Time (s)        |       |       |      |       |      |       |
| Lead/Lag                   |       |       |      |       |      |       |
| Lead-Lag Optimize?         |       |       |      |       |      |       |
| Act Effect Green (s)       |       |       |      |       |      |       |
| Actuated g/C Ratio         |       |       |      |       |      |       |
| v/c Ratio                  |       |       |      |       |      |       |
| Control Delay              |       |       |      |       |      |       |
| Queue Delay                |       |       |      |       |      |       |
| Total Delay                |       |       |      |       |      |       |
| LOS                        |       |       |      |       |      |       |
| Approach Delay             |       |       |      |       |      |       |
| Approach LOS               |       |       |      |       |      |       |

Grade Separation on Kingwood Drive  
26: Northpark Dr. & Mills Branch

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AM Peak Hour

Intersection Summary

Area Type: Other

Cycle Length: 3

Actuated Cycle Length: 3

Offset: 0 (0%), Referenced to phase 2: and 6:, Start of Green

Natural Cycle: 40

Control Type: Pretimed

Maximum v/c Ratio: 0.00

Intersection Signal Delay: 0.0

Intersection LOS: A

Intersection Capacity Utilization 0.0%

ICU Level of Service A

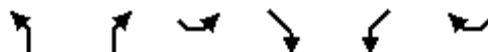
Analysis Period (min) 15

Splits and Phases: 26: Northpark Dr. & Mills Branch

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Grade Separation on Kingwood Drive  
28: Kingwood Dr. & Mills Branch

AM Peak Hour



| Lane Group                 | NBL    | NBR   | SEL  | SER   | SWL  | SWR   |
|----------------------------|--------|-------|------|-------|------|-------|
| Lane Configurations        |        |       |      |       |      |       |
| Volume (vph)               | 0      | 0     | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900   | 1900  | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00   | 0.88  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |        |       |      |       |      |       |
| Flt Protected              |        |       |      |       |      |       |
| Satd. Flow (prot)          | 0      | 3278  | 0    | 0     | 0    | 0     |
| Flt Permitted              |        |       |      |       |      |       |
| Satd. Flow (perm)          | 0      | 3278  | 0    | 0     | 0    | 0     |
| Right Turn on Red          | Yes    | Yes   | Yes  | Yes   |      | Yes   |
| Satd. Flow (RTOR)          |        |       |      |       |      |       |
| Link Speed (mph)           | 40     |       | 30   |       | 40   |       |
| Link Distance (ft)         | 1387   |       | 71   |       | 344  |       |
| Travel Time (s)            | 23.6   |       | 1.6  |       | 5.9  |       |
| Peak Hour Factor           | 0.92   | 0.92  | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113%   | 113%  | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0      | 0     | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |        |       |      |       |      |       |
| Lane Group Flow (vph)      | 0      | 0     | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No     | No    | No   | No    | No   | No    |
| Lane Alignment             | Left   | Right | Left | Right | Left | Right |
| Median Width(ft)           | 0      |       | 0    |       | 0    |       |
| Link Offset(ft)            | 0      |       | 0    |       | 0    |       |
| Crosswalk Width(ft)        | 16     |       | 16   |       | 16   |       |
| Two way Left Turn Lane     |        |       |      |       |      |       |
| Headway Factor             | 1.00   | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15     | 9     | 15   | 9     | 15   | 9     |
| Turn Type                  | custom |       |      |       |      |       |
| Protected Phases           | 2      |       |      |       |      |       |
| Permitted Phases           |        |       |      |       |      |       |
| Minimum Split (s)          | 20.0   |       |      |       |      |       |
| Total Split (s)            | 20.0   |       |      |       |      |       |
| Total Split (%)            | 100.0% |       |      |       |      |       |
| Maximum Green (s)          | 16.0   |       |      |       |      |       |
| Yellow Time (s)            | 3.5    |       |      |       |      |       |
| All-Red Time (s)           | 0.5    |       |      |       |      |       |
| Lost Time Adjust (s)       | 0.0    |       |      |       |      |       |
| Total Lost Time (s)        | 4.0    |       |      |       |      |       |
| Lead/Lag                   |        |       |      |       |      |       |
| Lead-Lag Optimize?         |        |       |      |       |      |       |
| Walk Time (s)              | 5.0    |       |      |       |      |       |
| Flash Dont Walk (s)        | 11.0   |       |      |       |      |       |
| Pedestrian Calls (#/hr)    | 0      |       |      |       |      |       |
| Act Effect Green (s)       |        |       |      |       |      |       |
| Actuated g/C Ratio         |        |       |      |       |      |       |
| v/c Ratio                  |        |       |      |       |      |       |
| Control Delay              |        |       |      |       |      |       |
| Queue Delay                |        |       |      |       |      |       |
| Total Delay                |        |       |      |       |      |       |

Grade Separation on Kingwood Drive  
28: Kingwood Dr. & Mills Branch

AM Peak Hour



| Lane Group | NBL | NBR | SEL | SER | SWL | SWR |
|------------|-----|-----|-----|-----|-----|-----|
|------------|-----|-----|-----|-----|-----|-----|

LOS

Approach Delay

Approach LOS

Intersection Summary

Area Type: Other

Cycle Length: 20

Actuated Cycle Length: 20

Offset: 0 (0%), Referenced to phase 2:NBR and 6:, Start of Green

Natural Cycle: 40

Control Type: Pretimed

Maximum v/c Ratio: 0.00

Intersection Signal Delay: 0.0

Intersection LOS: A

Intersection Capacity Utilization 0.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 28: Kingwood Dr. & Mills Branch





Grade Separation on Kingwood Drive  
 29: Northpark Dr. & Rock Springs

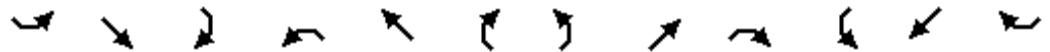
AM Peak Hour

| Lane Group                 | ø2 | ø15 |
|----------------------------|----|-----|
| Lane Configurations        |    |     |
| Volume (vph)               |    |     |
| Ideal Flow (vphp)          |    |     |
| Storage Length (ft)        |    |     |
| Storage Lanes              |    |     |
| Taper Length (ft)          |    |     |
| Lane Util. Factor          |    |     |
| Frt                        |    |     |
| Flt Protected              |    |     |
| Satd. Flow (prot)          |    |     |
| Flt Permitted              |    |     |
| Satd. Flow (perm)          |    |     |
| Right Turn on Red          |    |     |
| Satd. Flow (RTOR)          |    |     |
| Link Speed (mph)           |    |     |
| Link Distance (ft)         |    |     |
| Travel Time (s)            |    |     |
| Peak Hour Factor           |    |     |
| Growth Factor              |    |     |
| Adj. Flow (vph)            |    |     |
| Shared Lane Traffic (%)    |    |     |
| Lane Group Flow (vph)      |    |     |
| Enter Blocked Intersection |    |     |
| Lane Alignment             |    |     |
| Median Width(ft)           |    |     |
| Link Offset(ft)            |    |     |
| Crosswalk Width(ft)        |    |     |
| Two way Left Turn Lane     |    |     |
| Headway Factor             |    |     |
| Turning Speed (mph)        |    |     |
| Number of Detectors        |    |     |
| Detector Template          |    |     |
| Leading Detector (ft)      |    |     |
| Trailing Detector (ft)     |    |     |
| Detector 1 Position(ft)    |    |     |
| Detector 1 Size(ft)        |    |     |
| Detector 1 Type            |    |     |
| Detector 1 Channel         |    |     |
| Detector 1 Extend (s)      |    |     |
| Detector 1 Queue (s)       |    |     |
| Detector 1 Delay (s)       |    |     |
| Detector 2 Position(ft)    |    |     |
| Detector 2 Size(ft)        |    |     |
| Detector 2 Type            |    |     |
| Detector 2 Channel         |    |     |
| Detector 2 Extend (s)      |    |     |
| Turn Type                  |    |     |
| Protected Phases           | 2  | 15  |
| Permitted Phases           |    |     |



Grade Separation on Kingwood Drive  
29: Northpark Dr. & Rock Springs

AM Peak Hour

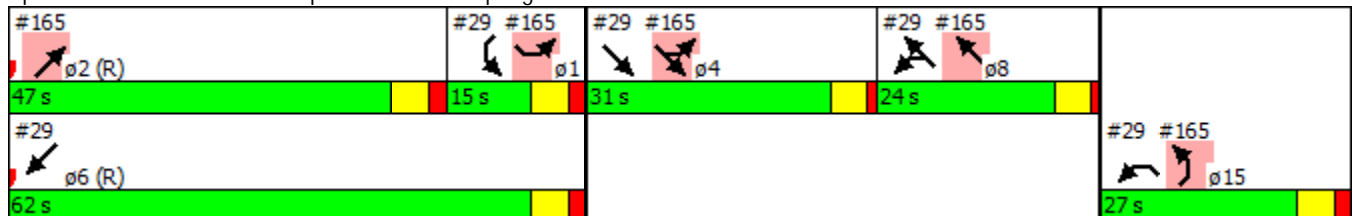


| Lane Group              | SEL | SET   | SER | NWL  | NWT   | NWR | NEL | NET | NER | SWL   | SWT   | SWR |
|-------------------------|-----|-------|-----|------|-------|-----|-----|-----|-----|-------|-------|-----|
| Detector Phase          |     | 4     |     | 15   | 8     |     |     |     |     | 1     | 6     |     |
| Switch Phase            |     |       |     |      |       |     |     |     |     |       |       |     |
| Minimum Initial (s)     |     | 5.0   |     |      | 5.0   |     |     |     |     | 5.0   | 4.0   |     |
| Minimum Split (s)       |     | 22.0  |     |      | 20.0  |     |     |     |     | 11.0  | 18.0  |     |
| Total Split (s)         |     | 31.0  |     |      | 24.0  |     |     |     |     | 15.0  | 62.0  |     |
| Total Split (%)         |     | 21.5% |     |      | 16.7% |     |     |     |     | 10.4% | 43.1% |     |
| Maximum Green (s)       |     | 26.0  |     |      | 19.0  |     |     |     |     | 9.0   | 56.0  |     |
| Yellow Time (s)         |     | 4.0   |     |      | 4.0   |     |     |     |     | 4.0   | 4.0   |     |
| All-Red Time (s)        |     | 1.0   |     |      | 1.0   |     |     |     |     | 2.0   | 2.0   |     |
| Lost Time Adjust (s)    |     | 0.0   |     |      | 0.0   |     |     |     |     | 0.0   | 0.0   |     |
| Total Lost Time (s)     |     | 5.0   |     |      | 5.0   |     |     |     |     | 6.0   | 6.0   |     |
| Lead/Lag                |     | Lead  |     |      | Lag   |     |     |     |     | Lag   |       |     |
| Lead-Lag Optimize?      |     | Yes   |     |      | Yes   |     |     |     |     | Yes   |       |     |
| Vehicle Extension (s)   |     | 3.0   |     |      | 3.0   |     |     |     |     | 3.0   | 3.0   |     |
| Recall Mode             |     | None  |     |      | Max   |     |     |     |     | Max   | C-Max |     |
| Walk Time (s)           |     | 5.0   |     |      | 5.0   |     |     |     |     |       | 5.0   |     |
| Flash Dont Walk (s)     |     | 11.0  |     |      | 10.0  |     |     |     |     |       | 7.0   |     |
| Pedestrian Calls (#/hr) |     | 0     |     |      | 0     |     |     |     |     |       | 0     |     |
| Act Effect Green (s)    |     | 9.9   |     | 61.1 | 35.1  |     |     |     |     | 9.0   | 56.0  |     |
| Actuated g/C Ratio      |     | 0.07  |     | 0.42 | 0.24  |     |     |     |     | 0.06  | 0.39  |     |
| v/c Ratio               |     | 0.73  |     | 0.11 | 0.16  |     |     |     |     | 0.06  | 0.52  |     |
| Control Delay           |     | 25.2  |     | 2.6  | 47.4  |     |     |     |     | 65.0  | 34.7  |     |
| Queue Delay             |     | 0.0   |     | 1.1  | 1.3   |     |     |     |     | 0.0   | 0.0   |     |
| Total Delay             |     | 25.2  |     | 3.7  | 48.6  |     |     |     |     | 65.0  | 34.7  |     |
| LOS                     |     | C     |     | A    | D     |     |     |     |     | E     | C     |     |
| Approach Delay          |     | 25.2  |     |      | 31.9  |     |     |     |     |       | 35.0  |     |
| Approach LOS            |     | C     |     |      | C     |     |     |     |     |       | C     |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 114 (79%), Referenced to phase 2:NET and 6:, Start of Green  
 Natural Cycle: 85  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.73  
 Intersection Signal Delay: 31.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 46.5%  
 ICU Level of Service A  
 Analysis Period (min) 15

Splits and Phases: 29: Northpark Dr. & Rock Springs



Grade Separation on Kingwood Drive  
 29: Northpark Dr. & Rock Springs

AM Peak Hour

| Lane Group              | ø2    | ø15  |
|-------------------------|-------|------|
| Detector Phase          |       |      |
| Switch Phase            |       |      |
| Minimum Initial (s)     | 4.0   | 5.0  |
| Minimum Split (s)       | 18.0  | 11.0 |
| Total Split (s)         | 47.0  | 27.0 |
| Total Split (%)         | 33%   | 19%  |
| Maximum Green (s)       | 41.0  | 21.0 |
| Yellow Time (s)         | 4.0   | 4.0  |
| All-Red Time (s)        | 2.0   | 2.0  |
| Lost Time Adjust (s)    |       |      |
| Total Lost Time (s)     |       |      |
| Lead/Lag                | Lead  |      |
| Lead-Lag Optimize?      | Yes   |      |
| Vehicle Extension (s)   | 3.0   | 3.0  |
| Recall Mode             | C-Max | Max  |
| Walk Time (s)           | 5.0   |      |
| Flash Dont Walk (s)     | 7.0   |      |
| Pedestrian Calls (#/hr) | 0     |      |
| Act Effect Green (s)    |       |      |
| Actuated g/C Ratio      |       |      |
| v/c Ratio               |       |      |
| Control Delay           |       |      |
| Queue Delay             |       |      |
| Total Delay             |       |      |
| LOS                     |       |      |
| Approach Delay          |       |      |
| Approach LOS            |       |      |
| Intersection Summary    |       |      |

Grade Separation on Kingwood Drive  
35: Russel Palmer & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT  | WBR   | NBL  | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|------|-------|-------|------|------|-------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    |       |      |      |       |      | ↑     | ↗     |       | ↖     |       |
| Volume (vph)               | 0    | 900   | 86    | 0    | 0    | 0     | 0    | 126   | 74    | 11    | 66    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0    |       | 0     | 0    |      | 0     | 150  |       | 150   | 0     |       | 0     |
| Storage Lanes              | 0    |       | 0     | 0    |      | 0     | 0    |       | 1     | 0     |       | 0     |
| Taper Length (ft)          | 25   |       |       | 25   |      |       | 25   |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      | 0.987 |       |      |      |       |      |       | 0.850 |       |       |       |
| Flt Protected              |      |       |       |      |      |       |      |       |       |       |       | 0.993 |
| Satd. Flow (prot)          | 0    | 3493  | 0     | 0    | 0    | 0     | 0    | 1863  | 1583  | 0     | 1850  | 0     |
| Flt Permitted              |      |       |       |      |      |       |      |       |       |       |       | 0.938 |
| Satd. Flow (perm)          | 0    | 3493  | 0     | 0    | 0    | 0     | 0    | 1863  | 1583  | 0     | 1747  | 0     |
| Right Turn on Red          |      |       | Yes   |      |      | Yes   |      |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |      | 13    |       |      |      |       |      |       | 91    |       |       |       |
| Link Speed (mph)           |      | 45    |       |      | 45   |       |      | 30    |       |       |       | 30    |
| Link Distance (ft)         |      | 117   |       |      | 4389 |       |      | 1145  |       |       |       | 106   |
| Travel Time (s)            |      | 1.8   |       |      | 66.5 |       |      | 26.0  |       |       |       | 2.4   |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113% | 113%  | 113% | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 1105  | 106   | 0    | 0    | 0     | 0    | 155   | 91    | 14    | 81    | 0     |
| Shared Lane Traffic (%)    |      |       |       |      |      |       |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 1211  | 0     | 0    | 0    | 0     | 0    | 155   | 91    | 0     | 95    | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No   | No    | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left | Right | Left | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |      | 0     |       |      | 0    |       |      | 0     |       |       |       | 0     |
| Link Offset(ft)            |      | 0     |       |      | 0    |       |      | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |      | 16    |       |      | 16   |       |      | 16    |       |       |       | 16    |
| Two way Left Turn Lane     |      |       |       |      |      |       |      |       |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |      | 9     | 15   |       | 9     | 15    |       | 9     |
| Number of Detectors        |      | 2     |       |      |      |       |      | 2     | 1     | 1     | 2     |       |
| Detector Template          |      | Thru  |       |      |      |       |      | Thru  | Right | Left  | Thru  |       |
| Leading Detector (ft)      |      | 100   |       |      |      |       |      | 100   | 20    | 20    | 100   |       |
| Trailing Detector (ft)     |      | 0     |       |      |      |       |      | 0     | 0     | 0     | 0     |       |
| Detector 1 Position(ft)    |      | 0     |       |      |      |       |      | 0     | 0     | 0     | 0     |       |
| Detector 1 Size(ft)        |      | 6     |       |      |      |       |      | 6     | 20    | 20    | 6     |       |
| Detector 1 Type            |      | Cl+Ex |       |      |      |       |      | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       |
| Detector 1 Channel         |      |       |       |      |      |       |      |       |       |       |       |       |
| Detector 1 Extend (s)      |      | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 1 Queue (s)       |      | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 1 Delay (s)       |      | 0.0   |       |      |      |       |      | 0.0   | 0.0   | 0.0   | 0.0   |       |
| Detector 2 Position(ft)    |      | 94    |       |      |      |       |      | 94    |       |       | 94    |       |
| Detector 2 Size(ft)        |      | 6     |       |      |      |       |      | 6     |       |       | 6     |       |
| Detector 2 Type            |      | Cl+Ex |       |      |      |       |      | Cl+Ex |       |       | Cl+Ex |       |
| Detector 2 Channel         |      |       |       |      |      |       |      |       |       |       |       |       |
| Detector 2 Extend (s)      |      | 0.0   |       |      |      |       |      | 0.0   |       |       | 0.0   |       |
| Turn Type                  |      | NA    |       |      |      |       |      | NA    | Perm  | Perm  | NA    |       |
| Protected Phases           |      | 2     |       |      |      |       |      | 8     |       |       | 4     |       |
| Permitted Phases           |      |       |       |      |      |       |      |       | 8     | 4     |       |       |

Grade Separation on Kingwood Drive  
 35: Russel Palmer & Northpark Dr.

AM Peak Hour

| Lane Group                 | ø1 | ø6 |
|----------------------------|----|----|
| Lane Configurations        |    |    |
| Volume (vph)               |    |    |
| Ideal Flow (vphpl)         |    |    |
| Storage Length (ft)        |    |    |
| Storage Lanes              |    |    |
| Taper Length (ft)          |    |    |
| Lane Util. Factor          |    |    |
| Frt                        |    |    |
| Flt Protected              |    |    |
| Satd. Flow (prot)          |    |    |
| Flt Permitted              |    |    |
| Satd. Flow (perm)          |    |    |
| Right Turn on Red          |    |    |
| Satd. Flow (RTOR)          |    |    |
| Link Speed (mph)           |    |    |
| Link Distance (ft)         |    |    |
| Travel Time (s)            |    |    |
| Peak Hour Factor           |    |    |
| Growth Factor              |    |    |
| Adj. Flow (vph)            |    |    |
| Shared Lane Traffic (%)    |    |    |
| Lane Group Flow (vph)      |    |    |
| Enter Blocked Intersection |    |    |
| Lane Alignment             |    |    |
| Median Width(ft)           |    |    |
| Link Offset(ft)            |    |    |
| Crosswalk Width(ft)        |    |    |
| Two way Left Turn Lane     |    |    |
| Headway Factor             |    |    |
| Turning Speed (mph)        |    |    |
| Number of Detectors        |    |    |
| Detector Template          |    |    |
| Leading Detector (ft)      |    |    |
| Trailing Detector (ft)     |    |    |
| Detector 1 Position(ft)    |    |    |
| Detector 1 Size(ft)        |    |    |
| Detector 1 Type            |    |    |
| Detector 1 Channel         |    |    |
| Detector 1 Extend (s)      |    |    |
| Detector 1 Queue (s)       |    |    |
| Detector 1 Delay (s)       |    |    |
| Detector 2 Position(ft)    |    |    |
| Detector 2 Size(ft)        |    |    |
| Detector 2 Type            |    |    |
| Detector 2 Channel         |    |    |
| Detector 2 Extend (s)      |    |    |
| Turn Type                  |    |    |
| Protected Phases           | 1  | 6  |
| Permitted Phases           |    |    |

Grade Separation on Kingwood Drive  
35: Russel Palmer & Northpark Dr.

AM Peak Hour



| Lane Group            | EBL | EBT   | EBR | WBL | WBT | WBR | NBL | NBT   | NBR   | SBL   | SBT   | SBR |
|-----------------------|-----|-------|-----|-----|-----|-----|-----|-------|-------|-------|-------|-----|
| Detector Phase        |     | 2     |     |     |     |     |     | 8     | 8     | 4     | 4     |     |
| Switch Phase          |     |       |     |     |     |     |     |       |       |       |       |     |
| Minimum Initial (s)   |     | 15.0  |     |     |     |     |     | 5.0   | 5.0   | 5.0   | 5.0   |     |
| Minimum Split (s)     |     | 21.3  |     |     |     |     |     | 11.2  | 11.2  | 11.3  | 11.3  |     |
| Total Split (s)       |     | 95.0  |     |     |     |     |     | 28.0  | 28.0  | 28.0  | 28.0  |     |
| Total Split (%)       |     | 66.0% |     |     |     |     |     | 19.4% | 19.4% | 19.4% | 19.4% |     |
| Maximum Green (s)     |     | 88.7  |     |     |     |     |     | 21.8  | 21.8  | 21.7  | 21.7  |     |
| Yellow Time (s)       |     | 4.3   |     |     |     |     |     | 3.6   | 3.6   | 4.3   | 4.3   |     |
| All-Red Time (s)      |     | 2.0   |     |     |     |     |     | 2.6   | 2.6   | 2.0   | 2.0   |     |
| Lost Time Adjust (s)  |     | 0.0   |     |     |     |     |     | 0.0   | 0.0   |       | 0.0   |     |
| Total Lost Time (s)   |     | 6.3   |     |     |     |     |     | 6.2   | 6.2   |       | 6.3   |     |
| Lead/Lag              |     | Lag   |     |     |     |     |     |       |       |       |       |     |
| Lead-Lag Optimize?    |     | Yes   |     |     |     |     |     |       |       |       |       |     |
| Vehicle Extension (s) |     | 3.0   |     |     |     |     |     | 3.0   | 3.0   | 3.0   | 3.0   |     |
| Recall Mode           |     | C-Max |     |     |     |     |     | Max   | Max   | None  | None  |     |
| Act Effect Green (s)  |     | 91.1  |     |     |     |     |     | 21.8  | 21.8  |       | 21.7  |     |
| Actuated g/C Ratio    |     | 0.63  |     |     |     |     |     | 0.15  | 0.15  |       | 0.15  |     |
| v/c Ratio             |     | 0.55  |     |     |     |     |     | 0.55  | 0.29  |       | 0.36  |     |
| Control Delay         |     | 16.1  |     |     |     |     |     | 64.7  | 12.4  |       | 117.3 |     |
| Queue Delay           |     | 0.0   |     |     |     |     |     | 0.0   | 0.0   |       | 125.2 |     |
| Total Delay           |     | 16.1  |     |     |     |     |     | 64.7  | 12.4  |       | 242.5 |     |
| LOS                   |     | B     |     |     |     |     |     | E     | B     |       | F     |     |
| Approach Delay        |     | 16.1  |     |     |     |     |     | 45.4  |       |       | 242.5 |     |
| Approach LOS          |     | B     |     |     |     |     |     | D     |       |       | F     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 70   |
| Control Type:                     | Actuated-Coordinated                                     |
| Maximum v/c Ratio:                | 0.85   |
| Intersection Signal Delay:        | 34.6   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 56.7%  |
| ICU Level of Service              | B  |
| Analysis Period (min)             | 15   |

Splits and Phases: 35: Russel Palmer & Northpark Dr.



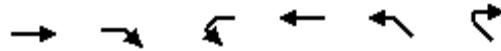
Grade Separation on Kingwood Drive  
35: Russel Palmer & Northpark Dr.

AM Peak Hour

| Lane Group            | ø1   | ø6    |
|-----------------------|------|-------|
| Detector Phase        |      |       |
| Switch Phase          |      |       |
| Minimum Initial (s)   | 5.0  | 15.0  |
| Minimum Split (s)     | 11.3 | 21.3  |
| Total Split (s)       | 21.0 | 116.0 |
| Total Split (%)       | 15%  | 81%   |
| Maximum Green (s)     | 14.7 | 109.7 |
| Yellow Time (s)       | 4.3  | 4.3   |
| All-Red Time (s)      | 2.0  | 2.0   |
| Lost Time Adjust (s)  |      |       |
| Total Lost Time (s)   |      |       |
| Lead/Lag              | Lead |       |
| Lead-Lag Optimize?    | Yes  |       |
| Vehicle Extension (s) | 3.0  | 3.0   |
| Recall Mode           | None | C-Max |
| Act Effect Green (s)  |      |       |
| Actuated g/C Ratio    |      |       |
| v/c Ratio             |      |       |
| Control Delay         |      |       |
| Queue Delay           |      |       |
| Total Delay           |      |       |
| LOS                   |      |       |
| Approach Delay        |      |       |
| Approach LOS          |      |       |
| Intersection Summary  |      |       |

Grade Separation on Kingwood Drive  
36: Northpark Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NWL  | NWR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        |      | ↑↑    |      | ↑↑   |      |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.88  | 1.00 | 0.95 | 1.00 | 1.00  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 0    | 3278  | 0    | 3539 | 0    | 0     |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 0    | 3278  | 0    | 3539 | 0    | 0     |
| Link Speed (mph)           | 45   |       |      | 40   | 45   |       |
| Link Distance (ft)         | 1638 |       |      | 2834 | 2834 |       |
| Travel Time (s)            | 24.8 |       |      | 48.3 | 42.9 |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 12   |       |      | 12   | 0    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |      | 9     | 15   |      | 15   | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 13.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
43: Sorters Rd & US 59 SBFR

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL   | WBT   | WBR   | NBL  | NBT  | NBR   | SBL   | SBT   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑↑   |       | ↔     | ↑↑    |       |      |      |       |       | ↔↑    | ↔     |
| Volume (vph)               | 0    | 21    | 183   | 221   | 182   | 0     | 0    | 0    | 0     | 77    | 2     | 20    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0    |       | 150   | 200   |       | 0     | 0    |      | 0     | 0     |       | 150   |
| Storage Lanes              | 0    |       | 1     | 1     |       | 0     | 0    |      | 0     | 0     |       | 1     |
| Taper Length (ft)          | 25   |       |       | 25    |       |       | 25   |      |       | 25    |       |       |
| Lane Util. Factor          | 1.00 | 0.91  | 0.91  | 1.00  | 0.95  | 1.00  | 1.00 | 1.00 | 1.00  | 0.95  | 0.95  | 1.00  |
| Frt                        |      | 0.866 |       |       |       |       |      |      |       |       |       | 0.850 |
| Flt Protected              |      |       |       | 0.950 |       |       |      |      |       |       | 0.953 |       |
| Satd. Flow (prot)          | 0    | 4404  | 0     | 1770  | 3539  | 0     | 0    | 0    | 0     | 0     | 3373  | 1583  |
| Flt Permitted              |      |       |       | 0.590 |       |       |      |      |       |       | 0.953 |       |
| Satd. Flow (perm)          | 0    | 4404  | 0     | 1099  | 3539  | 0     | 0    | 0    | 0     | 0     | 3373  | 1583  |
| Right Turn on Red          |      |       | Yes   |       |       | Yes   |      |      | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |      | 225   |       |       |       |       |      |      |       |       |       | 27    |
| Link Speed (mph)           |      | 35    |       |       | 35    |       |      | 55   |       |       |       | 55    |
| Link Distance (ft)         |      | 893   |       |       | 863   |       |      | 983  |       |       |       | 6715  |
| Travel Time (s)            |      | 17.4  |       |       | 16.8  |       |      | 12.2 |       |       |       | 83.2  |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113%  | 113%  | 113%  | 113% | 113% | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 26    | 225   | 271   | 224   | 0     | 0    | 0    | 0     | 95    | 2     | 25    |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 251   | 0     | 271   | 224   | 0     | 0    | 0    | 0     | 0     | 97    | 25    |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left  | Left  | Right | Left | Left | Right | Left  | Left  | Right |
| Median Width(ft)           |      | 12    |       |       | 12    |       |      | 0    |       |       | 0     |       |
| Link Offset(ft)            |      | 0     |       |       | 0     |       |      | 0    |       |       | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |       | 16    |       |      | 16   |       |       | 16    |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |      |      |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15    |       | 9     | 15   |      | 9     | 15    |       | 9     |
| Turn Type                  |      | NA    |       | Perm  | NA    |       |      |      |       | Perm  | NA    | Perm  |
| Protected Phases           |      | 4     |       |       | 8     |       |      |      |       |       | 6     |       |
| Permitted Phases           |      |       |       | 8     |       |       |      |      |       | 6     |       | 6     |
| Minimum Split (s)          |      | 20.0  |       | 20.0  | 20.0  |       |      |      |       | 20.0  | 20.0  | 20.0  |
| Total Split (s)            |      | 20.0  |       | 20.0  | 20.0  |       |      |      |       | 20.0  | 20.0  | 20.0  |
| Total Split (%)            |      | 50.0% |       | 50.0% | 50.0% |       |      |      |       | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          |      | 16.0  |       | 16.0  | 16.0  |       |      |      |       | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            |      | 3.5   |       | 3.5   | 3.5   |       |      |      |       | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           |      | 0.5   |       | 0.5   | 0.5   |       |      |      |       | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       |      | 0.0   |       | 0.0   | 0.0   |       |      |      |       |       | 0.0   | 0.0   |
| Total Lost Time (s)        |      | 4.0   |       | 4.0   | 4.0   |       |      |      |       |       | 4.0   | 4.0   |
| Lead/Lag                   |      |       |       |       |       |       |      |      |       |       |       |       |
| Lead-Lag Optimize?         |      |       |       |       |       |       |      |      |       |       |       |       |
| Walk Time (s)              |      | 5.0   |       | 5.0   | 5.0   |       |      |      |       | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        |      | 11.0  |       | 11.0  | 11.0  |       |      |      |       | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    |      | 0     |       | 0     | 0     |       |      |      |       | 0     | 0     | 0     |
| Act Effect Green (s)       |      | 16.0  |       | 16.0  | 16.0  |       |      |      |       |       | 16.0  | 16.0  |
| Actuated g/C Ratio         |      | 0.40  |       | 0.40  | 0.40  |       |      |      |       |       | 0.40  | 0.40  |
| v/c Ratio                  |      | 0.13  |       | 0.62  | 0.16  |       |      |      |       |       | 0.07  | 0.04  |



Grade Separation on Kingwood Drive  
43: Sorters Rd & US 59 SBFR

AM Peak Hour

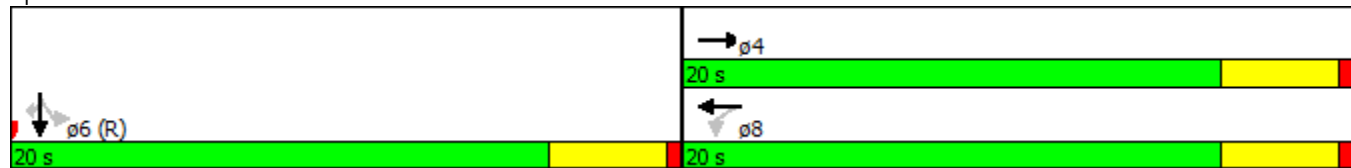


| Lane Group     | EBL | EBT | EBR | WBL  | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|
| Control Delay  |     | 2.2 |     | 12.6 | 2.4 |     |     |     |     |     | 7.6 | 3.9 |
| Queue Delay    |     | 0.0 |     | 0.0  | 0.0 |     |     |     |     |     | 0.0 | 0.0 |
| Total Delay    |     | 2.2 |     | 12.6 | 2.4 |     |     |     |     |     | 7.6 | 3.9 |
| LOS            |     | A   |     | B    | A   |     |     |     |     |     | A   | A   |
| Approach Delay |     | 2.2 |     |      | 8.0 |     |     |     |     |     | 6.9 |     |
| Approach LOS   |     | A   |     |      | A   |     |     |     |     |     | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2: and 6:SBTL, Start of Green |
| Natural Cycle:                    | 40  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.62  |
| Intersection Signal Delay:        | 6.2   |
| Intersection LOS:                 | A   |
| Intersection Capacity Utilization | 33.8%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 43: Sorters Rd & US 59 SBFR



Grade Separation on Kingwood Drive  
45: Loop 494 & Sorters Rd

AM Peak Hour



| Lane Group                 | EBL   | EBR   | NBL   | NBT   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |
| Volume (vph)               | 61    | 42    | 317   | 492   | 22    | 86    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0     | 150   | 180   |       |       | 225   |
| Storage Lanes              | 2     | 1     | 1     |       |       | 1     |
| Taper Length (ft)          | 25    |       | 25    |       |       |       |
| Lane Util. Factor          | 0.97  | 0.88  | 0.97  | 0.95  | 0.95  | 1.00  |
| Frt                        |       | 0.850 |       |       |       | 0.850 |
| Flt Protected              | 0.950 |       | 0.950 |       |       |       |
| Satd. Flow (prot)          | 3433  | 2787  | 3433  | 3539  | 3539  | 1583  |
| Flt Permitted              | 0.950 |       | 0.739 |       |       |       |
| Satd. Flow (perm)          | 3433  | 2787  | 2671  | 3539  | 3539  | 1583  |
| Right Turn on Red          |       | Yes   |       |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 52    |       |       |       | 106   |
| Link Speed (mph)           | 35    |       |       | 45    | 45    |       |
| Link Distance (ft)         | 863   |       |       | 804   | 572   |       |
| Travel Time (s)            | 16.8  |       |       | 12.2  | 8.7   |       |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 75    | 52    | 389   | 604   | 27    | 106   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 75    | 52    | 389   | 604   | 27    | 106   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Right | Left  | Left  | Left  | Right |
| Median Width(ft)           | 36    |       |       | 24    | 24    |       |
| Link Offset(ft)            | 0     |       |       | 0     | 0     |       |
| Crosswalk Width(ft)        | 16    |       |       | 16    | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    | 9     | 15    |       |       | 9     |
| Turn Type                  | NA    | Perm  | Perm  | NA    | NA    | Perm  |
| Protected Phases           | 4     |       |       | 2     | 6     |       |
| Permitted Phases           |       | 4     | 2     |       |       | 6     |
| Minimum Split (s)          | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (s)            | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (%)            | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
| Lead/Lag                   |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     |
| Act Effect Green (s)       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Actuated g/C Ratio         | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  |
| v/c Ratio                  | 0.05  | 0.05  | 0.36  | 0.43  | 0.02  | 0.15  |

Grade Separation on Kingwood Drive  
45: Loop 494 & Sorters Rd

AM Peak Hour

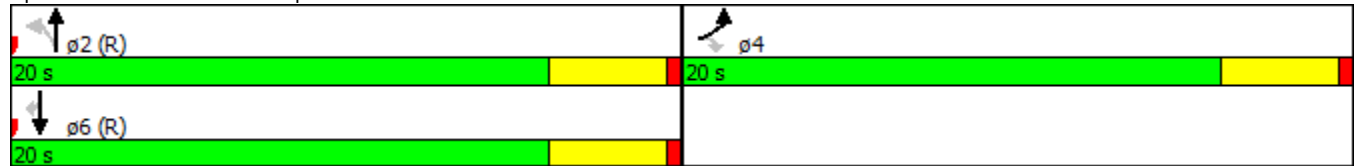


| Lane Group     | EBL | EBR | NBL | NBT | SBT | SBR |
|----------------|-----|-----|-----|-----|-----|-----|
| Control Delay  | 4.4 | 1.7 | 9.7 | 9.9 | 7.7 | 3.4 |
| Queue Delay    | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay    | 4.4 | 1.7 | 9.7 | 9.9 | 7.7 | 3.4 |
| LOS            | A   | A   | A   | A   | A   | A   |
| Approach Delay | 3.3 |     |     | 9.8 | 4.3 |     |
| Approach LOS   | A   |     |     | A   | A   |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 40   |
| Actuated Cycle Length:            | 40   |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green |
| Natural Cycle:                    | 40   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.43   |
| Intersection Signal Delay:        | 8.5  |
| Intersection Capacity Utilization | 26.9%  |
| Analysis Period (min)             | 15   |
| Intersection LOS:                 | A  |
| ICU Level of Service              | A  |

Splits and Phases: 45: Loop 494 & Sorters Rd



Grade Separation on Kingwood Drive  
49: Hamblen & Laurel Springs

AM Peak Hour



| Lane Group                 | EBL  | EBT   | WBT   | WBR   | SBL   | SBR   |
|----------------------------|------|-------|-------|-------|-------|-------|
| Lane Configurations        |      |       |       |       |       |       |
| Volume (vph)               | 36   | 136   | 422   | 18    | 17    | 124   |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       | 0.994 |       | 0.881 |       |
| Flt Protected              |      | 0.990 |       |       | 0.994 |       |
| Satd. Flow (prot)          | 0    | 1844  | 1852  | 0     | 1631  | 0     |
| Flt Permitted              |      | 0.990 |       |       | 0.994 |       |
| Satd. Flow (perm)          | 0    | 1844  | 1852  | 0     | 1631  | 0     |
| Link Speed (mph)           |      | 35    | 35    |       | 30    |       |
| Link Distance (ft)         |      | 1799  | 1596  |       | 734   |       |
| Travel Time (s)            |      | 35.0  | 31.1  |       | 16.7  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  |
| Growth Factor              | 113% | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 44   | 167   | 518   | 22    | 21    | 152   |
| Shared Lane Traffic (%)    |      |       |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 211   | 540   | 0     | 173   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Left  | Right | Left  | Right |
| Median Width(ft)           |      | 0     | 0     |       | 12    |       |
| Link Offset(ft)            |      | 0     | 0     |       | 0     |       |
| Crosswalk Width(ft)        |      | 16    | 16    |       | 16    |       |
| Two way Left Turn Lane     |      |       |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       |       | 9     | 15    | 9     |
| Sign Control               |      | Free  | Free  |       | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 56.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |



Grade Separation on Kingwood Drive  
53: Kingwood Dr. & Woodland Grove Dr.

AM Peak Hour

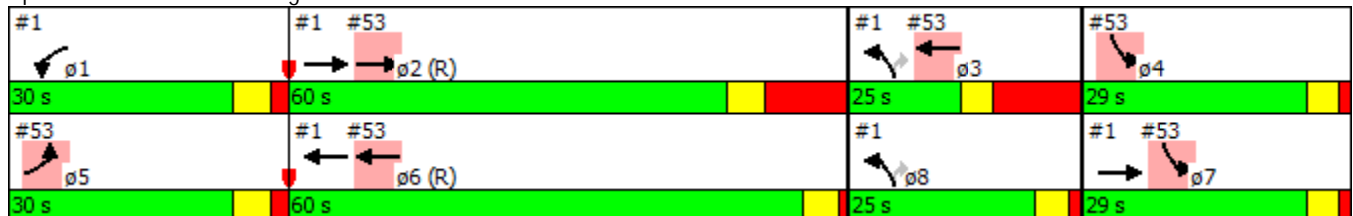


| Lane Group              | EBL   | EBT   | WBT  | WBR | SBL  | SBR | ø1   | ø3   | ø4   | ø6    | ø7   | ø8   |
|-------------------------|-------|-------|------|-----|------|-----|------|------|------|-------|------|------|
| Detector Phase          | 5     | 2     | 3 6  |     | 4 7  |     |      |      |      |       |      |      |
| Switch Phase            |       |       |      |     |      |     |      |      |      |       |      |      |
| Minimum Initial (s)     | 3.0   | 10.0  |      |     |      |     | 3.0  | 1.0  | 5.0  | 2.0   | 1.0  | 5.0  |
| Minimum Split (s)       | 9.0   | 29.0  |      |     |      |     | 10.0 | 14.0 | 10.0 | 21.0  | 6.0  | 10.0 |
| Total Split (s)         | 30.0  | 60.0  |      |     |      |     | 30.0 | 25.0 | 29.0 | 60.0  | 29.0 | 25.0 |
| Total Split (%)         | 20.8% | 41.7% |      |     |      |     | 21%  | 17%  | 20%  | 42%   | 20%  | 17%  |
| Maximum Green (s)       | 24.0  | 47.0  |      |     |      |     | 24.0 | 12.0 | 24.0 | 55.0  | 24.0 | 20.0 |
| Yellow Time (s)         | 4.0   | 4.0   |      |     |      |     | 4.0  | 3.5  | 3.5  | 4.0   | 3.5  | 3.5  |
| All-Red Time (s)        | 2.0   | 9.0   |      |     |      |     | 2.0  | 9.5  | 1.5  | 1.0   | 1.5  | 1.5  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      |     |      |     |      |      |      |       |      |      |
| Total Lost Time (s)     | 6.0   | 13.0  |      |     |      |     |      |      |      |       |      |      |
| Lead/Lag                | Lead  | Lag   |      |     |      |     | Lead |      |      | Lag   |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      |     |      |     | Yes  |      |      | Yes   |      |      |
| Vehicle Extension (s)   | 3.0   | 3.0   |      |     |      |     | 3.0  | 3.0  | 3.0  | 3.0   | 3.0  | 3.0  |
| Recall Mode             | None  | C-Max |      |     |      |     | None | None | None | C-Max | None | None |
| Walk Time (s)           |       | 5.0   |      |     |      |     |      |      |      | 5.0   |      |      |
| Flash Dont Walk (s)     |       | 11.0  |      |     |      |     |      |      |      | 11.0  |      |      |
| Pedestrian Calls (#/hr) |       | 0     |      |     |      |     |      |      |      | 0     |      |      |
| Act Effect Green (s)    | 8.8   | 70.1  | 91.3 |     | 22.2 |     |      |      |      |       |      |      |
| Actuated g/C Ratio      | 0.06  | 0.49  | 0.63 |     | 0.15 |     |      |      |      |       |      |      |
| v/c Ratio               | 0.39  | 0.51  | 1.13 |     | 0.45 |     |      |      |      |       |      |      |
| Control Delay           | 74.5  | 28.1  | 70.2 |     | 9.5  |     |      |      |      |       |      |      |
| Queue Delay             | 0.0   | 0.0   | 0.3  |     | 0.0  |     |      |      |      |       |      |      |
| Total Delay             | 74.5  | 28.1  | 70.4 |     | 9.5  |     |      |      |      |       |      |      |
| LOS                     | E     | C     | E    |     | A    |     |      |      |      |       |      |      |
| Approach Delay          |       | 30.2  | 70.4 |     | 9.5  |     |      |      |      |       |      |      |
| Approach LOS            |       | C     | E    |     | A    |     |      |      |      |       |      |      |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.29  
 Intersection Signal Delay: 55.3  
 Intersection LOS: E  
 Intersection Capacity Utilization 88.8%  
 ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 53: Kingwood Dr. & Woodland Grove Dr.



Grade Separation on Kingwood Drive  
54: Woodland Hills & Hamblen

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT  | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|------|-------|------|-------|-------|
| Lane Configurations        |      |       |       |      |       |       |      |      |       |      |       |       |
| Volume (vph)               | 0    | 0     | 0     | 0    | 0     | 4     | 0    | 0    | 0     | 6    | 0     | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Frt                        |      |       |       |      | 0.865 |       |      |      |       |      |       |       |
| Flt Protected              |      |       |       |      |       |       |      |      |       |      | 0.950 |       |
| Satd. Flow (prot)          | 1863 | 0     | 0     | 0    | 1611  | 0     | 0    | 1863 | 0     | 0    | 1770  | 0     |
| Flt Permitted              |      |       |       |      |       |       |      |      |       |      | 0.950 |       |
| Satd. Flow (perm)          | 1863 | 0     | 0     | 0    | 1611  | 0     | 0    | 1863 | 0     | 0    | 1770  | 0     |
| Link Speed (mph)           |      | 35    |       |      | 35    |       |      | 35   |       |      | 35    |       |
| Link Distance (ft)         |      | 6657  |       |      | 997   |       |      | 912  |       |      | 3265  |       |
| Travel Time (s)            |      | 129.7 |       |      | 19.4  |       |      | 17.8 |       |      | 63.6  |       |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113% | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0     | 0    | 0     | 5     | 0    | 0    | 0     | 7    | 0     | 0     |
| Shared Lane Traffic (%)    | 0%   |       |       |      |       |       |      |      |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 0     | 0     | 0    | 5     | 0     | 0    | 0    | 0     | 0    | 7     | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No   | No    | No   | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left | Right | Left | Left  | Right |
| Median Width(ft)           |      | 12    |       |      | 12    |       |      | 0    |       |      | 0     |       |
| Link Offset(ft)            |      | 0     |       |      | 0     |       |      | 0    |       |      | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |      | 16    |       |      | 16   |       |      | 16    |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |      |       |      |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |       | 9     | 15   |      | 9     | 15   |       | 9     |
| Sign Control               |      | Stop  |       |      | Stop  |       |      | Stop |       |      | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 13.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
57: Redbud & Hamblen

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |      | ↕     |       |      | ↕     |       |      | ↕     |       |      | ↕     |       |
| Volume (vph)               | 38   | 5     | 28    | 2    | 6     | 2     | 14   | 77    | 1     | 0    | 89    | 2     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Frt                        |      | 0.947 |       |      | 0.975 |       |      | 0.999 |       |      | 0.998 |       |
| Flt Protected              |      | 0.974 |       |      | 0.991 |       |      | 0.993 |       |      |       |       |
| Satd. Flow (prot)          | 0    | 1718  | 0     | 0    | 1800  | 0     | 0    | 1848  | 0     | 0    | 1859  | 0     |
| Flt Permitted              |      | 0.974 |       |      | 0.991 |       |      | 0.993 |       |      |       |       |
| Satd. Flow (perm)          | 0    | 1718  | 0     | 0    | 1800  | 0     | 0    | 1848  | 0     | 0    | 1859  | 0     |
| Link Speed (mph)           |      | 35    |       |      | 35    |       |      | 30    |       |      | 30    |       |
| Link Distance (ft)         |      | 753   |       |      | 6657  |       |      | 361   |       |      | 271   |       |
| Travel Time (s)            |      | 14.7  |       |      | 129.7 |       |      | 8.2   |       |      | 6.2   |       |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 47   | 6     | 34    | 2    | 7     | 2     | 17   | 95    | 1     | 0    | 109   | 2     |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 87    | 0     | 0    | 11    | 0     | 0    | 113   | 0     | 0    | 111   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(ft)           |      | 0     |       |      | 0     |       |      | 0     |       |      | 0     |       |
| Link Offset(ft)            |      | 0     |       |      | 0     |       |      | 0     |       |      | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |      | 16    |       |      | 16    |       |      | 16    |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |       |       |      |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |       | 9     | 15   |       | 9     | 15   |       | 9     |
| Sign Control               |      | Stop  |       |      | Stop  |       |      | Stop  |       |      | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 29.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
60: Forest Cove & Hamblen

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |      | ↕     |       |      | ↕     |       |      | ↕     |       |      | ↕     |       |
| Volume (vph)               | 62   | 62    | 5     | 1    | 96    | 3     | 12   | 7     | 2     | 3    | 19    | 242   |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Frt                        |      | 0.995 |       |      | 0.996 |       |      | 0.990 |       |      | 0.876 |       |
| Flt Protected              |      | 0.977 |       |      |       |       |      | 0.972 |       |      | 0.999 |       |
| Satd. Flow (prot)          | 0    | 1811  | 0     | 0    | 1855  | 0     | 0    | 1792  | 0     | 0    | 1630  | 0     |
| Flt Permitted              |      | 0.977 |       |      |       |       |      | 0.972 |       |      | 0.999 |       |
| Satd. Flow (perm)          | 0    | 1811  | 0     | 0    | 1855  | 0     | 0    | 1792  | 0     | 0    | 1630  | 0     |
| Link Speed (mph)           |      | 35    |       |      | 35    |       |      | 30    |       |      | 30    |       |
| Link Distance (ft)         |      | 1966  |       |      | 1019  |       |      | 472   |       |      | 603   |       |
| Travel Time (s)            |      | 38.3  |       |      | 19.9  |       |      | 10.7  |       |      | 13.7  |       |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 76   | 76    | 6     | 1    | 118   | 4     | 15   | 9     | 2     | 4    | 23    | 297   |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 158   | 0     | 0    | 123   | 0     | 0    | 26    | 0     | 0    | 324   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(ft)           |      | 0     |       |      | 0     |       |      | 0     |       |      | 0     |       |
| Link Offset(ft)            |      | 0     |       |      | 0     |       |      | 0     |       |      | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |      | 16    |       |      | 16    |       |      | 16    |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |       |       |      |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |       | 9     | 15   |       | 9     | 15   |       | 9     |
| Sign Control               |      | Stop  |       |      | Stop  |       |      | Stop  |       |      | Stop  |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 39.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
64: Woodland Hills & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 137   | 482   | 36    | 143   | 1353  | 68    | 43    | 103   | 112   | 84    | 126   | 416   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     | 150   |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |       | 0.990 |       |       | 0.993 |       |       |       | 0.850 |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3504  | 0     | 1770  | 3514  | 0     | 1770  | 1863  | 1583  | 1770  | 1863  | 1583  |
| Flt Permitted              | 0.250 |       |       | 0.358 |       |       | 0.656 |       |       | 0.673 |       |       |
| Satd. Flow (perm)          | 466   | 3504  | 0     | 667   | 3514  | 0     | 1222  | 1863  | 1583  | 1254  | 1863  | 1583  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 23    |       |       | 15    |       |       |       | 142   |       |       | 27    |
| Link Speed (mph)           |       | 40    |       |       | 40    |       |       | 35    |       |       |       | 35    |
| Link Distance (ft)         |       | 266   |       |       | 1473  |       |       | 2549  |       |       |       | 2207  |
| Travel Time (s)            |       | 4.5   |       |       | 25.1  |       |       | 49.7  |       |       |       | 43.0  |
| 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  |
| Growth Factor              | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  |
| Adj. Flow (vph)            | 174   | 613   | 46    | 182   | 1721  | 86    | 55    | 131   | 142   | 107   | 160   | 529   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 174   | 659   | 0     | 182   | 1807  | 0     | 55    | 131   | 142   | 107   | 160   | 529   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 40    |       |       | 75    |       |       | 20    |       |       |       | 30    |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       |       | 0     |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       |       | 16    |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       |       | 6     |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       | 2     | 6     |       | 6     |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     | 0     | 0     | 0     | 0     |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  |
| v/c Ratio                  | 0.94  | 0.47  |       | 0.68  | 1.28  |       | 0.11  | 0.18  | 0.20  | 0.21  | 0.21  | 0.82  |

Grade Separation on Kingwood Drive  
64: Woodland Hills & Kingwood Dr.

AM Peak Hour

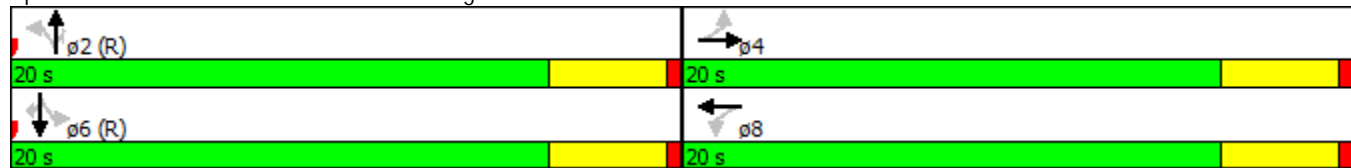


| Lane Group     | EBL  | EBT  | EBR | WBL  | WBT   | WBR | NBL | NBT | NBR | SBL | SBT  | SBR  |
|----------------|------|------|-----|------|-------|-----|-----|-----|-----|-----|------|------|
| Control Delay  | 73.6 | 9.9  |     | 28.5 | 148.6 |     | 8.4 | 8.6 | 2.9 | 9.9 | 9.5  | 21.6 |
| Queue Delay    | 0.0  | 0.0  |     | 0.0  | 0.0   |     | 0.0 | 0.0 | 0.0 | 0.0 | 0.0  | 0.0  |
| Total Delay    | 73.6 | 9.9  |     | 28.5 | 148.6 |     | 8.4 | 8.6 | 2.9 | 9.9 | 9.5  | 21.6 |
| LOS            | E    | A    |     | C    | F     |     | A   | A   | A   | A   | A    | C    |
| Approach Delay |      | 23.2 |     |      | 137.6 |     |     | 6.1 |     |     | 17.6 |      |
| Approach LOS   |      | C    |     |      | F     |     |     | A   |     |     | B    |      |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 50  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.28  |
| Intersection Signal Delay:        | 78.3  |
| Intersection LOS:                 | E   |
| Intersection Capacity Utilization | 89.8%   |
| ICU Level of Service              | E   |
| Analysis Period (min)             | 15  |

Splits and Phases: 64: Woodland Hills & Kingwood Dr.



Grade Separation on Kingwood Drive  
69: Kingwood Dr. & High Valley

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL  | WBT   | WBR   | NBL   | NBT   | NBR   | SBL  | SBT  | SBR   |
|----------------------------|-------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| Lane Configurations        |       |       |       |      |       |       |       |       |       |      |      |       |
| Volume (vph)               | 56    | 43    | 0     | 0    | 163   | 68    | 7     | 290   | 43    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 0.95  | 0.95  | 1.00  | 1.00 | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 1.00 | 1.00 | 1.00  |
| Frt                        |       |       |       |      | 0.956 |       |       | 0.981 |       |      |      |       |
| Flt Protected              | 0.950 | 0.993 |       |      |       |       |       | 0.999 |       |      |      |       |
| Satd. Flow (prot)          | 1681  | 1757  | 0     | 0    | 3383  | 0     | 0     | 3468  | 0     | 0    | 0    | 0     |
| Flt Permitted              | 0.950 | 0.993 |       |      |       |       |       | 0.999 |       |      |      |       |
| Satd. Flow (perm)          | 1681  | 1757  | 0     | 0    | 3383  | 0     | 0     | 3468  | 0     | 0    | 0    | 0     |
| Right Turn on Red          |       |       | Yes   |      |       | Yes   |       |       | Yes   |      |      | Yes   |
| Satd. Flow (RTOR)          |       |       |       |      | 38    |       |       | 16    |       |      |      |       |
| Link Speed (mph)           |       | 30    |       |      | 30    |       |       | 40    |       |      |      | 40    |
| Link Distance (ft)         |       | 93    |       |      | 765   |       |       | 1292  |       |      |      | 1387  |
| Travel Time (s)            |       | 2.1   |       |      | 17.4  |       |       | 22.0  |       |      |      | 23.6  |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113% | 113%  | 113%  | 113%  | 113%  | 113%  | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 69    | 53    | 0     | 0    | 200   | 84    | 9     | 356   | 53    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    | 13%   |       |       |      |       |       |       |       |       |      |      |       |
| Lane Group Flow (vph)      | 60    | 62    | 0     | 0    | 284   | 0     | 0     | 418   | 0     | 0    | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No    | No   | No    | No    | No    | No    | No    | No   | No   | No    |
| Lane Alignment             | Left  | Left  | Right | Left | Left  | Right | Left  | Left  | Right | Left | Left | Right |
| Median Width(ft)           |       | 12    |       |      | 12    |       |       | 0     |       |      |      | 0     |
| Link Offset(ft)            |       | 0     |       |      | 0     |       |       | 0     |       |      |      | 0     |
| Crosswalk Width(ft)        |       | 16    |       |      | 16    |       |       | 16    |       |      |      | 16    |
| Two way Left Turn Lane     |       |       |       |      |       |       |       |       |       |      |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15   |       | 9     | 15    |       | 9     | 15   |      | 9     |
| Turn Type                  | Prot  | NA    |       |      | NA    |       | Prot  | NA    |       |      |      |       |
| Protected Phases           | 1 4   | 4     |       |      | 8     |       | 15    | 2     |       |      |      |       |
| Permitted Phases           |       |       |       |      |       |       |       |       |       |      |      |       |
| Minimum Split (s)          |       | 10.0  |       |      | 18.0  |       | 11.0  | 20.0  |       |      |      |       |
| Total Split (s)            |       | 17.0  |       |      | 28.0  |       | 16.0  | 67.0  |       |      |      |       |
| Total Split (%)            |       | 11.8% |       |      | 19.4% |       | 11.1% | 46.5% |       |      |      |       |
| Maximum Green (s)          |       | 12.0  |       |      | 23.0  |       | 10.0  | 61.0  |       |      |      |       |
| Yellow Time (s)            |       | 4.0   |       |      | 4.0   |       | 4.0   | 4.0   |       |      |      |       |
| All-Red Time (s)           |       | 1.0   |       |      | 1.0   |       | 2.0   | 2.0   |       |      |      |       |
| Lost Time Adjust (s)       |       | 0.0   |       |      | 0.0   |       |       | 0.0   |       |      |      |       |
| Total Lost Time (s)        |       | 5.0   |       |      | 5.0   |       |       | 6.0   |       |      |      |       |
| Lead/Lag                   |       | Lead  |       |      | Lag   |       |       | Lead  |       |      |      |       |
| Lead-Lag Optimize?         |       | Yes   |       |      | Yes   |       |       | Yes   |       |      |      |       |
| Walk Time (s)              |       |       |       |      | 6.0   |       |       | 4.0   |       |      |      |       |
| Flash Dont Walk (s)        |       |       |       |      | 7.0   |       |       | 10.0  |       |      |      |       |
| Pedestrian Calls (#/hr)    |       |       |       |      | 0     |       |       | 0     |       |      |      |       |
| Act Effct Green (s)        | 27.0  | 28.0  |       |      | 23.0  |       |       | 71.0  |       |      |      |       |
| Actuated g/C Ratio         | 0.19  | 0.19  |       |      | 0.16  |       |       | 0.49  |       |      |      |       |
| v/c Ratio                  | 0.19  | 0.18  |       |      | 0.50  |       |       | 0.44  |       |      |      |       |
| Control Delay              | 25.3  | 24.5  |       |      | 50.9  |       |       | 24.9  |       |      |      |       |
| Queue Delay                | 0.0   | 0.0   |       |      | 0.0   |       |       | 0.0   |       |      |      |       |
| Total Delay                | 25.3  | 24.5  |       |      | 50.9  |       |       | 24.9  |       |      |      |       |

Grade Separation on Kingwood Drive  
 69: Kingwood Dr. & High Valley

AM Peak Hour

| Lane Group                 | ø1   | ø6   |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphpl)         |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 1    | 6    |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 11.0 | 10.0 |
| Total Split (s)            | 16.0 | 83.0 |
| Total Split (%)            | 11%  | 58%  |
| Maximum Green (s)          | 10.0 | 77.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lag  |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              |      |      |
| Flash Dont Walk (s)        |      |      |
| Pedestrian Calls (#/hr)    |      |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |
| Control Delay              |      |      |
| Queue Delay                |      |      |
| Total Delay                |      |      |

Grade Separation on Kingwood Drive  
69: Kingwood Dr. & High Valley

AM Peak Hour

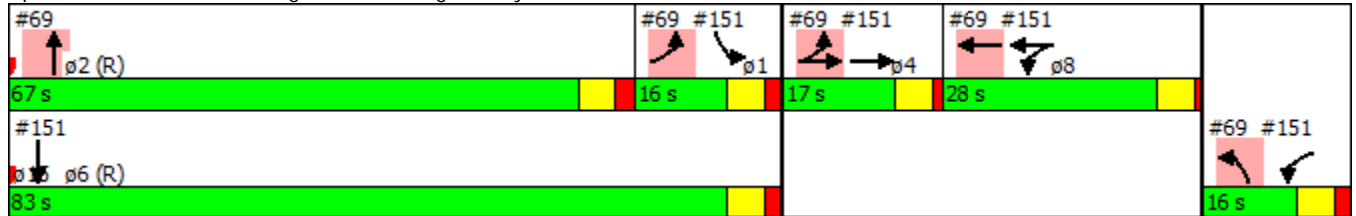


| Lane Group     | EBL | EBT  | EBR | WBL | WBT  | WBR | NBL | NBT  | NBR | SBL | SBT | SBR |
|----------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| LOS            | C   | C    |     |     | D    |     |     | C    |     |     |     |     |
| Approach Delay |     | 24.9 |     |     | 50.9 |     |     | 24.9 |     |     |     |     |
| Approach LOS   |     | C    |     |     | D    |     |     | C    |     |     |     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 90 (63%), Referenced to phase 2:NBT and 6:, Start of Green |
| Natural Cycle:                    | 70   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.54   |
| Intersection Signal Delay:        | 33.9   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 51.8%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 69: Kingwood Dr. & High Valley



Grade Separation on Kingwood Drive  
69: Kingwood Dr. & High Valley

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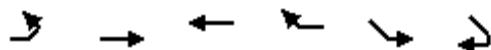
AM Peak Hour

| Lane Group           | ø1 | ø6 |
|----------------------|----|----|
| LOS                  |    |    |
| Approach Delay       |    |    |
| Approach LOS         |    |    |
| Intersection Summary |    |    |

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Grade Separation on Kingwood Drive  
73: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | WBT  | WBR   | SEL  | SER   |
|----------------------------|------|------|------|-------|------|-------|
| Lane Configurations        |      | ↑↑   | ↑↑   |       |      |       |
| Volume (vph)               | 0    | 0    | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.95 | 0.95 | 1.00  | 1.00 | 1.00  |
| Frt                        |      |      |      |       |      |       |
| Flt Protected              |      |      |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Flt Permitted              |      |      |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Link Speed (mph)           |      | 40   | 40   |       | 40   |       |
| Link Distance (ft)         |      | 291  | 315  |       | 343  |       |
| Travel Time (s)            |      | 5.0  | 5.4  |       | 5.8  |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No   | No    | No   | No    |
| Lane Alignment             | Left | Left | Left | Right | Left | Right |
| Median Width(ft)           |      | 30   | 30   |       | 30   |       |
| Link Offset(ft)            |      | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |      |      |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |      | 9     | 15   | 9     |
| Sign Control               |      | Free | Free |       | Stop |       |













Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 0.0%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
74: Kingwood Dr. & Willow Terrace

AM Peak Hour

|                            |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group                 | SBL   | SBR   | SEL   | SET   | SER   | NWL   | NWT  | NWR   | NEL2  | NEL   | NER   | ø1  |
| Lane Configurations        |   |   |   | ↑↑  |   |   | ↑↑   |   | ↑   | ↑↑↑   |   |   |
| Volume (vph)               | 0   | 0   | 16  | 39  | 0   | 0   | 446  | 34  | 24  | 297   | 185   |   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900   | 1900  | 1900  | 1900  | 1900  |   |
| Storage Length (ft)        | 0   | 0   | 0   |   | 0   | 0   |  | 0   |   | 150   | 0   |   |
| Storage Lanes              | 0   | 0   | 0   |   | 0   | 0   |  | 0   |   | 1   | 0   |   |
| Taper Length (ft)          | 25  |   | 25  |   |   | 25  |  |   |   | 25  |   |   |
| Lane Util. Factor          | 1.00  | 1.00  | 0.95  | 0.95  | 1.00  | 1.00  | 0.95   | 0.95  | 1.00  | 0.97  | 0.95  |   |
| Frt                        |   |   |   |   |   |   | 0.989  |   |   | 0.942   |   |   |
| Flt Protected              |   |   |   | 0.986   |   |   |  |   | 0.950   | 0.970   |   |   |
| Satd. Flow (prot)          | 0   | 0   | 0   | 3490  | 0   | 0   | 3500   | 0   | 1770  | 3302  | 0   |   |
| Flt Permitted              |   |   |   | 0.986   |   |   |  |   | 0.950   | 0.970   |   |   |
| Satd. Flow (perm)          | 0   | 0   | 0   | 3490  | 0   | 0   | 3500   | 0   | 1770  | 3302  | 0   |   |
| Right Turn on Red          |   |   |   |   | Yes   |   |  | Yes   |   |   | Yes   |   |
| Satd. Flow (RTOR)          |   |   |   |   |   |   | 5  |   |   | 144   |   |   |
| Link Speed (mph)           | 40  |   |   | 30  |   |   | 30   |   |   | 40  |   |   |
| Link Distance (ft)         | 525   |   |   | 105   |   |   | 533  |   |   | 1400  |   |   |
| Travel Time (s)            | 8.9   |   |   | 2.4   |   |   | 12.1   |   |   | 23.9  |   |   |
| 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  |   |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%   | 113%  | 113%  | 113%  | 113%  |   |
| Adj. Flow (vph)            | 0   | 0   | 20  | 48  | 0   | 0   | 548  | 42  | 29  | 365   | 227   |   |
| Shared Lane Traffic (%)    |   |   |   |   |   |   |  |   |   |   |   |   |
| Lane Group Flow (vph)      | 0   | 0   | 0   | 68  | 0   | 0   | 590  | 0   | 29  | 592   | 0   |   |
| Enter Blocked Intersection | No  | No  | No  | No  | No  | No  | No   | No  | No  | No  | No  |   |
| Lane Alignment             | Left  | Right   | Left  | Left  | Right   | Left  | Left   | Right   | Left  | Left  | Right   |   |
| Median Width(ft)           | 0   |   |   | 0   |   |   | 0  |   |   | 36  |   |   |
| Link Offset(ft)            | 0   |   |   | 0   |   |   | 0  |   |   | 0   |   |   |
| Crosswalk Width(ft)        | 16  |   |   | 16  |   |   | 16   |   |   | 16  |   |   |
| Two way Left Turn Lane     |   |   |   |   |   |   |  |   |   |   |   |   |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  |   |
| Turning Speed (mph)        | 15  | 9   | 15  |   | 9   | 15  |  | 9   | 15  | 15  | 9   |   |
| Turn Type                  |   |   | Prot  | NA  |   |   | NA   |   | Prot  | NA  |   |   |
| Protected Phases           |   |   | 1 4   | 4   |   |   | 8  |   | 15  | 2   |   | 1   |
| Permitted Phases           |   |   |   |   |   |   |  |   |   |   |   |   |
| Minimum Split (s)          |   |   |   | 10.0  |   |   | 18.0   |   | 11.0  | 20.0  |   | 11.0  |
| Total Split (s)            |   |   |   | 14.0  |   |   | 42.0   |   | 25.0  | 48.0  |   | 15.0  |
| Total Split (%)            |   |   |   | 9.7%  |   |   | 29.2%  |   | 17.4%   | 33.3%   |   | 10%   |
| Maximum Green (s)          |   |   |   | 9.0   |   |   | 37.0   |   | 19.0  | 42.0  |   | 9.0   |
| Yellow Time (s)            |   |   |   | 4.0   |   |   | 4.0  |   | 4.0   | 4.0   |   | 4.0   |
| All-Red Time (s)           |   |   |   | 1.0   |   |   | 1.0  |   | 2.0   | 2.0   |   | 2.0   |
| Lost Time Adjust (s)       |   |   |   | 0.0   |   |   | 0.0  |   | 0.0   | 0.0   |   |   |
| Total Lost Time (s)        |   |   |   | 5.0   |   |   | 5.0  |   | 6.0   | 6.0   |   |   |
| Lead/Lag                   |   |   |   | Lead  |   |   | Lag  |   | Lead  |   | Lag   |   |
| Lead-Lag Optimize?         |   |   |   | Yes   |   |   | Yes  |   | Yes   |   | Yes   |   |
| Walk Time (s)              |   |   |   |   |   |   | 6.0  |   |   | 4.0   |   |   |
| Flash Dont Walk (s)        |   |   |   |   |   |   | 7.0  |   |   | 10.0  |   |   |
| Pedestrian Calls (#/hr)    |   |   |   |   |   |   | 0  |   |   | 0   |   |   |
| Act Effect Green (s)       |   |   |   | 24.0  |   |   | 37.0   |   | 19.0  | 42.0  |   |   |
| Actuated g/C Ratio         |   |   |   | 0.17  |   |   | 0.26   |   | 0.13  | 0.29  |   |   |
| v/c Ratio                  |   |   |   | 0.12  |   |   | 0.65   |   | 0.12  | 0.56  |   |   |

|                            |      |
|----------------------------|------|
| Lane Group                 | ø6   |
| Lane Configurations        |      |
| Volume (vph)               |      |
| Ideal Flow (vphpl)         |      |
| Storage Length (ft)        |      |
| Storage Lanes              |      |
| Taper Length (ft)          |      |
| Lane Util. Factor          |      |
| Frt                        |      |
| Flt Protected              |      |
| Satd. Flow (prot)          |      |
| Flt Permitted              |      |
| Satd. Flow (perm)          |      |
| Right Turn on Red          |      |
| Satd. Flow (RTOR)          |      |
| Link Speed (mph)           |      |
| Link Distance (ft)         |      |
| Travel Time (s)            |      |
| Peak Hour Factor           |      |
| Growth Factor              |      |
| Adj. Flow (vph)            |      |
| Shared Lane Traffic (%)    |      |
| Lane Group Flow (vph)      |      |
| Enter Blocked Intersection |      |
| Lane Alignment             |      |
| Median Width(ft)           |      |
| Link Offset(ft)            |      |
| Crosswalk Width(ft)        |      |
| Two way Left Turn Lane     |      |
| Headway Factor             |      |
| Turning Speed (mph)        |      |
| Turn Type                  |      |
| Protected Phases           | 6    |
| Permitted Phases           |      |
| Minimum Split (s)          | 10.0 |
| Total Split (s)            | 63.0 |
| Total Split (%)            | 44%  |
| Maximum Green (s)          | 57.0 |
| Yellow Time (s)            | 4.0  |
| All-Red Time (s)           | 2.0  |
| Lost Time Adjust (s)       |      |
| Total Lost Time (s)        |      |
| Lead/Lag                   |      |
| Lead-Lag Optimize?         |      |
| Walk Time (s)              |      |
| Flash Dont Walk (s)        |      |
| Pedestrian Calls (#/hr)    |      |
| Act Effct Green (s)        |      |
| Actuated g/C Ratio         |      |
| v/c Ratio                  |      |

Grade Separation on Kingwood Drive  
74: Kingwood Dr. & Willow Terrace

AM Peak Hour

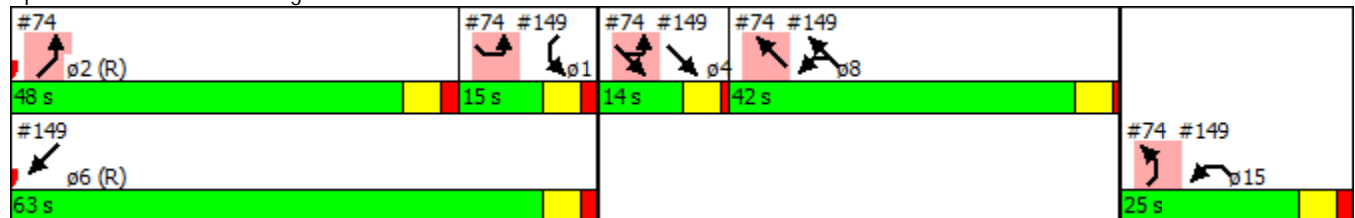


| Lane Group     | SBL | SBR | SEL | SET  | SER | NWL | NWT  | NWR | NEL2 | NEL  | NER | ø1 |
|----------------|-----|-----|-----|------|-----|-----|------|-----|------|------|-----|----|
| Control Delay  |     |     |     | 15.4 |     |     | 51.4 |     | 48.0 | 71.2 |     |    |
| Queue Delay    |     |     |     | 2.3  |     |     | 0.0  |     | 0.0  | 0.0  |     |    |
| Total Delay    |     |     |     | 17.7 |     |     | 51.4 |     | 48.0 | 71.2 |     |    |
| LOS            |     |     |     | B    |     |     | D    |     | D    | E    |     |    |
| Approach Delay |     |     |     | 17.7 |     |     | 51.4 |     |      | 70.1 |     |    |
| Approach LOS   |     |     |     | B    |     |     | D    |     |      | E    |     |    |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 12 (8%), Referenced to phase 2:NEL and 6:, Start of Green |
| Natural Cycle:                    | 70  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.65  |
| Intersection Signal Delay:        | 58.7  |
| Intersection LOS:                 | E   |
| Intersection Capacity Utilization | 40.5%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 74: Kingwood Dr. & Willow Terrace



Grade Separation on Kingwood Drive  
74: Kingwood Dr. & Willow Terrace

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AM Peak Hour

|                      |    |
|----------------------|----|
| Lane Group           | ø6 |
| Control Delay        |    |
| Queue Delay          |    |
| Total Delay          |    |
| LOS                  |    |
| Approach Delay       |    |
| Approach LOS         |    |
| Intersection Summary |    |

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Grade Separation on Kingwood Drive  
77: Timber Shade Dr. & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL  | WBT  | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|-------|-------|-------|------|------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |       |       |       |      |      |       |      |       |       |      |       |       |
| Volume (vph)               | 31    | 476   | 23    | 0    | 0    | 0     | 0    | 44    | 3     | 12   | 13    | 0     |
| Ideal Flow (vphp)          | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 0    |      | 0     | 0    |       | 0     | 0    |       | 0     |
| Storage Lanes              | 1     |       | 0     | 0    |      | 0     | 0    |       | 0     | 0    |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25   |      |       | 25   |       |       | 25   |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00 | 1.00 | 1.00  | 1.00 | 0.95  | 0.95  | 0.95 | 0.95  | 1.00  |
| Frt                        |       | 0.993 |       |      |      |       |      | 0.990 |       |      |       |       |
| Flt Protected              | 0.950 |       |       |      |      |       |      |       |       |      | 0.976 |       |
| Satd. Flow (prot)          | 1770  | 3514  | 0     | 0    | 0    | 0     | 0    | 3504  | 0     | 0    | 3454  | 0     |
| Flt Permitted              | 0.950 |       |       |      |      |       |      |       |       |      | 0.976 |       |
| Satd. Flow (perm)          | 1770  | 3514  | 0     | 0    | 0    | 0     | 0    | 3504  | 0     | 0    | 3454  | 0     |
| Right Turn on Red          |       |       | Yes   |      |      | Yes   |      |       | Yes   |      |       | Yes   |
| Satd. Flow (RTOR)          |       | 5     |       |      |      |       |      | 4     |       |      |       |       |
| Link Speed (mph)           |       | 40    |       |      | 40   |       |      | 30    |       |      | 30    |       |
| Link Distance (ft)         |       | 826   |       |      | 1647 |       |      | 741   |       |      | 83    |       |
| Travel Time (s)            |       | 14.1  |       |      | 28.1 |       |      | 16.8  |       |      | 1.9   |       |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113% | 113% | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 38    | 585   | 28    | 0    | 0    | 0     | 0    | 54    | 4     | 15   | 16    | 0     |
| Shared Lane Traffic (%)    |       |       |       |      |      |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 38    | 613   | 0     | 0    | 0    | 0     | 0    | 58    | 0     | 0    | 31    | 0     |
| Enter Blocked Intersection | No    | No    | No    | No   | No   | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left | Left | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(ft)           |       | 12    |       |      | 12   |       |      | 0     |       |      | 0     |       |
| Link Offset(ft)            |       | 0     |       |      | 0    |       |      | 0     |       |      | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |      | 16   |       |      | 16    |       |      | 16    |       |
| Two way Left Turn Lane     |       |       |       |      |      |       |      |       |       |      |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15   |      | 9     | 15   |       | 9     | 15   |       | 9     |
| Turn Type                  | Prot  | NA    |       |      |      |       |      | NA    |       | Prot | NA    |       |
| Protected Phases           | 15    | 2     |       |      |      |       |      | 8     |       | 14   | 4     |       |
| Permitted Phases           |       |       |       |      |      |       |      |       |       |      |       |       |
| Minimum Split (s)          | 11.0  | 20.0  |       |      |      |       |      | 18.0  |       |      | 10.0  |       |
| Total Split (s)            | 17.0  | 78.0  |       |      |      |       |      | 20.0  |       |      | 16.0  |       |
| Total Split (%)            | 11.8% | 54.2% |       |      |      |       |      | 13.9% |       |      | 11.1% |       |
| Maximum Green (s)          | 11.0  | 72.0  |       |      |      |       |      | 15.0  |       |      | 11.0  |       |
| Yellow Time (s)            | 4.0   | 4.0   |       |      |      |       |      | 4.0   |       |      | 4.0   |       |
| All-Red Time (s)           | 2.0   | 2.0   |       |      |      |       |      | 1.0   |       |      | 1.0   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       |      |      |       |      | 0.0   |       |      | 0.0   |       |
| Total Lost Time (s)        | 6.0   | 6.0   |       |      |      |       |      | 5.0   |       |      | 5.0   |       |
| Lead/Lag                   |       | Lead  |       |      |      |       |      | Lag   |       |      | Lead  |       |
| Lead-Lag Optimize?         |       | Yes   |       |      |      |       |      | Yes   |       |      | Yes   |       |
| Walk Time (s)              |       | 4.0   |       |      |      |       |      | 6.0   |       |      |       |       |
| Flash Dont Walk (s)        |       | 10.0  |       |      |      |       |      | 7.0   |       |      |       |       |
| Pedestrian Calls (#/hr)    |       | 0     |       |      |      |       |      | 0     |       |      |       |       |
| Act Effct Green (s)        | 11.0  | 72.0  |       |      |      |       |      | 15.0  |       |      | 24.0  |       |
| Actuated g/C Ratio         | 0.08  | 0.50  |       |      |      |       |      | 0.10  |       |      | 0.17  |       |
| v/c Ratio                  | 0.28  | 0.35  |       |      |      |       |      | 0.16  |       |      | 0.05  |       |

Grade Separation on Kingwood Drive  
77: Timber Shade Dr. & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø1   | ø6   |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphp)          |      |      |
| Storage Length (ft)        |      |      |
| Storage Lanes              |      |      |
| Taper Length (ft)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 1    | 6    |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 11.0 | 10.0 |
| Total Split (s)            | 13.0 | 91.0 |
| Total Split (%)            | 9%   | 63%  |
| Maximum Green (s)          | 7.0  | 85.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lag  |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              |      |      |
| Flash Dont Walk (s)        |      |      |
| Pedestrian Calls (#/hr)    |      |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |

Grade Separation on Kingwood Drive  
77: Timber Shade Dr. & Kingwood Dr.

AM Peak Hour

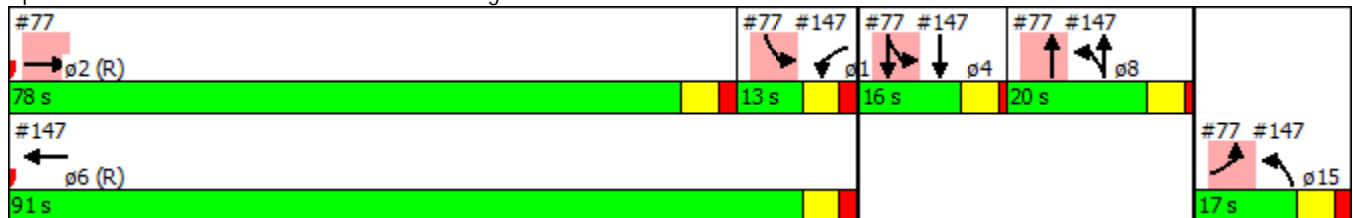


| Lane Group     | EBL  | EBT  | EBR | WBL | WBT | WBR | NBL | NBT  | NBR | SBL | SBT  | SBR |
|----------------|------|------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|
| Control Delay  | 68.6 | 22.3 |     |     |     |     |     | 55.9 |     |     | 20.1 |     |
| Queue Delay    | 0.0  | 0.0  |     |     |     |     |     | 0.0  |     |     | 0.0  |     |
| Total Delay    | 68.6 | 22.3 |     |     |     |     |     | 55.9 |     |     | 20.1 |     |
| LOS            | E    | C    |     |     |     |     |     | E    |     |     | C    |     |
| Approach Delay |      | 25.0 |     |     |     |     |     | 55.9 |     |     | 20.1 |     |
| Approach LOS   |      | C    |     |     |     |     |     | E    |     |     | C    |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 12 (8%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 70  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.59  |
| Intersection Signal Delay:        | 27.2  |
| Intersection LOS:                 | C   |
| Intersection Capacity Utilization | 32.3%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 77: Timber Shade Dr. & Kingwood Dr.



Grade Separation on Kingwood Drive  
77: Timber Shade Dr. & Kingwood Dr.

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AM Peak Hour

| Lane Group           | ø1 | ø6 |
|----------------------|----|----|
| Control Delay        |    |    |
| Queue Delay          |    |    |
| Total Delay          |    |    |
| LOS                  |    |    |
| Approach Delay       |    |    |
| Approach LOS         |    |    |
| Intersection Summary |    |    |

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Grade Separation on Kingwood Drive  
80: Kingwood Dr.

AM Peak Hour



| Lane Group                 | WBL  | WBR   | NET  | NER   | SWL  | SWT  |
|----------------------------|------|-------|------|-------|------|------|
| Lane Configurations        |      |       | ↑↑   |       |      | ↑↑   |
| Volume (vph)               | 0    | 0     | 0    | 0     | 0    | 0    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900  | 1900 | 1900 |
| Lane Util. Factor          | 1.00 | 1.00  | 0.95 | 1.00  | 1.00 | 0.95 |
| Frt                        |      |       |      |       |      |      |
| Flt Protected              |      |       |      |       |      |      |
| Satd. Flow (prot)          | 0    | 0     | 3539 | 0     | 0    | 3539 |
| Flt Permitted              |      |       |      |       |      |      |
| Satd. Flow (perm)          | 0    | 0     | 3539 | 0     | 0    | 3539 |
| Link Speed (mph)           | 40   |       | 40   |       |      | 40   |
| Link Distance (ft)         | 826  |       | 596  |       |      | 841  |
| Travel Time (s)            | 14.1 |       | 10.2 |       |      | 14.3 |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 |
| Growth Factor              | 113% | 113%  | 113% | 113%  | 113% | 113% |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0     | 0    | 0    |
| Shared Lane Traffic (%)    |      |       |      |       |      |      |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0     | 0    | 0    |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No   |
| Lane Alignment             | Left | Right | Left | Right | Left | Left |
| Median Width(ft)           | 12   |       | 0    |       |      | 0    |
| Link Offset(ft)            | 0    |       | 0    |       |      | 0    |
| Crosswalk Width(ft)        | 16   |       | 16   |       |      | 16   |
| Two way Left Turn Lane     |      |       |      |       |      |      |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Turning Speed (mph)        | 15   | 9     |      | 9     | 15   |      |
| Sign Control               | Free |       | Free |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 0.0%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
81: US 59 SBFR

AM Peak Hour



| Lane Group                 | NBT  | NBR   | SBU   | SBL  | SBT  | NWL  | NWR   |
|----------------------------|------|-------|-------|------|------|------|-------|
| Lane Configurations        |      |       | ⬇     |      | ⬆⬆⬆⬆ |      |       |
| Volume (vph)               | 0    | 0     | 131   | 0    | 887  | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 0.81 | 1.00 | 1.00  |
| Frt                        |      |       |       |      |      |      |       |
| Flt Protected              |      |       | 0.950 |      |      |      |       |
| Satd. Flow (prot)          | 0    | 0     | 1770  | 0    | 7544 | 0    | 0     |
| Flt Permitted              |      |       | 0.950 |      |      |      |       |
| Satd. Flow (perm)          | 0    | 0     | 1770  | 0    | 7544 | 0    | 0     |
| Link Speed (mph)           | 55   |       |       |      | 55   | 30   |       |
| Link Distance (ft)         | 255  |       |       |      | 1812 | 318  |       |
| Travel Time (s)            | 3.2  |       |       |      | 22.5 | 7.2  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 161   | 0    | 1089 | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 161   | 0    | 1089 | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | R NA  | Left | Left | Left | Right |
| Median Width(ft)           | 12   |       |       |      | 12   | 0    |       |
| Link Offset(ft)            | 0    |       |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |      | 9     | 9     | 15   |      | 15   | 9     |
| Sign Control               | Stop |       |       |      | Free | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 24.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
83: US 59 NBRF

AM Peak Hour



| Lane Group                 | EBL   | EBR   | NBL  | NBT  | SBT  | SBR   |
|----------------------------|-------|-------|------|------|------|-------|
| Lane Configurations        |       |       |      |      |      |       |
| Volume (vph)               | 131   | 0     | 0    | 423  | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 0.91 | 1.00 | 1.00  |
| Frt                        |       |       |      |      |      |       |
| Flt Protected              | 0.950 |       |      |      |      |       |
| Satd. Flow (prot)          | 1770  | 0     | 0    | 5085 | 0    | 0     |
| Flt Permitted              | 0.950 |       |      |      |      |       |
| Satd. Flow (perm)          | 1770  | 0     | 0    | 5085 | 0    | 0     |
| Link Speed (mph)           | 30    |       |      | 55   | 55   |       |
| Link Distance (ft)         | 318   |       |      | 309  | 1638 |       |
| Travel Time (s)            | 7.2   |       |      | 3.8  | 20.3 |       |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 161   | 0     | 0    | 520  | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |      |      |      |       |
| Lane Group Flow (vph)      | 161   | 0     | 0    | 520  | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No   | No   | No   | No    |
| Lane Alignment             | Left  | Right | Left | Left | Left | Right |
| Median Width(ft)           | 12    |       |      | 0    | 0    |       |
| Link Offset(ft)            | 0     |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16    |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |       |       |      |      |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    | 9     | 15   |      |      | 9     |
| Sign Control               | Yield |       |      | Free | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 24.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
84: US 59 SBFR

AM Peak Hour



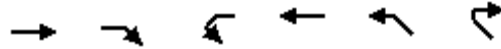
| Lane Group                 | EBL  | EBR   | NBL  | NBT  | NBR   | SBL  | SBT  | SBR   | SWL   | SWR   |
|----------------------------|------|-------|------|------|-------|------|------|-------|-------|-------|
| Lane Configurations        |      |       |      |      |       |      | 6    |       | 7     |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0     | 0    | 2267 | 0     | 233   | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900  | 1900 | 1900 | 1900  | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 0.76 | 1.00  | 1.00  | 1.00  |
| Frt                        |      |       |      |      |       |      |      |       |       |       |
| Flt Protected              |      |       |      |      |       |      |      |       | 0.950 |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 0    | 0     | 0    | 8494 | 0     | 1770  | 0     |
| Flt Permitted              |      |       |      |      |       |      |      |       | 0.950 |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 0    | 0     | 0    | 8494 | 0     | 1770  | 0     |
| Link Speed (mph)           | 30   |       |      | 55   |       |      | 55   |       | 30    |       |
| Link Distance (ft)         | 48   |       |      | 6181 |       |      | 398  |       | 362   |       |
| Travel Time (s)            | 1.1  |       |      | 76.6 |       |      | 4.9  |       | 8.2   |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92  | 0.92 | 0.92 | 0.92  | 0.92  | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113%  | 113% | 113% | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0     | 0    | 2784 | 0     | 286   | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |       |      |      |       |       |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0     | 0    | 2784 | 0     | 286   | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No    | No   | No   | No    | No    | No    |
| Lane Alignment             | Left | Right | Left | Left | Right | Left | Left | Right | Left  | Right |
| Median Width(ft)           | 0    |       |      | 0    |       |      | 0    |       | 12    |       |
| Link Offset(ft)            | 0    |       |      | 0    |       |      | 0    |       | 0     |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   |       |      | 16   |       | 16    |       |
| Two way Left Turn Lane     |      |       |      |      |       |      |      |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   | 9     | 15   |      | 9     | 15   |      | 9     | 15    | 9     |
| Sign Control               | Stop |       |      | Stop |       |      | Free |       | Yield |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 46.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
87: Kingwood Dr.

AM Peak Hour



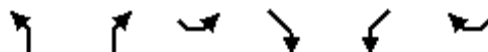
| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NWL  | NWR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        |      | ↑↑    |      | ↑↑   |      |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.88  | 1.00 | 0.95 | 1.00 | 1.00  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 0    | 3278  | 0    | 3539 | 0    | 0     |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 0    | 3278  | 0    | 3539 | 0    | 0     |
| Link Speed (mph)           | 40   |       |      | 40   | 30   |       |
| Link Distance (ft)         | 1473 |       |      | 523  | 4245 |       |
| Travel Time (s)            | 25.1 |       |      | 8.9  | 96.5 |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 75   |       |      | 70   | 70   |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9    |       | 15   | 15   |      | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                             |
|-----------------------------------|-----------------------------|
| Area Type:                        | Other                       |
| Control Type:                     | Unsignalized                |
| Intersection Capacity Utilization | 0.0% ICU Level of Service A |
| Analysis Period (min)             | 15                          |

Grade Separation on Kingwood Drive  
88: Kingwood Dr. & Kingwood High School

AM Peak Hour



| Lane Group                 | NBL   | NBR    | SEL   | SER   | SWL  | SWR   | ø6    | ø8   |
|----------------------------|-------|--------|-------|-------|------|-------|-------|------|
| Lane Configurations        |       |        |       |       |      |       |       |      |
| Volume (vph)               | 72    | 821    | 94    | 0     | 0    | 0     |       |      |
| Ideal Flow (vphpl)         | 1900  | 1900   | 1900  | 1900  | 1900 | 1900  |       |      |
| Lane Util. Factor          | 1.00  | 0.88   | 0.97  | 1.00  | 1.00 | 1.00  |       |      |
| Frt                        |       | 0.850  |       |       |      |       |       |      |
| Flt Protected              | 0.950 |        | 0.950 |       |      |       |       |      |
| Satd. Flow (prot)          | 1770  | 2787   | 3433  | 0     | 0    | 0     |       |      |
| Flt Permitted              | 0.950 |        | 0.950 |       |      |       |       |      |
| Satd. Flow (perm)          | 1770  | 2787   | 3433  | 0     | 0    | 0     |       |      |
| Right Turn on Red          |       | Yes    |       | Yes   |      | Yes   |       |      |
| Satd. Flow (RTOR)          |       | 1008   |       |       |      |       |       |      |
| Link Speed (mph)           | 40    |        | 30    |       | 40   |       |       |      |
| Link Distance (ft)         | 163   |        | 110   |       | 912  |       |       |      |
| Travel Time (s)            | 2.8   |        | 2.5   |       | 15.5 |       |       |      |
| Peak Hour Factor           | 0.92  | 0.92   | 0.92  | 0.92  | 0.92 | 0.92  |       |      |
| Growth Factor              | 113%  | 113%   | 113%  | 113%  | 113% | 113%  |       |      |
| Adj. Flow (vph)            | 88    | 1008   | 115   | 0     | 0    | 0     |       |      |
| Shared Lane Traffic (%)    |       |        |       |       |      |       |       |      |
| Lane Group Flow (vph)      | 88    | 1008   | 115   | 0     | 0    | 0     |       |      |
| Enter Blocked Intersection | No    | No     | No    | No    | No   | No    |       |      |
| Lane Alignment             | Left  | Right  | Left  | Right | Left | Right |       |      |
| Median Width(ft)           | 12    |        | 24    |       | 0    |       |       |      |
| Link Offset(ft)            | 0     |        | 0     |       | 0    |       |       |      |
| Crosswalk Width(ft)        | 16    |        | 16    |       | 16   |       |       |      |
| Two way Left Turn Lane     |       |        |       |       |      |       |       |      |
| Headway Factor             | 1.00  | 1.00   | 1.00  | 1.00  | 1.00 | 1.00  |       |      |
| Turning Speed (mph)        | 15    | 9      | 15    | 9     | 15   | 9     |       |      |
| Turn Type                  | NA    | custom | NA    |       |      |       |       |      |
| Protected Phases           | 15    | 2      | 4     |       |      |       | 6     | 8    |
| Permitted Phases           |       |        |       |       |      |       |       |      |
| Minimum Split (s)          | 10.0  | 10.0   | 10.0  |       |      |       | 10.0  | 10.0 |
| Total Split (s)            | 20.0  | 101.0  | 13.0  |       |      |       | 101.0 | 10.0 |
| Total Split (%)            | 13.9% | 70.1%  | 9.0%  |       |      |       | 70%   | 7%   |
| Maximum Green (s)          | 14.0  | 95.0   | 8.0   |       |      |       | 95.0  | 5.0  |
| Yellow Time (s)            | 4.0   | 4.0    | 4.0   |       |      |       | 4.0   | 4.0  |
| All-Red Time (s)           | 2.0   | 2.0    | 1.0   |       |      |       | 2.0   | 1.0  |
| Lost Time Adjust (s)       | 0.0   | 0.0    | 0.0   |       |      |       |       |      |
| Total Lost Time (s)        | 6.0   | 6.0    | 5.0   |       |      |       |       |      |
| Lead/Lag                   |       |        | Lead  |       |      |       |       | Lag  |
| Lead-Lag Optimize?         |       |        | Yes   |       |      |       |       | Yes  |
| Act Effect Green (s)       | 14.0  | 95.0   | 8.0   |       |      |       |       |      |
| Actuated g/C Ratio         | 0.10  | 0.66   | 0.06  |       |      |       |       |      |
| v/c Ratio                  | 0.51  | 0.46   | 0.61  |       |      |       |       |      |
| Control Delay              | 88.3  | 7.6    | 27.9  |       |      |       |       |      |
| Queue Delay                | 0.0   | 0.0    | 0.8   |       |      |       |       |      |
| Total Delay                | 88.3  | 7.6    | 28.6  |       |      |       |       |      |
| LOS                        | F     | A      | C     |       |      |       |       |      |
| Approach Delay             | 14.1  |        | 28.6  |       |      |       |       |      |
| Approach LOS               | B     |        | C     |       |      |       |       |      |

Grade Separation on Kingwood Drive  
 88: Kingwood Dr. & Kingwood High School

AM Peak Hour

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBR and 6:, Start of Green |
| Natural Cycle:                    | 80   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.80   |
| Intersection Signal Delay:        | 15.4   |
| Intersection LOS:                 | B  |
| Intersection Capacity Utilization | 37.5%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 88: Kingwood Dr. & Kingwood High School



Grade Separation on Kingwood Drive  
90: Kingwood Dr.

AM Peak Hour



| Lane Group                     | EBU  | EBL   | SBL  | SBR   | SWR   |
|--------------------------------|------|-------|------|-------|-------|
| Lane Configurations            |      |       |      |       |       |
| Volume (vph)                   | 0    | 893   | 0    | 0     | 0     |
| Ideal Flow (vphpl)             | 1900 | 1900  | 1900 | 1900  | 1900  |
| Storage Length (ft)            |      | 100   | 0    | 0     | 0     |
| Storage Lanes                  |      | 1     | 0    | 0     | 0     |
| Taper Length (ft)              |      | 25    | 25   |       |       |
| Lane Util. Factor              | 1.00 | 0.97  | 1.00 | 1.00  | 1.00  |
| <b>Fr</b>                      |      |       |      |       |       |
| Flt Protected                  |      | 0.950 |      |       |       |
| Satd. Flow (prot)              | 1863 | 3433  | 0    | 0     | 0     |
| Flt Permitted                  |      | 0.950 |      |       |       |
| Satd. Flow (perm)              | 1863 | 3433  | 0    | 0     | 0     |
| Link Speed (mph)               |      | 40    | 30   |       | 40    |
| Link Distance (ft)             |      | 417   | 152  |       | 163   |
| Travel Time (s)                |      | 7.1   | 3.5  |       | 2.8   |
| Peak Hour Factor               | 0.92 | 0.92  | 0.92 | 0.92  | 0.92  |
| Growth Factor                  | 113% | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)                | 0    | 1097  | 0    | 0     | 0     |
| <b>Shared Lane Traffic (%)</b> |      |       |      |       |       |
| Lane Group Flow (vph)          | 0    | 1097  | 0    | 0     | 0     |
| Enter Blocked Intersection     | No   | No    | No   | No    | No    |
| Lane Alignment                 | R NA | Left  | Left | Right | Right |
| Median Width(ft)               |      | 36    | 0    |       | 0     |
| Link Offset(ft)                |      | 0     | 0    |       | 0     |
| Crosswalk Width(ft)            |      | 16    | 16   |       | 16    |
| <b>Two way Left Turn Lane</b>  |      |       |      |       |       |
| Headway Factor                 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)            | 9    | 15    | 15   | 9     | 9     |
| Sign Control                   |      | Free  | Stop |       | Free  |

**Intersection Summary**

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 38.8%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |





Grade Separation on Kingwood Drive  
 91: Lake Kingwood Trail & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø1 | ø6 |
|----------------------------|----|----|
| Lane Configurations        |    |    |
| Volume (vph)               |    |    |
| Ideal Flow (vphpl)         |    |    |
| Storage Length (ft)        |    |    |
| Storage Lanes              |    |    |
| Taper Length (ft)          |    |    |
| Lane Util. Factor          |    |    |
| Frt                        |    |    |
| Flt Protected              |    |    |
| Satd. Flow (prot)          |    |    |
| Flt Permitted              |    |    |
| Satd. Flow (perm)          |    |    |
| Right Turn on Red          |    |    |
| Satd. Flow (RTOR)          |    |    |
| Link Speed (mph)           |    |    |
| Link Distance (ft)         |    |    |
| Travel Time (s)            |    |    |
| Peak Hour Factor           |    |    |
| Growth Factor              |    |    |
| Adj. Flow (vph)            |    |    |
| Shared Lane Traffic (%)    |    |    |
| Lane Group Flow (vph)      |    |    |
| Enter Blocked Intersection |    |    |
| Lane Alignment             |    |    |
| Median Width(ft)           |    |    |
| Link Offset(ft)            |    |    |
| Crosswalk Width(ft)        |    |    |
| Two way Left Turn Lane     |    |    |
| Headway Factor             |    |    |
| Turning Speed (mph)        |    |    |
| Number of Detectors        |    |    |
| Detector Template          |    |    |
| Leading Detector (ft)      |    |    |
| Trailing Detector (ft)     |    |    |
| Detector 1 Position(ft)    |    |    |
| Detector 1 Size(ft)        |    |    |
| Detector 1 Type            |    |    |
| Detector 1 Channel         |    |    |
| Detector 1 Extend (s)      |    |    |
| Detector 1 Queue (s)       |    |    |
| Detector 1 Delay (s)       |    |    |
| Detector 2 Position(ft)    |    |    |
| Detector 2 Size(ft)        |    |    |
| Detector 2 Type            |    |    |
| Detector 2 Channel         |    |    |
| Detector 2 Extend (s)      |    |    |
| Turn Type                  |    |    |
| Protected Phases           | 1  | 6  |
| Permitted Phases           |    |    |

Grade Separation on Kingwood Drive  
91: Lake Kingwood Trail & Kingwood Dr.

AM Peak Hour

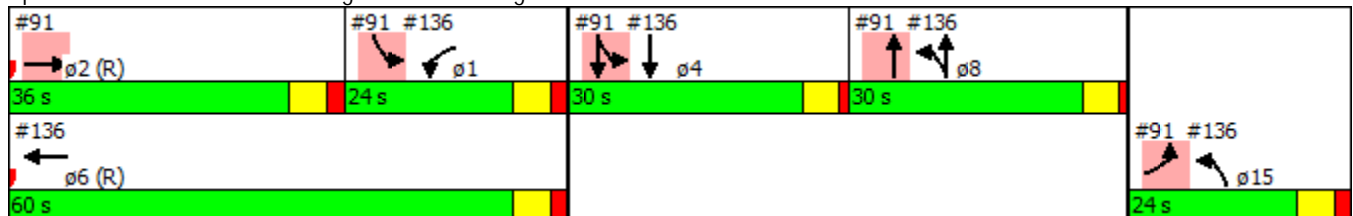


| Lane Group              | EBL   | EBT   | EBR | WBL | WBT | WBR | NBL | NBT   | NBR | SBL | SBT   | SBR |
|-------------------------|-------|-------|-----|-----|-----|-----|-----|-------|-----|-----|-------|-----|
| Detector Phase          | 15    | 2     |     |     |     |     |     | 8     |     | 14  | 4     |     |
| Switch Phase            |       |       |     |     |     |     |     |       |     |     |       |     |
| Minimum Initial (s)     | 5.0   | 4.0   |     |     |     |     |     | 5.0   |     |     | 5.0   |     |
| Minimum Split (s)       | 11.0  | 20.0  |     |     |     |     |     | 18.0  |     |     | 10.0  |     |
| Total Split (s)         | 24.0  | 36.0  |     |     |     |     |     | 30.0  |     |     | 30.0  |     |
| Total Split (%)         | 16.7% | 25.0% |     |     |     |     |     | 20.8% |     |     | 20.8% |     |
| Maximum Green (s)       | 18.0  | 30.0  |     |     |     |     |     | 25.0  |     |     | 25.0  |     |
| Yellow Time (s)         | 4.0   | 4.0   |     |     |     |     |     | 4.0   |     |     | 4.0   |     |
| All-Red Time (s)        | 2.0   | 2.0   |     |     |     |     |     | 1.0   |     |     | 1.0   |     |
| Lost Time Adjust (s)    | 0.0   | 0.0   |     |     |     |     |     | 0.0   |     |     | 0.0   |     |
| Total Lost Time (s)     | 6.0   | 6.0   |     |     |     |     |     | 5.0   |     |     | 5.0   |     |
| Lead/Lag                |       | Lead  |     |     |     |     |     | Lag   |     |     | Lead  |     |
| Lead-Lag Optimize?      |       | Yes   |     |     |     |     |     | Yes   |     |     | Yes   |     |
| Vehicle Extension (s)   | 3.0   | 3.0   |     |     |     |     |     | 3.0   |     |     | 3.0   |     |
| Recall Mode             | None  | C-Max |     |     |     |     |     | None  |     |     | None  |     |
| Walk Time (s)           |       | 4.0   |     |     |     |     |     | 6.0   |     |     |       |     |
| Flash Dont Walk (s)     |       | 10.0  |     |     |     |     |     | 7.0   |     |     |       |     |
| Pedestrian Calls (#/hr) |       | 0     |     |     |     |     |     | 0     |     |     |       |     |
| Act Effct Green (s)     | 6.8   | 80.5  |     |     |     |     |     | 7.9   |     |     | 34.0  |     |
| Actuated g/C Ratio      | 0.05  | 0.56  |     |     |     |     |     | 0.05  |     |     | 0.24  |     |
| v/c Ratio               | 0.17  | 0.52  |     |     |     |     |     | 0.40  |     |     | 0.14  |     |
| Control Delay           | 69.8  | 22.6  |     |     |     |     |     | 48.8  |     |     | 2.4   |     |
| Queue Delay             | 0.0   | 0.0   |     |     |     |     |     | 0.0   |     |     | 0.2   |     |
| Total Delay             | 69.8  | 22.6  |     |     |     |     |     | 48.8  |     |     | 2.6   |     |
| LOS                     | E     | C     |     |     |     |     |     | D     |     |     | A     |     |
| Approach Delay          |       | 23.2  |     |     |     |     |     | 48.8  |     |     | 2.6   |     |
| Approach LOS            |       | C     |     |     |     |     |     | D     |     |     | A     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 90   |
| Control Type:                     | Actuated-Coordinated                                     |
| Maximum v/c Ratio:                | 0.72   |
| Intersection Signal Delay:        | 23.1   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 46.9%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 91: Lake Kingwood Trail & Kingwood Dr.



Grade Separation on Kingwood Drive  
91: Lake Kingwood Trail & Kingwood Dr.

AM Peak Hour

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| Lane Group              | ø1   | ø6    |
|-------------------------|------|-------|
| Detector Phase          |      |       |
| Switch Phase            |      |       |
| Minimum Initial (s)     | 5.0  | 4.0   |
| Minimum Split (s)       | 11.0 | 10.0  |
| Total Split (s)         | 24.0 | 60.0  |
| Total Split (%)         | 17%  | 42%   |
| Maximum Green (s)       | 18.0 | 54.0  |
| Yellow Time (s)         | 4.0  | 4.0   |
| All-Red Time (s)        | 2.0  | 2.0   |
| Lost Time Adjust (s)    |      |       |
| Total Lost Time (s)     |      |       |
| Lead/Lag                | Lag  |       |
| Lead-Lag Optimize?      | Yes  |       |
| Vehicle Extension (s)   | 3.0  | 3.0   |
| Recall Mode             | None | C-Max |
| Walk Time (s)           |      |       |
| Flash Dont Walk (s)     |      |       |
| Pedestrian Calls (#/hr) |      |       |
| Act Effct Green (s)     |      |       |
| Actuated g/C Ratio      |      |       |
| v/c Ratio               |      |       |
| Control Delay           |      |       |
| Queue Delay             |      |       |
| Total Delay             |      |       |
| LOS                     |      |       |
| Approach Delay          |      |       |
| Approach LOS            |      |       |
| Intersection Summary    |      |       |

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| Lane Group                 | ø1 | ø6 |
|----------------------------|----|----|
| Lane Configurations        |    |    |
| Volume (vph)               |    |    |
| Ideal Flow (vphpl)         |    |    |
| Storage Length (ft)        |    |    |
| Storage Lanes              |    |    |
| Taper Length (ft)          |    |    |
| Lane Util. Factor          |    |    |
| Frt                        |    |    |
| Flt Protected              |    |    |
| Satd. Flow (prot)          |    |    |
| Flt Permitted              |    |    |
| Satd. Flow (perm)          |    |    |
| Right Turn on Red          |    |    |
| Satd. Flow (RTOR)          |    |    |
| Link Speed (mph)           |    |    |
| Link Distance (ft)         |    |    |
| Travel Time (s)            |    |    |
| Peak Hour Factor           |    |    |
| Growth Factor              |    |    |
| Adj. Flow (vph)            |    |    |
| Shared Lane Traffic (%)    |    |    |
| Lane Group Flow (vph)      |    |    |
| Enter Blocked Intersection |    |    |
| Lane Alignment             |    |    |
| Median Width(ft)           |    |    |
| Link Offset(ft)            |    |    |
| Crosswalk Width(ft)        |    |    |
| Two way Left Turn Lane     |    |    |
| Headway Factor             |    |    |
| Turning Speed (mph)        |    |    |
| Number of Detectors        |    |    |
| Detector Template          |    |    |
| Leading Detector (ft)      |    |    |
| Trailing Detector (ft)     |    |    |
| Detector 1 Position(ft)    |    |    |
| Detector 1 Size(ft)        |    |    |
| Detector 1 Type            |    |    |
| Detector 1 Channel         |    |    |
| Detector 1 Extend (s)      |    |    |
| Detector 1 Queue (s)       |    |    |
| Detector 1 Delay (s)       |    |    |
| Detector 2 Position(ft)    |    |    |
| Detector 2 Size(ft)        |    |    |
| Detector 2 Type            |    |    |
| Detector 2 Channel         |    |    |
| Detector 2 Extend (s)      |    |    |
| Turn Type                  |    |    |
| Protected Phases           | 1  | 6  |
| Permitted Phases           |    |    |

Grade Separation on Kingwood Drive  
96: Chestnut Ridge Dr. & Kingwood Dr.

AM Peak Hour

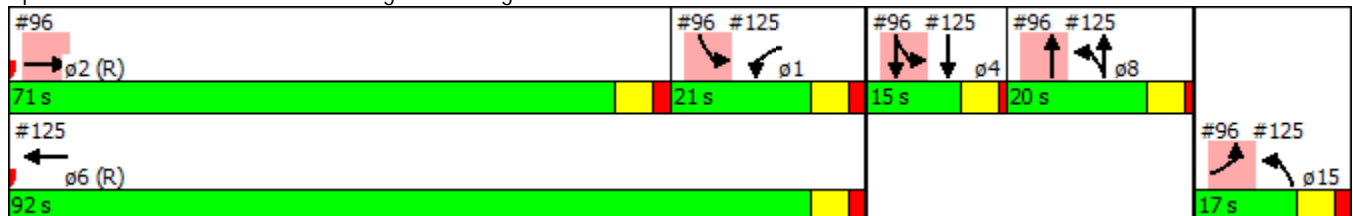


| Lane Group              | EBL   | EBT   | EBR | WBL | WBT | WBR | NBL | NBT   | NBR | SBL | SBT   | SBR |
|-------------------------|-------|-------|-----|-----|-----|-----|-----|-------|-----|-----|-------|-----|
| Detector Phase          | 15    | 2     |     |     |     |     |     | 8     |     | 14  | 4     |     |
| Switch Phase            |       |       |     |     |     |     |     |       |     |     |       |     |
| Minimum Initial (s)     | 5.0   | 4.0   |     |     |     |     |     | 5.0   |     |     | 5.0   |     |
| Minimum Split (s)       | 11.0  | 20.0  |     |     |     |     |     | 18.0  |     |     | 10.0  |     |
| Total Split (s)         | 17.0  | 71.0  |     |     |     |     |     | 20.0  |     |     | 15.0  |     |
| Total Split (%)         | 11.8% | 49.3% |     |     |     |     |     | 13.9% |     |     | 10.4% |     |
| Maximum Green (s)       | 11.0  | 65.0  |     |     |     |     |     | 15.0  |     |     | 10.0  |     |
| Yellow Time (s)         | 4.0   | 4.0   |     |     |     |     |     | 4.0   |     |     | 4.0   |     |
| All-Red Time (s)        | 2.0   | 2.0   |     |     |     |     |     | 1.0   |     |     | 1.0   |     |
| Lost Time Adjust (s)    | 0.0   | 0.0   |     |     |     |     |     | 0.0   |     |     | 0.0   |     |
| Total Lost Time (s)     | 6.0   | 6.0   |     |     |     |     |     | 5.0   |     |     | 5.0   |     |
| Lead/Lag                |       | Lead  |     |     |     |     |     | Lag   |     |     | Lead  |     |
| Lead-Lag Optimize?      |       | Yes   |     |     |     |     |     | Yes   |     |     | Yes   |     |
| Vehicle Extension (s)   | 3.0   | 3.0   |     |     |     |     |     | 3.0   |     |     | 3.0   |     |
| Recall Mode             | None  | C-Max |     |     |     |     |     | None  |     |     | None  |     |
| Walk Time (s)           |       | 4.0   |     |     |     |     |     | 6.0   |     |     |       |     |
| Flash Dont Walk (s)     |       | 10.0  |     |     |     |     |     | 7.0   |     |     |       |     |
| Pedestrian Calls (#/hr) |       | 0     |     |     |     |     |     | 0     |     |     |       |     |
| Act Effct Green (s)     | 10.9  | 65.7  |     |     |     |     |     | 15.0  |     |     | 30.4  |     |
| Actuated g/C Ratio      | 0.08  | 0.46  |     |     |     |     |     | 0.10  |     |     | 0.21  |     |
| v/c Ratio               | 0.85  | 0.59  |     |     |     |     |     | 0.93  |     |     | 0.39  |     |
| Control Delay           | 110.7 | 30.9  |     |     |     |     |     | 102.5 |     |     | 10.3  |     |
| Queue Delay             | 0.0   | 0.0   |     |     |     |     |     | 0.0   |     |     | 0.0   |     |
| Total Delay             | 110.7 | 30.9  |     |     |     |     |     | 102.5 |     |     | 10.3  |     |
| LOS                     | F     | C     |     |     |     |     |     | F     |     |     | B     |     |
| Approach Delay          |       | 39.5  |     |     |     |     |     | 102.5 |     |     | 10.3  |     |
| Approach LOS            |       | D     |     |     |     |     |     | F     |     |     | B     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 20 (14%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 130  |
| Control Type:                     | Actuated-Coordinated                                       |
| Maximum v/c Ratio:                | 1.05   |
| Intersection Signal Delay:        | 44.7   |
| Intersection LOS:                 | D  |
| Intersection Capacity Utilization | 54.6%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 96: Chestnut Ridge Dr. & Kingwood Dr.



Grade Separation on Kingwood Drive  
 96: Chestnut Ridge Dr. & Kingwood Dr.

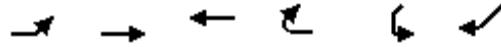
AM Peak Hour

| Lane Group              | ø1   | ø6    |
|-------------------------|------|-------|
| Detector Phase          |      |       |
| Switch Phase            |      |       |
| Minimum Initial (s)     | 5.0  | 4.0   |
| Minimum Split (s)       | 11.0 | 10.0  |
| Total Split (s)         | 21.0 | 92.0  |
| Total Split (%)         | 15%  | 64%   |
| Maximum Green (s)       | 15.0 | 86.0  |
| Yellow Time (s)         | 4.0  | 4.0   |
| All-Red Time (s)        | 2.0  | 2.0   |
| Lost Time Adjust (s)    |      |       |
| Total Lost Time (s)     |      |       |
| Lead/Lag                | Lag  |       |
| Lead-Lag Optimize?      | Yes  |       |
| Vehicle Extension (s)   | 3.0  | 3.0   |
| Recall Mode             | None | C-Max |
| Walk Time (s)           |      |       |
| Flash Dont Walk (s)     |      |       |
| Pedestrian Calls (#/hr) |      |       |
| Act Effct Green (s)     |      |       |
| Actuated g/C Ratio      |      |       |
| v/c Ratio               |      |       |
| Control Delay           |      |       |
| Queue Delay             |      |       |
| Total Delay             |      |       |
| LOS                     |      |       |
| Approach Delay          |      |       |
| Approach LOS            |      |       |
| Intersection Summary    |      |       |



Grade Separation on Kingwood Drive  
102: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | WBT   | WBR   | SWL  | SWR   |
|----------------------------|------|------|-------|-------|------|-------|
| Lane Configurations        |      |      | ↑     |       |      | ↑↑    |
| Volume (vph)               | 0    | 0    | 0     | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900  | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 0.88  |
| Frt                        |      |      |       |       |      |       |
| Flt Protected              |      |      |       |       |      |       |
| Satd. Flow (prot)          | 0    | 0    | 1863  | 0     | 0    | 3278  |
| Flt Permitted              |      |      |       |       |      |       |
| Satd. Flow (perm)          | 0    | 0    | 1863  | 0     | 0    | 3278  |
| Link Speed (mph)           |      | 40   | 30    |       | 40   |       |
| Link Distance (ft)         |      | 390  | 152   |       | 174  |       |
| Travel Time (s)            |      | 6.6  | 3.5   |       | 3.0  |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113%  | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0     | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |       |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0     | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No   | No    |
| Lane Alignment             | Left | Left | Left  | Right | Left | Right |
| Median Width(ft)           |      | 0    | 0     |       | 0    |       |
| Link Offset(ft)            |      | 0    | 0     |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16    |       | 16   |       |
| Two way Left Turn Lane     |      |      |       |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |       | 9     | 15   | 9     |
| Sign Control               |      | Free | Yield |       | Free |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 38.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
 104: US 59 SBFR & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø1  | ø3  | ø4  | ø5  | ø6  | ø7  | ø8  | ø11 | ø15 | ø16 | ø21 |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lane Configurations        |     |     |     |     |     |     |     |     |     |     |     |
| Volume (vph)               |     |     |     |     |     |     |     |     |     |     |     |
| Ideal Flow (vphpl)         |     |     |     |     |     |     |     |     |     |     |     |
| Lane Util. Factor          |     |     |     |     |     |     |     |     |     |     |     |
| Frt                        |     |     |     |     |     |     |     |     |     |     |     |
| Flt Protected              |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (prot)          |     |     |     |     |     |     |     |     |     |     |     |
| Flt Permitted              |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (perm)          |     |     |     |     |     |     |     |     |     |     |     |
| Right Turn on Red          |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (RTOR)          |     |     |     |     |     |     |     |     |     |     |     |
| Link Speed (mph)           |     |     |     |     |     |     |     |     |     |     |     |
| Link Distance (ft)         |     |     |     |     |     |     |     |     |     |     |     |
| Travel Time (s)            |     |     |     |     |     |     |     |     |     |     |     |
| Peak Hour Factor           |     |     |     |     |     |     |     |     |     |     |     |
| Growth Factor              |     |     |     |     |     |     |     |     |     |     |     |
| Adj. Flow (vph)            |     |     |     |     |     |     |     |     |     |     |     |
| Shared Lane Traffic (%)    |     |     |     |     |     |     |     |     |     |     |     |
| Lane Group Flow (vph)      |     |     |     |     |     |     |     |     |     |     |     |
| Enter Blocked Intersection |     |     |     |     |     |     |     |     |     |     |     |
| Lane Alignment             |     |     |     |     |     |     |     |     |     |     |     |
| Median Width(ft)           |     |     |     |     |     |     |     |     |     |     |     |
| Link Offset(ft)            |     |     |     |     |     |     |     |     |     |     |     |
| Crosswalk Width(ft)        |     |     |     |     |     |     |     |     |     |     |     |
| Two way Left Turn Lane     |     |     |     |     |     |     |     |     |     |     |     |
| Headway Factor             |     |     |     |     |     |     |     |     |     |     |     |
| Turning Speed (mph)        |     |     |     |     |     |     |     |     |     |     |     |
| Number of Detectors        |     |     |     |     |     |     |     |     |     |     |     |
| Detector Template          |     |     |     |     |     |     |     |     |     |     |     |
| Leading Detector (ft)      |     |     |     |     |     |     |     |     |     |     |     |
| Trailing Detector (ft)     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Position(ft)    |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Size(ft)        |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Type            |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Channel         |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Extend (s)      |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Queue (s)       |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Delay (s)       |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Position(ft)    |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Size(ft)        |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Type            |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Channel         |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Extend (s)      |     |     |     |     |     |     |     |     |     |     |     |
| Turn Type                  |     |     |     |     |     |     |     |     |     |     |     |
| Protected Phases           | 1   | 3   | 4   | 5   | 6   | 7   | 8   | 11  | 15  | 16  | 21  |
| Permitted Phases           |     |     |     |     |     |     |     |     |     |     |     |
| Detector Phase             |     |     |     |     |     |     |     |     |     |     |     |
| Switch Phase               |     |     |     |     |     |     |     |     |     |     |     |
| Minimum Initial (s)        | 3.0 | 1.0 | 5.0 | 3.0 | 8.0 | 1.0 | 1.0 | 3.0 | 3.0 | 4.0 | 1.0 |

Grade Separation on Kingwood Drive  
104: US 59 SBFR & Kingwood Dr.

AM Peak Hour



| Lane Group              | EBL | EBT   | EBR | WBL  | WBT  | WBR | NBL | NBT | NBR | SBL  | SBT  | SBR  |
|-------------------------|-----|-------|-----|------|------|-----|-----|-----|-----|------|------|------|
| Minimum Split (s)       |     | 12.3  |     |      |      |     |     |     |     |      |      |      |
| Total Split (s)         |     | 28.9  |     |      |      |     |     |     |     |      |      |      |
| Total Split (%)         |     | 20.1% |     |      |      |     |     |     |     |      |      |      |
| Maximum Green (s)       |     | 23.6  |     |      |      |     |     |     |     |      |      |      |
| Yellow Time (s)         |     | 3.6   |     |      |      |     |     |     |     |      |      |      |
| All-Red Time (s)        |     | 1.7   |     |      |      |     |     |     |     |      |      |      |
| Lost Time Adjust (s)    |     | 0.0   |     |      |      |     |     |     |     |      |      |      |
| Total Lost Time (s)     |     | 5.3   |     |      |      |     |     |     |     |      |      |      |
| Lead/Lag                |     |       |     |      |      |     |     |     |     |      |      |      |
| Lead-Lag Optimize?      |     |       |     |      |      |     |     |     |     |      |      |      |
| Vehicle Extension (s)   |     | 3.0   |     |      |      |     |     |     |     |      |      |      |
| Recall Mode             |     | None  |     |      |      |     |     |     |     |      |      |      |
| Walk Time (s)           |     |       |     |      |      |     |     |     |     |      |      |      |
| Flash Dont Walk (s)     |     |       |     |      |      |     |     |     |     |      |      |      |
| Pedestrian Calls (#/hr) |     |       |     |      |      |     |     |     |     |      |      |      |
| Act Effect Green (s)    |     | 23.6  |     | 74.0 | 91.3 |     |     |     |     | 30.1 | 30.1 | 30.1 |
| Actuated g/C Ratio      |     | 0.16  |     | 0.51 | 0.63 |     |     |     |     | 0.21 | 0.21 | 0.21 |
| v/c Ratio               |     | 0.33  |     | 0.72 | 0.41 |     |     |     |     | 0.73 | 0.74 | 0.44 |
| Control Delay           |     | 47.4  |     | 16.8 | 6.4  |     |     |     |     | 49.0 | 41.9 | 4.1  |
| Queue Delay             |     | 0.0   |     | 17.6 | 0.7  |     |     |     |     | 0.0  | 0.0  | 0.0  |
| Total Delay             |     | 47.4  |     | 34.4 | 7.1  |     |     |     |     | 49.0 | 41.9 | 4.1  |
| LOS                     |     | D     |     | C    | A    |     |     |     |     | D    | D    | A    |
| Approach Delay          |     | 47.4  |     |      | 25.3 |     |     |     |     |      | 36.6 |      |
| Approach LOS            |     | D     |     |      | C    |     |     |     |     |      | D    |      |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 0 (0%), Referenced to phase 1:WBTL and 6:, Start of Green |
| Natural Cycle:                    | 90  |
| Control Type:                     | Actuated-Coordinated                                      |
| Maximum v/c Ratio:                | 0.75  |
| Intersection Signal Delay:        | 30.1  |
| Intersection LOS:                 | C   |
| Intersection Capacity Utilization | 78.3%   |
| ICU Level of Service              | D   |
| Analysis Period (min)             | 15  |

Splits and Phases: 104: US 59 SBFR & Kingwood Dr.

|              |              |               |                  |                        |
|--------------|--------------|---------------|------------------|------------------------|
| #104<br>← ρ2 | #104<br>↓ ρ4 | #104<br>↓ ρ3  | #104<br>↙ ρ1 (R) | #104 #104<br>↙ ρ21 ρ11 |
| 28.9 s       | 11.7 s       | 24.4 s        | 52.3 s           | 6.3 s 20.4 s           |
| #105<br>↑ ρ7 | #105<br>↗ ρ5 | #105<br>↗ ρ15 | #105<br>↘ ρ6 (R) | #105<br>← ρ16          |
| 19.2 s       | 9.7 s        | 11.7 s        | 67.4 s           | 9.3 s 26.7 s           |

Grade Separation on Kingwood Drive  
 104: US 59 SBFR & Kingwood Dr.

AM Peak Hour

| Lane Group              | ø1    | ø3   | ø4   | ø5   | ø6    | ø7   | ø8   | ø11  | ø15  | ø16  | ø21  |
|-------------------------|-------|------|------|------|-------|------|------|------|------|------|------|
| Minimum Split (s)       | 8.3   | 6.7  | 11.7 | 8.3  | 25.3  | 6.7  | 26.7 | 8.3  | 8.3  | 9.3  | 6.3  |
| Total Split (s)         | 52.3  | 24.4 | 11.7 | 9.7  | 67.4  | 19.2 | 26.7 | 20.4 | 11.7 | 9.3  | 6.3  |
| Total Split (%)         | 36%   | 17%  | 8%   | 7%   | 47%   | 13%  | 19%  | 14%  | 8%   | 6%   | 4%   |
| Maximum Green (s)       | 47.0  | 18.7 | 5.0  | 4.4  | 62.1  | 13.5 | 20.0 | 15.1 | 6.4  | 4.0  | 1.0  |
| Yellow Time (s)         | 3.6   | 4.7  | 4.7  | 3.6  | 3.6   | 3.7  | 4.7  | 3.6  | 3.6  | 3.6  | 3.6  |
| All-Red Time (s)        | 1.7   | 1.0  | 2.0  | 1.7  | 1.7   | 2.0  | 2.0  | 1.7  | 1.7  | 1.7  | 1.7  |
| Lost Time Adjust (s)    |       |      |      |      |       |      |      |      |      |      |      |
| Total Lost Time (s)     |       |      |      |      |       |      |      |      |      |      |      |
| Lead/Lag                | Lag   | Lead |      | Lag  | Lead  | Lead |      | Lag  |      | Lag  | Lead |
| Lead-Lag Optimize?      | Yes   | Yes  |      | Yes  | Yes   | Yes  |      | Yes  |      | Yes  | Yes  |
| Vehicle Extension (s)   | 3.0   | 3.0  | 3.0  | 3.0  | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  |
| Recall Mode             | C-Max | None | None | None | C-Max | Max  | None | None | None | None | None |
| Walk Time (s)           |       |      |      |      | 5.0   |      | 6.0  |      |      |      |      |
| Flash Dont Walk (s)     |       |      |      |      | 15.0  |      | 14.0 |      |      |      |      |
| Pedestrian Calls (#/hr) |       |      |      |      | 0     |      | 0    |      |      |      |      |
| Act Effct Green (s)     |       |      |      |      |       |      |      |      |      |      |      |
| Actuated g/C Ratio      |       |      |      |      |       |      |      |      |      |      |      |
| v/c Ratio               |       |      |      |      |       |      |      |      |      |      |      |
| Control Delay           |       |      |      |      |       |      |      |      |      |      |      |
| Queue Delay             |       |      |      |      |       |      |      |      |      |      |      |
| Total Delay             |       |      |      |      |       |      |      |      |      |      |      |
| LOS                     |       |      |      |      |       |      |      |      |      |      |      |
| Approach Delay          |       |      |      |      |       |      |      |      |      |      |      |
| Approach LOS            |       |      |      |      |       |      |      |      |      |      |      |
| Intersection Summary    |       |      |      |      |       |      |      |      |      |      |      |



Grade Separation on Kingwood Drive  
 105: US 59 NBR & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø1  | ø2  | ø3  | ø4  | ø5  | ø6  | ø7  | ø8  | ø11 | ø15 | ø16 | ø21 |
|----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lane Configurations        |     |     |     |     |     |     |     |     |     |     |     |     |
| Volume (vph)               |     |     |     |     |     |     |     |     |     |     |     |     |
| Ideal Flow (vphpl)         |     |     |     |     |     |     |     |     |     |     |     |     |
| Lane Util. Factor          |     |     |     |     |     |     |     |     |     |     |     |     |
| Frt                        |     |     |     |     |     |     |     |     |     |     |     |     |
| Flt Protected              |     |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (prot)          |     |     |     |     |     |     |     |     |     |     |     |     |
| Flt Permitted              |     |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (perm)          |     |     |     |     |     |     |     |     |     |     |     |     |
| Right Turn on Red          |     |     |     |     |     |     |     |     |     |     |     |     |
| Satd. Flow (RTOR)          |     |     |     |     |     |     |     |     |     |     |     |     |
| Link Speed (mph)           |     |     |     |     |     |     |     |     |     |     |     |     |
| Link Distance (ft)         |     |     |     |     |     |     |     |     |     |     |     |     |
| Travel Time (s)            |     |     |     |     |     |     |     |     |     |     |     |     |
| Peak Hour Factor           |     |     |     |     |     |     |     |     |     |     |     |     |
| Growth Factor              |     |     |     |     |     |     |     |     |     |     |     |     |
| Adj. Flow (vph)            |     |     |     |     |     |     |     |     |     |     |     |     |
| Shared Lane Traffic (%)    |     |     |     |     |     |     |     |     |     |     |     |     |
| Lane Group Flow (vph)      |     |     |     |     |     |     |     |     |     |     |     |     |
| Enter Blocked Intersection |     |     |     |     |     |     |     |     |     |     |     |     |
| Lane Alignment             |     |     |     |     |     |     |     |     |     |     |     |     |
| Median Width(ft)           |     |     |     |     |     |     |     |     |     |     |     |     |
| Link Offset(ft)            |     |     |     |     |     |     |     |     |     |     |     |     |
| Crosswalk Width(ft)        |     |     |     |     |     |     |     |     |     |     |     |     |
| Two way Left Turn Lane     |     |     |     |     |     |     |     |     |     |     |     |     |
| Headway Factor             |     |     |     |     |     |     |     |     |     |     |     |     |
| Turning Speed (mph)        |     |     |     |     |     |     |     |     |     |     |     |     |
| Number of Detectors        |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector Template          |     |     |     |     |     |     |     |     |     |     |     |     |
| Leading Detector (ft)      |     |     |     |     |     |     |     |     |     |     |     |     |
| Trailing Detector (ft)     |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Position(ft)    |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Size(ft)        |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Type            |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Channel         |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Extend (s)      |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Queue (s)       |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 1 Delay (s)       |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Position(ft)    |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Size(ft)        |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Type            |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Channel         |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector 2 Extend (s)      |     |     |     |     |     |     |     |     |     |     |     |     |
| Turn Type                  |     |     |     |     |     |     |     |     |     |     |     |     |
| Protected Phases           | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 11  | 15  | 16  | 21  |
| Permitted Phases           |     |     |     |     |     |     |     |     |     |     |     |     |
| Detector Phase             |     |     |     |     |     |     |     |     |     |     |     |     |
| Switch Phase               |     |     |     |     |     |     |     |     |     |     |     |     |
| Minimum Initial (s)        | 3.0 | 7.0 | 1.0 | 5.0 | 3.0 | 8.0 | 1.0 | 1.0 | 3.0 | 3.0 | 4.0 | 1.0 |

Grade Separation on Kingwood Drive  
105: US 59 NBFR & Kingwood Dr.

AM Peak Hour

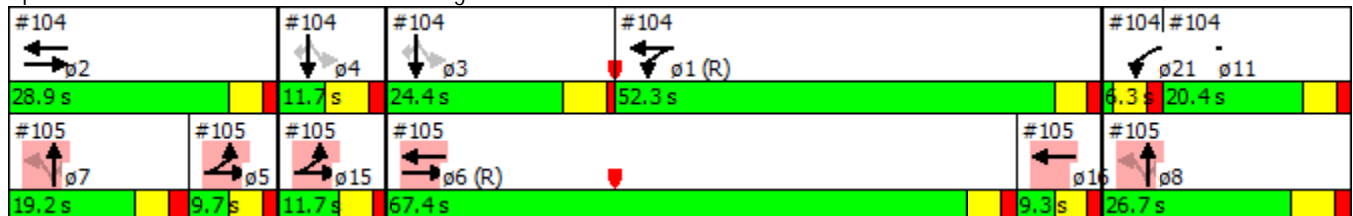


| Lane Group              | EBL  | EBT  | EBR | WBL  | WBT | WBR  | NBL  | NBT  | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|-----|------|------|------|-----|-----|-----|-----|
| Minimum Split (s)       |      |      |     |      |     |      |      |      |     |     |     |     |
| Total Split (s)         |      |      |     |      |     |      |      |      |     |     |     |     |
| Total Split (%)         |      |      |     |      |     |      |      |      |     |     |     |     |
| Maximum Green (s)       |      |      |     |      |     |      |      |      |     |     |     |     |
| Yellow Time (s)         |      |      |     |      |     |      |      |      |     |     |     |     |
| All-Red Time (s)        |      |      |     |      |     |      |      |      |     |     |     |     |
| Lost Time Adjust (s)    |      |      |     |      |     |      |      |      |     |     |     |     |
| Total Lost Time (s)     |      |      |     |      |     |      |      |      |     |     |     |     |
| Lead/Lag                |      |      |     |      |     |      |      |      |     |     |     |     |
| Lead-Lag Optimize?      |      |      |     |      |     |      |      |      |     |     |     |     |
| Vehicle Extension (s)   |      |      |     |      |     |      |      |      |     |     |     |     |
| Recall Mode             |      |      |     |      |     |      |      |      |     |     |     |     |
| Walk Time (s)           |      |      |     |      |     |      |      |      |     |     |     |     |
| Flash Dont Walk (s)     |      |      |     |      |     |      |      |      |     |     |     |     |
| Pedestrian Calls (#/hr) |      |      |     |      |     |      |      |      |     |     |     |     |
| Act Effct Green (s)     | 16.1 | 83.5 |     | 71.4 |     | 40.2 | 40.2 | 40.2 |     |     |     |     |
| Actuated g/C Ratio      | 0.11 | 0.58 |     | 0.50 |     | 0.28 | 0.28 | 0.28 |     |     |     |     |
| v/c Ratio               | 0.24 | 0.27 |     | 0.75 |     | 0.66 | 0.31 | 0.47 |     |     |     |     |
| Control Delay           | 80.5 | 5.3  |     | 30.9 |     | 54.3 | 41.7 | 4.4  |     |     |     |     |
| Queue Delay             | 0.0  | 1.2  |     | 1.3  |     | 0.0  | 0.0  | 0.0  |     |     |     |     |
| Total Delay             | 80.5 | 6.5  |     | 32.2 |     | 54.3 | 41.7 | 4.4  |     |     |     |     |
| LOS                     | F    | A    |     | C    |     | D    | D    | A    |     |     |     |     |
| Approach Delay          |      | 16.8 |     | 32.2 |     | 27.7 |      |      |     |     |     |     |
| Approach LOS            |      | B    |     | C    |     | C    |      |      |     |     |     |     |

Intersection Summary

|                                    |   |
|------------------------------------|---|
| Area Type:                         | Other   |
| Cycle Length:                      | 144   |
| Actuated Cycle Length:             | 144   |
| Offset:                            | 0 (0%), Referenced to phase 1:WBTL and 6:, Start of Green |
| Natural Cycle:                     | 90  |
| Control Type:                      | Actuated-Coordinated                                      |
| Maximum v/c Ratio:                 | 0.75  |
| Intersection Signal Delay:         | 28.5  |
| Intersection LOS:                  | C   |
| Intersection Capacity Utilization: | 78.3%   |
| ICU Level of Service:              | D   |
| Analysis Period (min):             | 15  |

Splits and Phases: 105: US 59 NBFR & Kingwood Dr.





Grade Separation on Kingwood Drive  
 105: US 59 NBFR & Kingwood Dr.

AM Peak Hour

| Lane Group                  | ø1    | ø2   | ø3   | ø4   | ø5   | ø6    | ø7   | ø8   | ø11  | ø15  | ø16  | ø21  |      |      |      |      |
|-----------------------------|-------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Minimum Split (s)           | 8.3   | 12.3 | 6.7  | 11.7 | 8.3  | 25.3  | 6.7  | 26.7 | 8.3  | 8.3  | 9.3  | 6.3  |      |      |      |      |
| Total Split (s)             | 52.3  | 28.9 | 24.4 | 11.7 | 9.7  | 67.4  | 19.2 | 26.7 | 20.4 | 11.7 | 9.3  | 6.3  |      |      |      |      |
| Total Split (%)             | 36%   | 20%  | 17%  | 8%   | 7%   | 47%   | 13%  | 19%  | 14%  | 8%   | 6%   | 4%   |      |      |      |      |
| Maximum Green (s)           | 47.0  | 23.6 | 18.7 | 5.0  | 4.4  | 62.1  | 13.5 | 20.0 | 15.1 | 6.4  | 4.0  | 1.0  |      |      |      |      |
| Yellow Time (s)             | 3.6   | 3.6  | 4.7  | 4.7  | 3.6  | 3.6   | 3.7  | 4.7  | 3.6  | 3.6  | 3.6  | 3.6  |      |      |      |      |
| All-Red Time (s)            | 1.7   | 1.7  | 1.0  | 2.0  | 1.7  | 1.7   | 2.0  | 2.0  | 1.7  | 1.7  | 1.7  | 1.7  |      |      |      |      |
| Lost Time Adjust (s)        |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Total Lost Time (s)         |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Lead/Lag                    | Lag   |      | Lead |      | Lag  |       | Lead |      | Lead |      | Lag  |      | Lag  |      | Lead |      |
| Lead-Lag Optimize?          | Yes   |      | Yes  |      | Yes  |       | Yes  |      | Yes  |      | Yes  |      | Yes  |      | Yes  |      |
| Vehicle Extension (s)       | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0   | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  | 3.0  |
| Recall Mode                 | C-Max | None | None | None | None | C-Max | Max  | None | None | None | None | None | None | None | None | None |
| Walk Time (s)               |       |      |      |      |      | 5.0   |      | 6.0  |      |      |      |      |      |      |      |      |
| Flash Dont Walk (s)         |       |      |      |      |      | 15.0  |      | 14.0 |      |      |      |      |      |      |      |      |
| Pedestrian Calls (#/hr)     |       |      |      |      |      | 0     |      | 0    |      |      |      |      |      |      |      |      |
| Act Effct Green (s)         |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Actuated g/C Ratio          |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| v/c Ratio                   |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Control Delay               |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Queue Delay                 |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Total Delay                 |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| LOS                         |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Approach Delay              |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| Approach LOS                |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |
| <b>Intersection Summary</b> |       |      |      |      |      |       |      |      |      |      |      |      |      |      |      |      |

Grade Separation on Kingwood Drive  
107: Kingwood Dr.

AM Peak Hour



| Lane Group                 | WBL   | WBR   | NBT   | NBR   | SBL  | SBT   |
|----------------------------|-------|-------|-------|-------|------|-------|
| Lane Configurations        |       |       |       |       |      |       |
| Volume (vph)               | 10    | 245   | 114   | 17    | 56   | 162   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Frt                        | 0.870 |       | 0.982 |       |      |       |
| Flt Protected              | 0.998 |       |       |       |      | 0.987 |
| Satd. Flow (prot)          | 1617  | 0     | 1829  | 0     | 0    | 1839  |
| Flt Permitted              | 0.998 |       |       |       |      | 0.987 |
| Satd. Flow (perm)          | 1617  | 0     | 1829  | 0     | 0    | 1839  |
| Link Speed (mph)           | 40    |       | 35    |       |      | 35    |
| Link Distance (ft)         | 2010  |       | 3652  |       |      | 1853  |
| Travel Time (s)            | 34.3  |       | 71.1  |       |      | 36.1  |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 12    | 301   | 140   | 21    | 69   | 199   |
| Shared Lane Traffic (%)    |       |       |       |       |      |       |
| Lane Group Flow (vph)      | 313   | 0     | 161   | 0     | 0    | 268   |
| Enter Blocked Intersection | No    | No    | No    | No    | No   | No    |
| Lane Alignment             | Left  | Right | Left  | Right | Left | Left  |
| Median Width(ft)           | 12    |       | 0     |       |      | 0     |
| Link Offset(ft)            | 0     |       | 0     |       |      | 0     |
| Crosswalk Width(ft)        | 16    |       | 16    |       |      | 16    |
| Two way Left Turn Lane     |       |       |       |       |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    | 9     |       | 9     | 15   |       |
| Sign Control               | Stop  |       | Stop  |       |      | Stop  |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 48.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
111: Lake Houston Parkway & Rustic Woods

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL   | NBT   | NBR   | SBL  | SBT  | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|
| Lane Configurations        |      | ↑↑    |       |      | ↑↑    |       | ↑     | ↑↑    |       |      |      |       |
| Volume (vph)               | 24   | 33    | 0     | 0    | 131   | 28    | 72    | 854   | 30    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  |
| Storage Length (ft)        | 0    |       | 0     | 0    |       | 0     | 150   |       | 0     | 0    |      | 0     |
| Storage Lanes              | 0    |       | 0     | 0    |       | 0     | 1     |       | 0     | 0    |      | 0     |
| Taper Length (ft)          | 25   |       |       | 25   |       |       | 25    |       |       | 25   |      |       |
| Lane Util. Factor          | 0.95 | 0.95  | 1.00  | 1.00 | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 1.00 | 1.00 | 1.00  |
| Frt                        |      |       |       |      | 0.974 |       |       | 0.995 |       |      |      |       |
| Flt Protected              |      | 0.980 |       |      |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (prot)          | 0    | 3468  | 0     | 0    | 3447  | 0     | 1770  | 3522  | 0     | 0    | 0    | 0     |
| Flt Permitted              |      | 0.980 |       |      |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (perm)          | 0    | 3468  | 0     | 0    | 3447  | 0     | 1770  | 3522  | 0     | 0    | 0    | 0     |
| Right Turn on Red          |      |       | Yes   |      |       | Yes   |       |       | Yes   |      |      | Yes   |
| Satd. Flow (RTOR)          |      |       |       |      | 14    |       |       | 3     |       |      |      |       |
| Link Speed (mph)           |      | 30    |       |      | 30    |       |       | 40    |       |      |      | 40    |
| Link Distance (ft)         |      | 82    |       |      | 559   |       |       | 1308  |       |      |      | 3507  |
| Travel Time (s)            |      | 1.9   |       |      | 12.7  |       |       | 22.3  |       |      |      | 59.8  |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113%  | 113%  | 113%  | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 29   | 41    | 0     | 0    | 161   | 34    | 88    | 1049  | 37    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |       |       |       |      |      |       |
| Lane Group Flow (vph)      | 0    | 70    | 0     | 0    | 195   | 0     | 88    | 1086  | 0     | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No    | No    | No    | No   | No   | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left  | Left  | Right | Left | Left | Right |
| Median Width(ft)           |      | 0     |       |      | 0     |       |       | 12    |       |      |      | 12    |
| Link Offset(ft)            |      | 0     |       |      | 0     |       |       | 0     |       |      |      | 0     |
| Crosswalk Width(ft)        |      | 16    |       |      | 16    |       |       | 16    |       |      |      | 16    |
| Two way Left Turn Lane     |      |       |       |      |       |       |       |       |       |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |       | 9     | 15    |       | 9     | 15   |      | 9     |
| Turn Type                  | Prot | NA    |       |      | NA    |       | Prot  | NA    |       |      |      |       |
| Protected Phases           | 14   | 4     |       |      | 8     |       | 15    | 2     |       |      |      |       |
| Permitted Phases           |      |       |       |      |       |       |       |       |       |      |      |       |
| Minimum Split (s)          |      | 10.0  |       |      | 18.0  |       | 11.0  | 20.0  |       |      |      |       |
| Total Split (s)            |      | 17.0  |       |      | 21.0  |       | 22.0  | 71.0  |       |      |      |       |
| Total Split (%)            |      | 11.8% |       |      | 14.6% |       | 15.3% | 49.3% |       |      |      |       |
| Maximum Green (s)          |      | 12.0  |       |      | 16.0  |       | 16.0  | 65.0  |       |      |      |       |
| Yellow Time (s)            |      | 4.0   |       |      | 4.0   |       | 4.0   | 4.0   |       |      |      |       |
| All-Red Time (s)           |      | 1.0   |       |      | 1.0   |       | 2.0   | 2.0   |       |      |      |       |
| Lost Time Adjust (s)       |      | 0.0   |       |      | 0.0   |       | 0.0   | 0.0   |       |      |      |       |
| Total Lost Time (s)        |      | 5.0   |       |      | 5.0   |       | 6.0   | 6.0   |       |      |      |       |
| Lead/Lag                   |      | Lead  |       |      | Lag   |       |       | Lead  |       |      |      |       |
| Lead-Lag Optimize?         |      | Yes   |       |      | Yes   |       |       | Yes   |       |      |      |       |
| Walk Time (s)              |      |       |       |      | 6.0   |       |       | 4.0   |       |      |      |       |
| Flash Dont Walk (s)        |      |       |       |      | 7.0   |       |       | 10.0  |       |      |      |       |
| Pedestrian Calls (#/hr)    |      |       |       |      | 0     |       |       | 0     |       |      |      |       |
| Act Effct Green (s)        |      | 25.0  |       |      | 16.0  |       | 16.0  | 65.0  |       |      |      |       |
| Actuated g/C Ratio         |      | 0.17  |       |      | 0.11  |       | 0.11  | 0.45  |       |      |      |       |
| v/c Ratio                  |      | 0.12  |       |      | 0.49  |       | 0.45  | 0.68  |       |      |      |       |

Grade Separation on Kingwood Drive  
 111: Lake Houston Parkway & Rustic Woods

AM Peak Hour

| Lane Group                 | ø1   | ø6   |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphpl)         |      |      |
| Storage Length (ft)        |      |      |
| Storage Lanes              |      |      |
| Taper Length (ft)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 1    | 6    |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 11.0 | 10.0 |
| Total Split (s)            | 13.0 | 84.0 |
| Total Split (%)            | 9%   | 58%  |
| Maximum Green (s)          | 7.0  | 78.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lag  |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              |      |      |
| Flash Dont Walk (s)        |      |      |
| Pedestrian Calls (#/hr)    |      |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |

Grade Separation on Kingwood Drive  
111: Lake Houston Parkway & Rustic Woods

AM Peak Hour

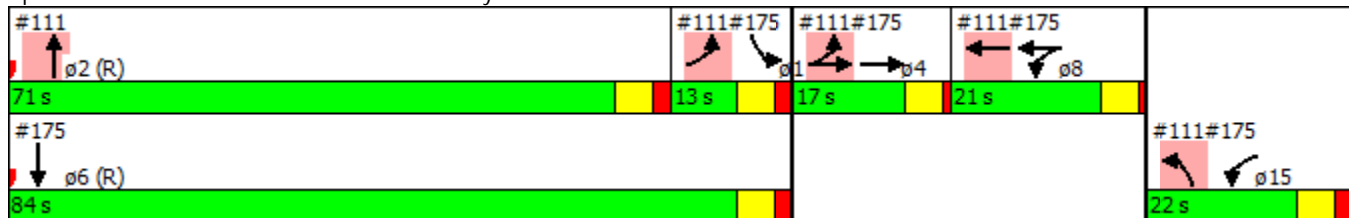


| Lane Group     | EBL | EBT  | EBR | WBL | WBT  | WBR | NBL  | NBT  | NBR | SBL | SBT | SBR |
|----------------|-----|------|-----|-----|------|-----|------|------|-----|-----|-----|-----|
| Control Delay  |     | 26.6 |     |     | 60.5 |     | 67.8 | 34.0 |     |     |     |     |
| Queue Delay    |     | 0.0  |     |     | 0.0  |     | 0.0  | 0.0  |     |     |     |     |
| Total Delay    |     | 26.6 |     |     | 60.5 |     | 67.8 | 34.0 |     |     |     |     |
| LOS            |     | C    |     |     | E    |     | E    | C    |     |     |     |     |
| Approach Delay |     | 26.6 |     |     | 60.5 |     |      | 36.5 |     |     |     |     |
| Approach LOS   |     | C    |     |     | E    |     |      | D    |     |     |     |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 90 (63%), Referenced to phase 2:NBT and 6:, Start of Green |
| Natural Cycle:                    | 80   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.71   |
| Intersection Signal Delay:        | 39.3   |
| Intersection LOS:                 | D  |
| Intersection Capacity Utilization | 50.4%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 111: Lake Houston Parkway & Rustic Woods



Grade Separation on Kingwood Drive  
111: Lake Houston Parkway & Rustic Woods

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AM Peak Hour

| Lane Group           | ø1 | ø6 |
|----------------------|----|----|
| Control Delay        |    |    |
| Queue Delay          |    |    |
| Total Delay          |    |    |
| LOS                  |    |    |
| Approach Delay       |    |    |
| Approach LOS         |    |    |
| Intersection Summary |    |    |

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Grade Separation on Kingwood Drive  
115: Loop 494 & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 6     | 653   | 95    | 161   | 662   | 66    | 11    | 41    | 264   | 88    | 168   | 153   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0     |       | 0     | 0     |       | 0     | 150   |       | 150   | 160   |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 1     |       | 1     | 1     |       | 1     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |       | 0.981 |       |       | 0.986 |       |       |       | 0.850 |       |       | 0.850 |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 1770  | 3472  | 0     | 1770  | 3490  | 0     | 1770  | 1863  | 1583  | 1770  | 1863  | 1583  |
| Flt Permitted              | 0.250 |       |       | 0.250 |       |       | 0.624 |       |       | 0.723 |       |       |
| Satd. Flow (perm)          | 466   | 3472  | 0     | 466   | 3490  | 0     | 1162  | 1863  | 1583  | 1347  | 1863  | 1583  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 48    |       |       | 31    |       |       |       | 68    |       |       | 66    |
| Link Speed (mph)           |       | 40    |       |       | 40    |       |       | 45    |       |       | 45    |       |
| Link Distance (ft)         |       | 1514  |       |       | 523   |       |       | 675   |       |       | 922   |       |
| Travel Time (s)            |       | 25.8  |       |       | 8.9   |       |       | 10.2  |       |       | 14.0  |       |
| 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  |
| Growth Factor              | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  |
| Adj. Flow (vph)            | 8     | 830   | 121   | 205   | 842   | 84    | 14    | 52    | 336   | 112   | 214   | 195   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 8     | 951   | 0     | 205   | 926   | 0     | 14    | 52    | 336   | 112   | 214   | 195   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 12    |       |       | 12    |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       | 2     | 6     |       | 6     |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     | 0     | 0     | 0     | 0     |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  |
| v/c Ratio                  | 0.04  | 0.67  |       | 1.10  | 0.65  |       | 0.03  | 0.07  | 0.50  | 0.21  | 0.29  | 0.29  |

Grade Separation on Kingwood Drive  
115: Loop 494 & Kingwood Dr.

AM Peak Hour

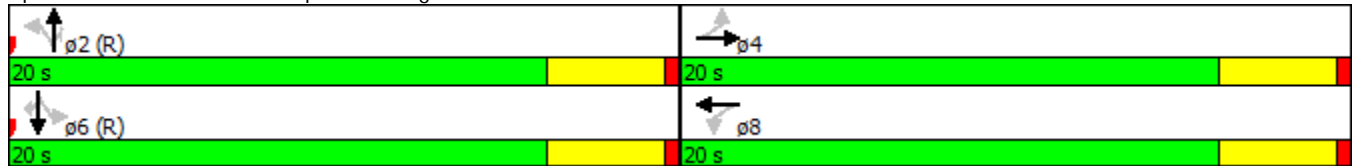


| Lane Group     | EBL | EBT  | EBR | WBL   | WBT  | WBR | NBL | NBT  | NBR  | SBL | SBT | SBR |
|----------------|-----|------|-----|-------|------|-----|-----|------|------|-----|-----|-----|
| Control Delay  | 8.1 | 12.2 |     | 119.3 | 12.1 |     | 9.8 | 10.1 | 14.8 | 9.2 | 9.5 | 7.0 |
| Queue Delay    | 0.0 | 0.0  |     | 0.0   | 0.0  |     | 0.0 | 0.0  | 0.0  | 0.0 | 0.0 | 0.0 |
| Total Delay    | 8.1 | 12.2 |     | 119.3 | 12.1 |     | 9.8 | 10.1 | 14.8 | 9.2 | 9.5 | 7.0 |
| LOS            | A   | B    |     | F     | B    |     | A   | B    | B    | A   | A   | A   |
| Approach Delay |     | 12.2 |     |       | 31.5 |     |     | 14.0 |      |     | 8.5 |     |
| Approach LOS   |     | B    |     |       | C    |     |     | B    |      |     | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 60  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.10  |
| Intersection Signal Delay:        | 19.0  |
| Intersection LOS:                 | B   |
| Intersection Capacity Utilization | 59.5%   |
| ICU Level of Service              | B   |
| Analysis Period (min)             | 15  |

Splits and Phases: 115: Loop 494 & Kingwood Dr.





Grade Separation on Kingwood Drive  
118: Royal Forest /Royal Forest & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 138   | 823   | 44    | 18    | 1604  | 18    | 30    | 5     | 8     | 1     | 2     | 78    |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0     |       | 0     | 150   |       | 0     | 0     |       | 0     | 0     |       | 0     |
| Storage Lanes              | 1     |       | 1     | 1     |       | 0     | 0     |       | 1     | 0     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 1.00  | 1.00  | 0.95  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Frt                        |       |       | 0.850 |       | 0.998 |       |       |       | 0.850 |       | 0.870 |       |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       |       | 0.959 |       |       |       |       |
| Satd. Flow (prot)          | 1770  | 3539  | 1583  | 1770  | 3532  | 0     | 0     | 1786  | 1583  | 0     | 1621  | 0     |
| Flt Permitted              | 0.950 |       |       | 0.950 |       |       |       | 0.785 |       |       | 0.695 |       |
| Satd. Flow (perm)          | 1770  | 3539  | 1583  | 1770  | 3532  | 0     | 0     | 1462  | 1583  | 0     | 1126  | 0     |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       |       | 114   |       | 2     |       |       |       | 114   |       | 99    |       |
| Link Speed (mph)           |       | 40    |       |       | 40    |       |       | 30    |       |       | 30    |       |
| Link Distance (ft)         |       | 523   |       |       | 284   |       |       | 392   |       |       | 750   |       |
| Travel Time (s)            |       | 8.9   |       |       | 4.8   |       |       | 8.9   |       |       | 17.0  |       |
| 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  |
| Growth Factor              | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  |
| Adj. Flow (vph)            | 176   | 1047  | 56    | 23    | 2040  | 23    | 38    | 6     | 10    | 1     | 3     | 99    |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 176   | 1047  | 56    | 23    | 2063  | 0     | 0     | 44    | 10    | 0     | 103   | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 0     |       |       | 0     |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Prot  | NA    | Perm  | Prot  | NA    |       | Perm  | NA    | Perm  | Perm  | NA    |       |
| Protected Phases           | 5     | 2!    |       | 1!    | 6!    |       |       | 8     |       |       | 6!    |       |
| Permitted Phases           |       |       | 2     |       |       |       | 8     |       | 8     | 6!    |       |       |
| Minimum Split (s)          | 8.0   | 20.0  | 20.0  | 8.0   | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |       |
| Total Split (s)            | 8.0   | 20.0  | 20.0  | 8.0   | 20.0  |       | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |       |
| Total Split (%)            | 16.7% | 41.7% | 41.7% | 16.7% | 41.7% |       | 41.7% | 41.7% | 41.7% | 41.7% | 41.7% |       |
| Maximum Green (s)          | 4.0   | 16.0  | 16.0  | 4.0   | 16.0  |       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |       |
| Yellow Time (s)            | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |       | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |       |
| All-Red Time (s)           | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |       | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       |       | 0.0   | 0.0   |       | 0.0   |       |
| Total Lost Time (s)        | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |       |       | 4.0   | 4.0   |       | 4.0   |       |
| Lead/Lag                   | Lead  | Lag   | Lag   | Lead  | Lag   |       |       |       |       | Lag   | Lag   |       |
| Lead-Lag Optimize?         | Yes   | Yes   | Yes   | Yes   | Yes   |       |       |       |       | Yes   | Yes   |       |
| Walk Time (s)              |       | 5.0   | 5.0   |       | 5.0   |       | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |       |
| Flash Dont Walk (s)        |       | 11.0  | 11.0  |       | 11.0  |       | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |       |
| Pedestrian Calls (#/hr)    |       | 0     | 0     |       | 0     |       | 0     | 0     | 0     | 0     | 0     |       |
| Act Effect Green (s)       | 4.0   | 16.0  | 16.0  | 4.0   | 16.0  |       |       | 16.0  | 16.0  |       | 16.0  |       |
| Actuated g/C Ratio         | 0.08  | 0.33  | 0.33  | 0.08  | 0.33  |       |       | 0.33  | 0.33  |       | 0.33  |       |
| v/c Ratio                  | 1.20  | 0.89  | 0.09  | 0.16  | 1.75  |       |       | 0.09  | 0.02  |       | 0.23  |       |

Grade Separation on Kingwood Drive  
 118: Royal Forest /Royal Forest & Kingwood Dr.

AM Peak Hour



| Lane Group     | EBL   | EBT  | EBR | WBL  | WBT   | WBR | NBL | NBT  | NBR | SBL | SBT | SBR |
|----------------|-------|------|-----|------|-------|-----|-----|------|-----|-----|-----|-----|
| Control Delay  | 165.8 | 27.3 | 1.2 | 23.1 | 361.5 |     |     | 11.7 | 0.0 |     | 5.1 |     |
| Queue Delay    | 0.0   | 0.0  | 0.0 | 0.0  | 0.0   |     |     | 0.0  | 0.0 |     | 0.0 |     |
| Total Delay    | 165.8 | 27.3 | 1.2 | 23.1 | 361.5 |     |     | 11.7 | 0.0 |     | 5.1 |     |
| LOS            | F     | C    | A   | C    | F     |     |     | B    | A   |     | A   |     |
| Approach Delay |       | 45.2 |     |      | 357.8 |     |     | 9.5  |     |     | 5.1 |     |
| Approach LOS   |       | D    |     |      | F     |     |     | A    |     |     | A   |     |

Intersection Summary

Area Type: Other  
 Cycle Length: 48  
 Actuated Cycle Length: 48  
 Offset: 12 (25%), Referenced to phase 2:EBT and 6:WBSB, Start of Green  
 Natural Cycle: 90  
 Control Type: Pretimed  
 Maximum v/c Ratio: 1.75  
 Intersection Signal Delay: 228.6  
 Intersection Capacity Utilization 80.4%  
 Analysis Period (min) 15

Intersection LOS: F  
 ICU Level of Service D

! Phase conflict between lane groups.

Splits and Phases: 118: Royal Forest /Royal Forest & Kingwood Dr.



Grade Separation on Kingwood Drive  
121: US 59 SBFR

AM Peak Hour



| Lane Group                 | NBT  | NBR   | SBU   | SBL  | SBT  | NWL  | NWR   |
|----------------------------|------|-------|-------|------|------|------|-------|
| Lane Configurations        |      |       | ↵     |      | ↑↑↑↑ |      |       |
| Volume (vph)               | 0    | 0     | 104   | 0    | 918  | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00 | 0.81 | 1.00 | 1.00  |
| Frt                        |      |       |       |      |      |      |       |
| Flt Protected              |      |       | 0.950 |      |      |      |       |
| Satd. Flow (prot)          | 0    | 0     | 1770  | 0    | 7544 | 0    | 0     |
| Flt Permitted              |      |       | 0.950 |      |      |      |       |
| Satd. Flow (perm)          | 0    | 0     | 1770  | 0    | 7544 | 0    | 0     |
| Link Speed (mph)           | 55   |       |       |      | 55   | 30   |       |
| Link Distance (ft)         | 202  |       |       |      | 6181 | 296  |       |
| Travel Time (s)            | 2.5  |       |       |      | 76.6 | 6.7  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 128   | 0    | 1128 | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 128   | 0    | 1128 | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | R NA  | Left | Left | Left | Right |
| Median Width(ft)           | 12   |       |       |      | 12   | 0    |       |
| Link Offset(ft)            | 0    |       |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |      | 9     | 9     | 15   |      | 15   | 9     |
| Sign Control               | Stop |       |       |      | Free | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 46.0%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
122: US 59 NBFR

AM Peak Hour



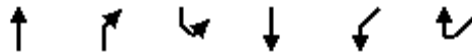
| Lane Group                 | EBL   | EBR   | NBL  | NBT  | SBT  | SBR   |
|----------------------------|-------|-------|------|------|------|-------|
| Lane Configurations        |       |       |      |      |      |       |
| Volume (vph)               | 104   | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 0.91 | 1.00 | 1.00  |
| Frt                        |       |       |      |      |      |       |
| Flt Protected              | 0.950 |       |      |      |      |       |
| Satd. Flow (prot)          | 1770  | 0     | 0    | 5085 | 0    | 0     |
| Flt Permitted              | 0.950 |       |      |      |      |       |
| Satd. Flow (perm)          | 1770  | 0     | 0    | 5085 | 0    | 0     |
| Link Speed (mph)           | 30    |       |      | 55   | 55   |       |
| Link Distance (ft)         | 296   |       |      | 199  | 6172 |       |
| Travel Time (s)            | 6.7   |       |      | 2.5  | 76.5 |       |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 128   | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |      |      |      |       |
| Lane Group Flow (vph)      | 128   | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No   | No   | No   | No    |
| Lane Alignment             | Left  | Right | Left | Left | Left | Right |
| Median Width(ft)           | 12    |       |      | 0    | 0    |       |
| Link Offset(ft)            | 0     |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16    |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |       |       |      |      |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15    | 9     | 15   |      |      | 9     |
| Sign Control               | Yield |       |      | Free | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 16.5%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
123: US 59 SBFR

AM Peak Hour



| Lane Group                 | NBT  | NBR   | SBL  | SBT  | SWL   | SWR   |
|----------------------------|------|-------|------|------|-------|-------|
| Lane Configurations        |      |       |      | ↑↑↑  | ↓     |       |
| Volume (vph)               | 0    | 0     | 0    | 1888 | 317   | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.91 | 1.00  | 1.00  |
| Frt                        |      |       |      |      |       |       |
| Flt Protected              |      |       |      |      | 0.950 |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 5085 | 1770  | 0     |
| Flt Permitted              |      |       |      |      | 0.950 |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 5085 | 1770  | 0     |
| Link Speed (mph)           | 55   |       |      | 55   | 30    |       |
| Link Distance (ft)         | 6715 |       |      | 184  | 304   |       |
| Travel Time (s)            | 83.2 |       |      | 2.3  | 6.9   |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92  | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 2319 | 389   | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |       |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 2319 | 389   | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No    | No    |
| Lane Alignment             | Left | Right | Left | Left | Left  | Right |
| Median Width(ft)           | 0    |       |      | 0    | 12    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0     |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16    |       |
| Two way Left Turn Lane     |      |       |      |      |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        |      | 9     | 15   |      | 15    | 9     |
| Sign Control               | Stop |       |      | Free | Yield |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 58.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

Grade Separation on Kingwood Drive  
124: US 59 NBFR

AM Peak Hour



| Lane Group                 | NBU      | NBL  | NBT      | SBT  | SBR   | SEL  | SER   |
|----------------------------|----------|------|----------|------|-------|------|-------|
| Lane Configurations        | <b>A</b> |      | <b>B</b> |      |       |      |       |
| Volume (vph)               | 317      | 0    | 1002     | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900     | 1900 | 1900     | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00     | 1.00 | 0.76     | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |          |      |          |      |       |      |       |
| Flt Protected              | 0.950    |      |          |      |       |      |       |
| Satd. Flow (prot)          | 1770     | 0    | 8494     | 0    | 0     | 0    | 0     |
| Flt Permitted              | 0.950    |      |          |      |       |      |       |
| Satd. Flow (perm)          | 1770     | 0    | 8494     | 0    | 0     | 0    | 0     |
| Link Speed (mph)           |          |      | 55       | 55   |       | 30   |       |
| Link Distance (ft)         |          |      | 423      | 180  |       | 304  |       |
| Travel Time (s)            |          |      | 5.2      | 2.2  |       | 6.9  |       |
| Peak Hour Factor           | 0.92     | 0.92 | 0.92     | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113%     | 113% | 113%     | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 389      | 0    | 1231     | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |          |      |          |      |       |      |       |
| Lane Group Flow (vph)      | 389      | 0    | 1231     | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No       | No   | No       | No   | No    | No   | No    |
| Lane Alignment             | R NA     | Left | Left     | Left | Right | Left | Right |
| Median Width(ft)           |          |      | 12       | 12   |       | 0    |       |
| Link Offset(ft)            |          |      | 0        | 0    |       | 0    |       |
| Crosswalk Width(ft)        |          |      | 16       | 16   |       | 16   |       |
| Two way Left Turn Lane     |          |      |          |      |       |      |       |
| Headway Factor             | 1.00     | 1.00 | 1.00     | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 9        | 15   |          |      | 9     | 15   | 9     |
| Sign Control               |          |      | Free     | Stop |       | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 58.8%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |



Grade Separation on Kingwood Drive  
 125: Chestnut Ridge Dr. & Kingwood Dr.

AM Peak Hour

| Lane Group                 | ø2 | ø15 |
|----------------------------|----|-----|
| Lane Configurations        |    |     |
| Volume (vph)               |    |     |
| Ideal Flow (vphp)          |    |     |
| Storage Length (ft)        |    |     |
| Storage Lanes              |    |     |
| Taper Length (ft)          |    |     |
| Lane Util. Factor          |    |     |
| Frt                        |    |     |
| Flt Protected              |    |     |
| Satd. Flow (prot)          |    |     |
| Flt Permitted              |    |     |
| Satd. Flow (perm)          |    |     |
| Right Turn on Red          |    |     |
| Satd. Flow (RTOR)          |    |     |
| Link Speed (mph)           |    |     |
| Link Distance (ft)         |    |     |
| Travel Time (s)            |    |     |
| Peak Hour Factor           |    |     |
| Growth Factor              |    |     |
| Adj. Flow (vph)            |    |     |
| Shared Lane Traffic (%)    |    |     |
| Lane Group Flow (vph)      |    |     |
| Enter Blocked Intersection |    |     |
| Lane Alignment             |    |     |
| Median Width(ft)           |    |     |
| Link Offset(ft)            |    |     |
| Crosswalk Width(ft)        |    |     |
| Two way Left Turn Lane     |    |     |
| Headway Factor             |    |     |
| Turning Speed (mph)        |    |     |
| Number of Detectors        |    |     |
| Detector Template          |    |     |
| Leading Detector (ft)      |    |     |
| Trailing Detector (ft)     |    |     |
| Detector 1 Position(ft)    |    |     |
| Detector 1 Size(ft)        |    |     |
| Detector 1 Type            |    |     |
| Detector 1 Channel         |    |     |
| Detector 1 Extend (s)      |    |     |
| Detector 1 Queue (s)       |    |     |
| Detector 1 Delay (s)       |    |     |
| Detector 2 Position(ft)    |    |     |
| Detector 2 Size(ft)        |    |     |
| Detector 2 Type            |    |     |
| Detector 2 Channel         |    |     |
| Detector 2 Extend (s)      |    |     |
| Turn Type                  |    |     |
| Protected Phases           | 2  | 15  |
| Permitted Phases           |    |     |



Grade Separation on Kingwood Drive  
125: Chestnut Ridge Dr. & Kingwood Dr.

AM Peak Hour

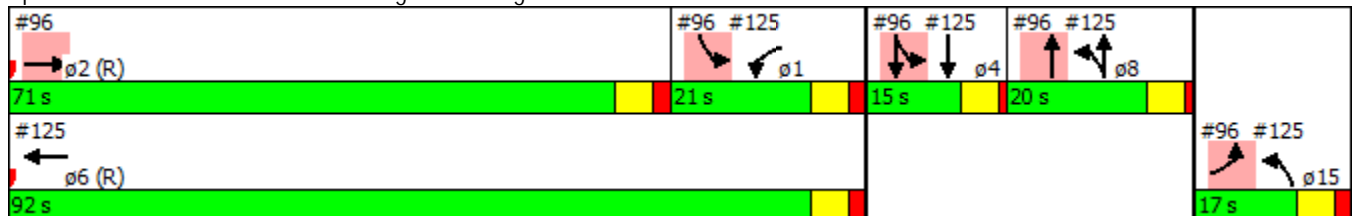


| Lane Group              | EBL | EBT | EBR | WBL   | WBT   | WBR | NBL | NBT   | NBR | SBL | SBT | SBR   |
|-------------------------|-----|-----|-----|-------|-------|-----|-----|-------|-----|-----|-----|-------|
| Detector Phase          |     |     |     | 1     | 6     |     | 15  | 8     |     |     |     | 4     |
| Switch Phase            |     |     |     |       |       |     |     |       |     |     |     |       |
| Minimum Initial (s)     |     |     |     | 5.0   | 4.0   |     |     | 5.0   |     |     |     | 5.0   |
| Minimum Split (s)       |     |     |     | 11.0  | 10.0  |     |     | 18.0  |     |     |     | 10.0  |
| Total Split (s)         |     |     |     | 21.0  | 92.0  |     |     | 20.0  |     |     |     | 15.0  |
| Total Split (%)         |     |     |     | 14.6% | 63.9% |     |     | 13.9% |     |     |     | 10.4% |
| Maximum Green (s)       |     |     |     | 15.0  | 86.0  |     |     | 15.0  |     |     |     | 10.0  |
| Yellow Time (s)         |     |     |     | 4.0   | 4.0   |     |     | 4.0   |     |     |     | 4.0   |
| All-Red Time (s)        |     |     |     | 2.0   | 2.0   |     |     | 1.0   |     |     |     | 1.0   |
| Lost Time Adjust (s)    |     |     |     | 0.0   | 0.0   |     |     | 0.0   |     |     |     | 0.0   |
| Total Lost Time (s)     |     |     |     | 6.0   | 6.0   |     |     | 5.0   |     |     |     | 5.0   |
| Lead/Lag                |     |     |     | Lag   |       |     |     | Lag   |     |     |     | Lead  |
| Lead-Lag Optimize?      |     |     |     | Yes   |       |     |     | Yes   |     |     |     | Yes   |
| Vehicle Extension (s)   |     |     |     | 3.0   | 3.0   |     |     | 3.0   |     |     |     | 3.0   |
| Recall Mode             |     |     |     | None  | C-Max |     |     | None  |     |     |     | None  |
| Walk Time (s)           |     |     |     |       |       |     |     | 6.0   |     |     |     |       |
| Flash Dont Walk (s)     |     |     |     |       |       |     |     | 7.0   |     |     |     |       |
| Pedestrian Calls (#/hr) |     |     |     |       |       |     |     | 0     |     |     |     |       |
| Act Effct Green (s)     |     |     |     | 15.0  | 86.7  |     |     | 31.9  |     |     |     | 9.4   |
| Actuated g/C Ratio      |     |     |     | 0.10  | 0.60  |     |     | 0.22  |     |     |     | 0.07  |
| v/c Ratio               |     |     |     | 0.62  | 1.05  |     |     | 0.24  |     |     |     | 0.85  |
| Control Delay           |     |     |     | 59.1  | 47.0  |     |     | 6.8   |     |     |     | 64.1  |
| Queue Delay             |     |     |     | 0.0   | 0.0   |     |     | 0.0   |     |     |     | 0.6   |
| Total Delay             |     |     |     | 59.1  | 47.0  |     |     | 6.8   |     |     |     | 64.7  |
| LOS                     |     |     |     | E     | D     |     |     | A     |     |     |     | E     |
| Approach Delay          |     |     |     |       | 47.6  |     |     | 6.8   |     |     |     | 64.7  |
| Approach LOS            |     |     |     |       | D     |     |     | A     |     |     |     | E     |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 20 (14%), Referenced to phase 2:EBT and 6:, Start of Green  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.05  
 Intersection Signal Delay: 47.2      Intersection LOS: D  
 Intersection Capacity Utilization 84.2%      ICU Level of Service E  
 Analysis Period (min) 15

Splits and Phases: 125: Chestnut Ridge Dr. & Kingwood Dr.



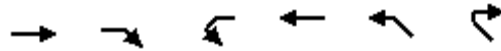
Grade Separation on Kingwood Drive  
 125: Chestnut Ridge Dr. & Kingwood Dr.

AM Peak Hour

| Lane Group              | ø2    | ø15  |
|-------------------------|-------|------|
| Detector Phase          |       |      |
| Switch Phase            |       |      |
| Minimum Initial (s)     | 4.0   | 5.0  |
| Minimum Split (s)       | 20.0  | 11.0 |
| Total Split (s)         | 71.0  | 17.0 |
| Total Split (%)         | 49%   | 12%  |
| Maximum Green (s)       | 65.0  | 11.0 |
| Yellow Time (s)         | 4.0   | 4.0  |
| All-Red Time (s)        | 2.0   | 2.0  |
| Lost Time Adjust (s)    |       |      |
| Total Lost Time (s)     |       |      |
| Lead/Lag                | Lead  |      |
| Lead-Lag Optimize?      | Yes   |      |
| Vehicle Extension (s)   | 3.0   | 3.0  |
| Recall Mode             | C-Max | None |
| Walk Time (s)           | 4.0   |      |
| Flash Dont Walk (s)     | 10.0  |      |
| Pedestrian Calls (#/hr) | 0     |      |
| Act Effect Green (s)    |       |      |
| Actuated g/C Ratio      |       |      |
| v/c Ratio               |       |      |
| Control Delay           |       |      |
| Queue Delay             |       |      |
| Total Delay             |       |      |
| LOS                     |       |      |
| Approach Delay          |       |      |
| Approach LOS            |       |      |
| Intersection Summary    |       |      |

Grade Separation on Kingwood Drive  
126: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NWL  | NWR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        | ↑↑   |       |      | ↑↑   |      |       |
| Volume (vph)               | 832  | 0     | 0    | 1842 | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 0.95 | 1.00  | 1.00 | 0.95 | 1.00 | 1.00  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 3539 | 0     | 0    | 3539 | 0    | 0     |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 3539 | 0     | 0    | 3539 | 0    | 0     |
| Link Speed (mph)           | 40   |       |      | 40   | 40   |       |
| Link Distance (ft)         | 1032 |       |      | 502  | 530  |       |
| Travel Time (s)            | 17.6 |       |      | 8.6  | 9.0  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 1022 | 0     | 0    | 2262 | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 1022 | 0     | 0    | 2262 | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 0    |       |      | 0    | 12   |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |      | 9     | 15   |      | 15   | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 60.9%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service B |

Grade Separation on Kingwood Drive  
128: Kingwood Dr. & Green Oak Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL  | SBT  | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| Lane Configurations        |      |      |       | ↙     | ↑↑    | ↗     | ↙     | ↑     |       |      | ↑↔   |       |
| Volume (vph)               | 0    | 0    | 0     | 72    | 1718  | 413   | 79    | 75    | 0     | 0    | 112  | 42    |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  |
| Storage Length (ft)        | 0    |      | 0     | 150   |       | 150   | 0     |       | 0     | 0    |      | 0     |
| Storage Lanes              | 0    |      | 0     | 1     |       | 1     | 1     |       | 0     | 0    |      | 0     |
| Taper Length (ft)          | 25   |      |       | 25    |       |       | 25    |       |       | 25   |      |       |
| Lane Util. Factor          | 1.00 | 1.00 | 1.00  | 1.00  | 0.95  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 0.95 | 0.95  |
| Frt                        |      |      |       |       |       | 0.850 |       |       |       |      |      | 0.959 |
| Flt Protected              |      |      |       | 0.950 |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (prot)          | 0    | 0    | 0     | 1770  | 3539  | 1583  | 1770  | 1863  | 0     | 0    | 3394 | 0     |
| Flt Permitted              |      |      |       | 0.950 |       |       | 0.950 |       |       |      |      |       |
| Satd. Flow (perm)          | 0    | 0    | 0     | 1770  | 3539  | 1583  | 1770  | 1863  | 0     | 0    | 3394 | 0     |
| Right Turn on Red          |      |      | Yes   |       |       | Yes   |       |       | Yes   |      |      | Yes   |
| Satd. Flow (RTOR)          |      |      |       |       |       | 226   |       |       |       |      |      | 28    |
| Link Speed (mph)           |      | 40   |       |       | 40    |       |       | 30    |       |      |      | 30    |
| Link Distance (ft)         |      | 558  |       |       | 1500  |       |       | 89    |       |      |      | 282   |
| Travel Time (s)            |      | 9.5  |       |       | 25.6  |       |       | 2.0   |       |      |      | 6.4   |
| 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  |
| Growth Factor              | 117% | 117% | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117%  | 117% | 117% | 117%  |
| Adj. Flow (vph)            | 0    | 0    | 0     | 92    | 2185  | 525   | 100   | 95    | 0     | 0    | 142  | 53    |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |       |       |       |      |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0     | 92    | 2185  | 525   | 100   | 95    | 0     | 0    | 195  | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    | No    | No    | No    | No   | No   | No    |
| Lane Alignment             | Left | Left | Right | Left  | Left  | Right | Left  | Left  | Right | Left | Left | Right |
| Median Width(ft)           |      | 12   |       |       | 12    |       |       | 12    |       |      |      | 12    |
| Link Offset(ft)            |      | 0    |       |       | 0     |       |       | 0     |       |      |      | 0     |
| Crosswalk Width(ft)        |      | 16   |       |       | 16    |       |       | 16    |       |      |      | 16    |
| Two way Left Turn Lane     |      |      |       |       |       |       |       |       |       |      |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      | 9     | 15    |       | 9     | 15    |       | 9     | 15   |      | 9     |
| Number of Detectors        |      |      |       | 1     | 2     | 1     | 1     | 2     |       |      |      | 2     |
| Detector Template          |      |      |       | Left  | Thru  | Right | Left  | Thru  |       |      |      | Thru  |
| Leading Detector (ft)      |      |      |       | 20    | 100   | 20    | 20    | 100   |       |      |      | 100   |
| Trailing Detector (ft)     |      |      |       | 0     | 0     | 0     | 0     | 0     |       |      |      | 0     |
| Detector 1 Position(ft)    |      |      |       | 0     | 0     | 0     | 0     | 0     |       |      |      | 0     |
| Detector 1 Size(ft)        |      |      |       | 20    | 6     | 20    | 20    | 6     |       |      |      | 6     |
| Detector 1 Type            |      |      |       | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex | Cl+Ex |       |      |      | Cl+Ex |
| Detector 1 Channel         |      |      |       |       |       |       |       |       |       |      |      |       |
| Detector 1 Extend (s)      |      |      |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       |      |      | 0.0   |
| Detector 1 Queue (s)       |      |      |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       |      |      | 0.0   |
| Detector 1 Delay (s)       |      |      |       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |       |      |      | 0.0   |
| Detector 2 Position(ft)    |      |      |       |       | 94    |       |       | 94    |       |      |      | 94    |
| Detector 2 Size(ft)        |      |      |       |       | 6     |       |       | 6     |       |      |      | 6     |
| Detector 2 Type            |      |      |       |       | Cl+Ex |       |       | Cl+Ex |       |      |      | Cl+Ex |
| Detector 2 Channel         |      |      |       |       |       |       |       |       |       |      |      |       |
| Detector 2 Extend (s)      |      |      |       |       | 0.0   |       |       | 0.0   |       |      |      | 0.0   |
| Turn Type                  |      |      |       | Prot  | NA    | Perm  | Prot  | NA    |       |      |      | NA    |
| Protected Phases           |      |      |       | 1     | 6     |       | 15    | 8     |       |      |      | 4     |
| Permitted Phases           |      |      |       |       |       | 6     |       |       |       |      |      |       |

| Lane Group                 | ø2 | ø15 |
|----------------------------|----|-----|
| Lane Configurations        |    |     |
| Volume (vph)               |    |     |
| Ideal Flow (vphp)          |    |     |
| Storage Length (ft)        |    |     |
| Storage Lanes              |    |     |
| Taper Length (ft)          |    |     |
| Lane Util. Factor          |    |     |
| Frt                        |    |     |
| Flt Protected              |    |     |
| Satd. Flow (prot)          |    |     |
| Flt Permitted              |    |     |
| Satd. Flow (perm)          |    |     |
| Right Turn on Red          |    |     |
| Satd. Flow (RTOR)          |    |     |
| Link Speed (mph)           |    |     |
| Link Distance (ft)         |    |     |
| Travel Time (s)            |    |     |
| Peak Hour Factor           |    |     |
| Growth Factor              |    |     |
| Adj. Flow (vph)            |    |     |
| Shared Lane Traffic (%)    |    |     |
| Lane Group Flow (vph)      |    |     |
| Enter Blocked Intersection |    |     |
| Lane Alignment             |    |     |
| Median Width(ft)           |    |     |
| Link Offset(ft)            |    |     |
| Crosswalk Width(ft)        |    |     |
| Two way Left Turn Lane     |    |     |
| Headway Factor             |    |     |
| Turning Speed (mph)        |    |     |
| Number of Detectors        |    |     |
| Detector Template          |    |     |
| Leading Detector (ft)      |    |     |
| Trailing Detector (ft)     |    |     |
| Detector 1 Position(ft)    |    |     |
| Detector 1 Size(ft)        |    |     |
| Detector 1 Type            |    |     |
| Detector 1 Channel         |    |     |
| Detector 1 Extend (s)      |    |     |
| Detector 1 Queue (s)       |    |     |
| Detector 1 Delay (s)       |    |     |
| Detector 2 Position(ft)    |    |     |
| Detector 2 Size(ft)        |    |     |
| Detector 2 Type            |    |     |
| Detector 2 Channel         |    |     |
| Detector 2 Extend (s)      |    |     |
| Turn Type                  |    |     |
| Protected Phases           | 2  | 15  |
| Permitted Phases           |    |     |

Grade Separation on Kingwood Drive  
128: Kingwood Dr. & Green Oak Dr.

AM Peak Hour

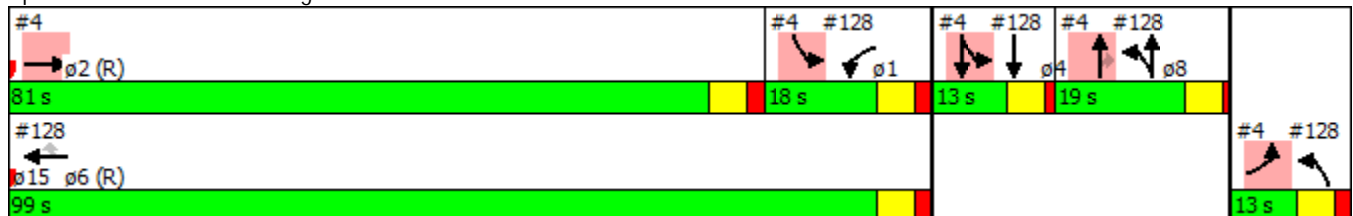


| Lane Group              | EBL | EBT | EBR | WBL   | WBT   | WBR   | NBL  | NBT   | NBR | SBL | SBT | SBR   |
|-------------------------|-----|-----|-----|-------|-------|-------|------|-------|-----|-----|-----|-------|
| Detector Phase          |     |     |     | 1     | 6     | 6     | 15   | 8     |     |     |     | 4     |
| Switch Phase            |     |     |     |       |       |       |      |       |     |     |     |       |
| Minimum Initial (s)     |     |     |     | 5.0   | 4.0   | 4.0   |      | 5.0   |     |     |     | 5.0   |
| Minimum Split (s)       |     |     |     | 11.0  | 10.0  | 10.0  |      | 18.0  |     |     |     | 10.0  |
| Total Split (s)         |     |     |     | 18.0  | 99.0  | 99.0  |      | 19.0  |     |     |     | 13.0  |
| Total Split (%)         |     |     |     | 12.5% | 68.8% | 68.8% |      | 13.2% |     |     |     | 9.0%  |
| Maximum Green (s)       |     |     |     | 12.0  | 93.0  | 93.0  |      | 14.0  |     |     |     | 8.0   |
| Yellow Time (s)         |     |     |     | 4.0   | 4.0   | 4.0   |      | 4.0   |     |     |     | 4.0   |
| All-Red Time (s)        |     |     |     | 2.0   | 2.0   | 2.0   |      | 1.0   |     |     |     | 1.0   |
| Lost Time Adjust (s)    |     |     |     | 0.0   | 0.0   | 0.0   |      | 0.0   |     |     |     | 0.0   |
| Total Lost Time (s)     |     |     |     | 6.0   | 6.0   | 6.0   |      | 5.0   |     |     |     | 5.0   |
| Lead/Lag                |     |     |     | Lag   |       |       |      | Lag   |     |     |     | Lead  |
| Lead-Lag Optimize?      |     |     |     | Yes   |       |       |      | Yes   |     |     |     | Yes   |
| Vehicle Extension (s)   |     |     |     | 3.0   | 3.0   | 3.0   |      | 3.0   |     |     |     | 3.0   |
| Recall Mode             |     |     |     | None  | C-Max | C-Max |      | None  |     |     |     | None  |
| Walk Time (s)           |     |     |     |       |       |       |      | 6.0   |     |     |     |       |
| Flash Dont Walk (s)     |     |     |     |       |       |       |      | 7.0   |     |     |     |       |
| Pedestrian Calls (#/hr) |     |     |     |       |       |       |      | 0     |     |     |     |       |
| Act Effect Green (s)    |     |     |     | 12.0  | 93.9  | 93.9  | 25.1 | 13.2  |     |     |     | 8.0   |
| Actuated g/C Ratio      |     |     |     | 0.08  | 0.65  | 0.65  | 0.17 | 0.09  |     |     |     | 0.06  |
| v/c Ratio               |     |     |     | 0.63  | 0.95  | 0.47  | 0.32 | 0.56  |     |     |     | 0.91  |
| Control Delay           |     |     |     | 82.8  | 33.3  | 8.2   | 9.1  | 51.6  |     |     |     | 98.3  |
| Queue Delay             |     |     |     | 21.8  | 0.0   | 0.0   | 0.0  | 0.0   |     |     |     | 8.9   |
| Total Delay             |     |     |     | 104.7 | 33.3  | 8.2   | 9.1  | 51.6  |     |     |     | 107.1 |
| LOS                     |     |     |     | F     | C     | A     | A    | D     |     |     |     | F     |
| Approach Delay          |     |     |     |       | 30.9  |       |      | 29.8  |     |     |     | 107.1 |
| Approach LOS            |     |     |     |       | C     |       |      | C     |     |     |     | F     |

Intersection Summary

Area Type: Other  
 Cycle Length: 144  
 Actuated Cycle Length: 144  
 Offset: 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.95  
 Intersection Signal Delay: 35.5      Intersection LOS: D  
 Intersection Capacity Utilization 105.0%      ICU Level of Service G  
 Analysis Period (min) 15

Splits and Phases: 128: Kingwood Dr. & Green Oak Dr.



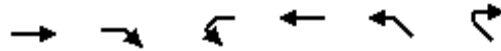
Grade Separation on Kingwood Drive  
 128: Kingwood Dr. & Green Oak Dr.

AM Peak Hour

| Lane Group              | ø2    | ø15  |
|-------------------------|-------|------|
| Detector Phase          |       |      |
| Switch Phase            |       |      |
| Minimum Initial (s)     | 4.0   | 5.0  |
| Minimum Split (s)       | 20.0  | 11.0 |
| Total Split (s)         | 81.0  | 13.0 |
| Total Split (%)         | 56%   | 9%   |
| Maximum Green (s)       | 75.0  | 7.0  |
| Yellow Time (s)         | 4.0   | 4.0  |
| All-Red Time (s)        | 2.0   | 2.0  |
| Lost Time Adjust (s)    |       |      |
| Total Lost Time (s)     |       |      |
| Lead/Lag                | Lead  |      |
| Lead-Lag Optimize?      | Yes   |      |
| Vehicle Extension (s)   | 3.0   | 3.0  |
| Recall Mode             | C-Max | None |
| Walk Time (s)           | 4.0   |      |
| Flash Dont Walk (s)     | 10.0  |      |
| Pedestrian Calls (#/hr) | 0     |      |
| Act Effect Green (s)    |       |      |
| Actuated g/C Ratio      |       |      |
| v/c Ratio               |       |      |
| Control Delay           |       |      |
| Queue Delay             |       |      |
| Total Delay             |       |      |
| LOS                     |       |      |
| Approach Delay          |       |      |
| Approach LOS            |       |      |
| Intersection Summary    |       |      |

Grade Separation on Kingwood Drive  
130: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NWL  | NWR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        | ↑↑   |       |      | ↑↑   |      |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 0.95 | 1.00  | 1.00 | 0.95 | 1.00 | 1.00  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 3539 | 0     | 0    | 3539 | 0    | 0     |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 3539 | 0     | 0    | 3539 | 0    | 0     |
| Link Speed (mph)           | 40   |       |      | 30   | 40   |       |
| Link Distance (ft)         | 355  |       |      | 392  | 393  |       |
| Travel Time (s)            | 6.1  |       |      | 8.9  | 6.7  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 40   |       |      | 40   | 40   |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        |      | 9     | 15   |      | 15   | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 6.7%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
132: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | WBT  | WBR   | SBL  | SBR   |
|----------------------------|------|------|------|-------|------|-------|
| Lane Configurations        |      | ↑↑   |      |       |      |       |
| Volume (vph)               | 0    | 0    | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |      |      |      |       |      |       |
| Flt Protected              |      |      |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3539 | 0    | 0     | 0    | 0     |
| Flt Permitted              |      |      |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3539 | 0    | 0     | 0    | 0     |
| Link Speed (mph)           |      | 40   | 40   |       | 30   |       |
| Link Distance (ft)         |      | 393  | 799  |       | 60   |       |
| Travel Time (s)            |      | 6.7  | 13.6 |       | 1.4  |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No   | No    | No   | No    |
| Lane Alignment             | Left | Left | Left | Right | Left | Right |
| Median Width(ft)           |      | 40   | 40   |       | 0    |       |
| Link Offset(ft)            |      | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |      |      |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |      | 9     | 15   | 9     |
| Sign Control               |      | Free | Stop |       | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 6.7%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
133: Kingwood Dr.

AM Peak Hour



| Lane Group                 | NBL  | NBR   | NET  | NER   | SWL  | SWT  |
|----------------------------|------|-------|------|-------|------|------|
| Lane Configurations        |      | ↑↑    |      |       |      | ↑↑   |
| Volume (vph)               | 0    | 0     | 0    | 0     | 0    | 0    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900  | 1900 | 1900 |
| Lane Util. Factor          | 1.00 | 0.88  | 1.00 | 1.00  | 1.00 | 0.95 |
| Frt                        |      |       |      |       |      |      |
| Flt Protected              |      |       |      |       |      |      |
| Satd. Flow (prot)          | 0    | 3278  | 0    | 0     | 0    | 3539 |
| Flt Permitted              |      |       |      |       |      |      |
| Satd. Flow (perm)          | 0    | 3278  | 0    | 0     | 0    | 3539 |
| Link Speed (mph)           | 40   |       | 30   |       |      | 40   |
| Link Distance (ft)         | 912  |       | 893  |       |      | 1892 |
| Travel Time (s)            | 15.5 |       | 20.3 |       |      | 32.3 |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 |
| Growth Factor              | 113% | 113%  | 113% | 113%  | 113% | 113% |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0     | 0    | 0    |
| Shared Lane Traffic (%)    |      |       |      |       |      |      |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0     | 0    | 0    |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No   |
| Lane Alignment             | Left | Right | Left | Right | Left | Left |
| Median Width(ft)           | 0    |       | 0    |       |      | 0    |
| Link Offset(ft)            | 0    |       | 0    |       |      | 0    |
| Crosswalk Width(ft)        | 16   |       | 16   |       |      | 16   |
| Two way Left Turn Lane     |      |       |      |       |      |      |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Turning Speed (mph)        | 15   | 9     |      | 9     | 15   |      |
| Sign Control               | Free |       | Free |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 0.0%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
 136: Kingwood Dr. & Lake Kingwood Trail

AM Peak Hour

| Lane Group                 | ø2 | ø15 |
|----------------------------|----|-----|
| Lane Configurations        |    |     |
| Volume (vph)               |    |     |
| Ideal Flow (vphp)          |    |     |
| Storage Length (ft)        |    |     |
| Storage Lanes              |    |     |
| Taper Length (ft)          |    |     |
| Lane Util. Factor          |    |     |
| Frt                        |    |     |
| Flt Protected              |    |     |
| Satd. Flow (prot)          |    |     |
| Flt Permitted              |    |     |
| Satd. Flow (perm)          |    |     |
| Right Turn on Red          |    |     |
| Satd. Flow (RTOR)          |    |     |
| Link Speed (mph)           |    |     |
| Link Distance (ft)         |    |     |
| Travel Time (s)            |    |     |
| Peak Hour Factor           |    |     |
| Growth Factor              |    |     |
| Adj. Flow (vph)            |    |     |
| Shared Lane Traffic (%)    |    |     |
| Lane Group Flow (vph)      |    |     |
| Enter Blocked Intersection |    |     |
| Lane Alignment             |    |     |
| Median Width(ft)           |    |     |
| Link Offset(ft)            |    |     |
| Crosswalk Width(ft)        |    |     |
| Two way Left Turn Lane     |    |     |
| Headway Factor             |    |     |
| Turning Speed (mph)        |    |     |
| Number of Detectors        |    |     |
| Detector Template          |    |     |
| Leading Detector (ft)      |    |     |
| Trailing Detector (ft)     |    |     |
| Detector 1 Position(ft)    |    |     |
| Detector 1 Size(ft)        |    |     |
| Detector 1 Type            |    |     |
| Detector 1 Channel         |    |     |
| Detector 1 Extend (s)      |    |     |
| Detector 1 Queue (s)       |    |     |
| Detector 1 Delay (s)       |    |     |
| Detector 2 Position(ft)    |    |     |
| Detector 2 Size(ft)        |    |     |
| Detector 2 Type            |    |     |
| Detector 2 Channel         |    |     |
| Detector 2 Extend (s)      |    |     |
| Turn Type                  |    |     |
| Protected Phases           | 2  | 15  |
| Permitted Phases           |    |     |

Grade Separation on Kingwood Drive  
136: Kingwood Dr. & Lake Kingwood Trail

AM Peak Hour

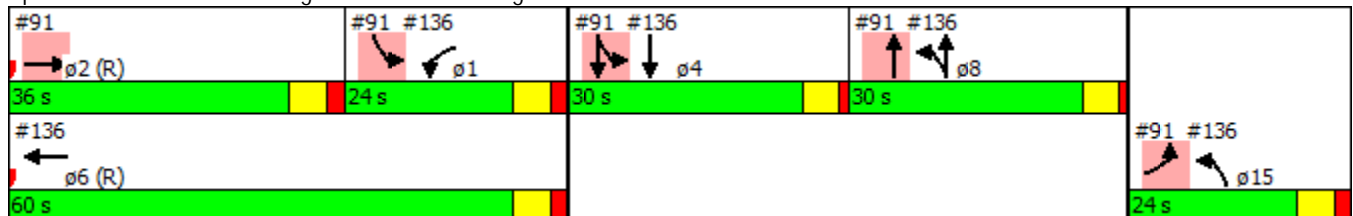


| Lane Group              | EBL | EBT | EBR | WBL   | WBT   | WBR | NBL | NBT   | NBR | SBL | SBT | SBR   |
|-------------------------|-----|-----|-----|-------|-------|-----|-----|-------|-----|-----|-----|-------|
| Detector Phase          |     |     |     | 1     | 6     |     | 15  | 8     |     |     |     | 4     |
| Switch Phase            |     |     |     |       |       |     |     |       |     |     |     |       |
| Minimum Initial (s)     |     |     |     | 5.0   | 4.0   |     |     | 5.0   |     |     |     | 5.0   |
| Minimum Split (s)       |     |     |     | 11.0  | 10.0  |     |     | 18.0  |     |     |     | 10.0  |
| Total Split (s)         |     |     |     | 24.0  | 60.0  |     |     | 30.0  |     |     |     | 30.0  |
| Total Split (%)         |     |     |     | 16.7% | 41.7% |     |     | 20.8% |     |     |     | 20.8% |
| Maximum Green (s)       |     |     |     | 18.0  | 54.0  |     |     | 25.0  |     |     |     | 25.0  |
| Yellow Time (s)         |     |     |     | 4.0   | 4.0   |     |     | 4.0   |     |     |     | 4.0   |
| All-Red Time (s)        |     |     |     | 2.0   | 2.0   |     |     | 1.0   |     |     |     | 1.0   |
| Lost Time Adjust (s)    |     |     |     | 0.0   | 0.0   |     |     | 0.0   |     |     |     | 0.0   |
| Total Lost Time (s)     |     |     |     | 6.0   | 6.0   |     |     | 5.0   |     |     |     | 5.0   |
| Lead/Lag                |     |     |     | Lag   |       |     |     | Lag   |     |     |     | Lead  |
| Lead-Lag Optimize?      |     |     |     | Yes   |       |     |     | Yes   |     |     |     | Yes   |
| Vehicle Extension (s)   |     |     |     | 3.0   | 3.0   |     |     | 3.0   |     |     |     | 3.0   |
| Recall Mode             |     |     |     | None  | C-Max |     |     | None  |     |     |     | None  |
| Walk Time (s)           |     |     |     |       |       |     |     | 6.0   |     |     |     |       |
| Flash Dont Walk (s)     |     |     |     |       |       |     |     | 7.0   |     |     |     |       |
| Pedestrian Calls (#/hr) |     |     |     |       |       |     |     | 0     |     |     |     |       |
| Act Effect Green (s)    |     |     |     | 18.0  | 104.5 |     |     | 13.5  |     |     |     | 10.0  |
| Actuated g/C Ratio      |     |     |     | 0.12  | 0.73  |     |     | 0.09  |     |     |     | 0.07  |
| v/c Ratio               |     |     |     | 0.42  | 0.72  |     |     | 0.18  |     |     |     | 0.47  |
| Control Delay           |     |     |     | 64.5  | 15.4  |     |     | 26.1  |     |     |     | 67.6  |
| Queue Delay             |     |     |     | 0.0   | 0.0   |     |     | 0.1   |     |     |     | 0.0   |
| Total Delay             |     |     |     | 64.5  | 15.4  |     |     | 26.2  |     |     |     | 67.6  |
| LOS                     |     |     |     | E     | B     |     |     | C     |     |     |     | E     |
| Approach Delay          |     |     |     |       | 17.8  |     |     | 26.2  |     |     |     | 67.6  |
| Approach LOS            |     |     |     |       | B     |     |     | C     |     |     |     | E     |

Intersection Summary

|                                    |  |
|------------------------------------|--|
| Area Type:                         | Other  |
| Cycle Length:                      | 144  |
| Actuated Cycle Length:             | 144  |
| Offset:                            | 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                     | 90   |
| Control Type:                      | Actuated-Coordinated                                     |
| Maximum v/c Ratio:                 | 0.72   |
| Intersection Signal Delay:         | 20.8   |
| Intersection LOS:                  | C  |
| Intersection Capacity Utilization: | 65.6%  |
| ICU Level of Service:              | C  |
| Analysis Period (min):             | 15   |

Splits and Phases: 136: Kingwood Dr. & Lake Kingwood Trail



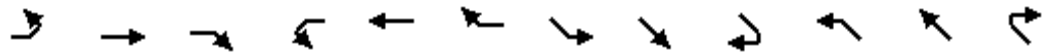
Grade Separation on Kingwood Drive  
 136: Kingwood Dr. & Lake Kingwood Trail

AM Peak Hour

| Lane Group              | ø2    | ø15  |
|-------------------------|-------|------|
| Detector Phase          |       |      |
| Switch Phase            |       |      |
| Minimum Initial (s)     | 4.0   | 5.0  |
| Minimum Split (s)       | 20.0  | 11.0 |
| Total Split (s)         | 36.0  | 24.0 |
| Total Split (%)         | 25%   | 17%  |
| Maximum Green (s)       | 30.0  | 18.0 |
| Yellow Time (s)         | 4.0   | 4.0  |
| All-Red Time (s)        | 2.0   | 2.0  |
| Lost Time Adjust (s)    |       |      |
| Total Lost Time (s)     |       |      |
| Lead/Lag                | Lead  |      |
| Lead-Lag Optimize?      | Yes   |      |
| Vehicle Extension (s)   | 3.0   | 3.0  |
| Recall Mode             | C-Max | None |
| Walk Time (s)           | 4.0   |      |
| Flash Dont Walk (s)     | 10.0  |      |
| Pedestrian Calls (#/hr) | 0     |      |
| Act Effect Green (s)    |       |      |
| Actuated g/C Ratio      |       |      |
| v/c Ratio               |       |      |
| Control Delay           |       |      |
| Queue Delay             |       |      |
| Total Delay             |       |      |
| LOS                     |       |      |
| Approach Delay          |       |      |
| Approach LOS            |       |      |
| Intersection Summary    |       |      |

Grade Separation on Kingwood Drive  
139: Kingwood High School & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | EBR   | WBL  | WBT   | WBR   | SEL  | SET  | SER   | NWL  | NWT  | NWR   |
|----------------------------|------|------|-------|------|-------|-------|------|------|-------|------|------|-------|
| Lane Configurations        |      |      |       |      | ↑↑    | ↑     |      | ↑↑   | ↑     |      |      | ↑     |
| Volume (vph)               | 0    | 0    | 0     | 0    | 1525  | 354   | 0    | 94   | 33    | 1    | 73   | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900  | 1900 | 1900  | 1900  | 1900 | 1900 | 1900  | 1900 | 1900 | 1900  |
| Storage Length (ft)        | 0    |      | 0     | 0    |       | 150   | 0    |      | 0     | 0    |      | 0     |
| Storage Lanes              | 0    |      | 0     | 0    |       | 1     | 0    |      | 1     | 0    |      | 0     |
| Taper Length (ft)          | 25   |      |       | 25   |       |       | 25   |      |       | 25   |      |       |
| Lane Util. Factor          | 1.00 | 1.00 | 1.00  | 1.00 | 0.95  | 1.00  | 1.00 | 0.95 | 1.00  | 1.00 | 1.00 | 1.00  |
| Frt                        |      |      |       |      |       | 0.850 |      |      | 0.850 |      |      |       |
| Flt Protected              |      |      |       |      |       |       |      |      |       |      |      | 0.999 |
| Satd. Flow (prot)          | 0    | 0    | 0     | 0    | 3539  | 1583  | 0    | 3539 | 1583  | 0    | 1861 | 0     |
| Flt Permitted              |      |      |       |      |       |       |      |      |       |      |      | 0.999 |
| Satd. Flow (perm)          | 0    | 0    | 0     | 0    | 3539  | 1583  | 0    | 3539 | 1583  | 0    | 1861 | 0     |
| Right Turn on Red          |      |      | Yes   |      |       | Yes   |      |      | Yes   |      |      | Yes   |
| Satd. Flow (RTOR)          |      |      |       |      |       | 227   |      |      | 106   |      |      |       |
| Link Speed (mph)           |      | 40   |       |      | 30    |       |      | 30   |       |      | 30   |       |
| Link Distance (ft)         |      | 174  |       |      | 893   |       |      | 317  |       |      | 110  |       |
| Travel Time (s)            |      | 3.0  |       |      | 20.3  |       |      | 7.2  |       |      | 2.5  |       |
| 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  |
| Growth Factor              | 113% | 113% | 113%  | 113% | 113%  | 113%  | 113% | 113% | 113%  | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0     | 0    | 1873  | 435   | 0    | 115  | 41    | 1    | 90   | 0     |
| Shared Lane Traffic (%)    |      |      |       |      |       |       |      |      |       |      |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0     | 0    | 1873  | 435   | 0    | 115  | 41    | 0    | 91   | 0     |
| Enter Blocked Intersection | No   | No   | No    | No   | No    | No    | No   | No   | No    | No   | No   | No    |
| Lane Alignment             | Left | Left | Right | Left | Left  | Right | Left | Left | Right | Left | Left | Right |
| Median Width(ft)           |      | 0    |       |      | 0     |       |      | 0    |       |      | 0    |       |
| Link Offset(ft)            |      | 0    |       |      | 0     |       |      | 0    |       |      | 0    |       |
| Crosswalk Width(ft)        |      | 16   |       |      | 16    |       |      | 16   |       |      | 16   |       |
| Two way Left Turn Lane     |      |      |       |      |       |       |      |      |       |      |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      | 9     | 15   |       | 9     | 15   |      | 9     | 15   |      | 9     |
| Turn Type                  |      |      |       |      | NA    | Perm  |      | NA   | Perm  | Prot | NA   |       |
| Protected Phases           |      |      |       |      | 6     |       |      | 4    |       | 15   | 8    |       |
| Permitted Phases           |      |      |       |      |       | 6     |      |      | 4     |      |      |       |
| Minimum Split (s)          |      |      |       |      | 10.0  | 10.0  |      | 10.0 | 10.0  |      | 10.0 |       |
| Total Split (s)            |      |      |       |      | 101.0 | 101.0 |      | 13.0 | 13.0  |      | 10.0 |       |
| Total Split (%)            |      |      |       |      | 70.1% | 70.1% |      | 9.0% | 9.0%  |      | 6.9% |       |
| Maximum Green (s)          |      |      |       |      | 95.0  | 95.0  |      | 8.0  | 8.0   |      | 5.0  |       |
| Yellow Time (s)            |      |      |       |      | 4.0   | 4.0   |      | 4.0  | 4.0   |      | 4.0  |       |
| All-Red Time (s)           |      |      |       |      | 2.0   | 2.0   |      | 1.0  | 1.0   |      | 1.0  |       |
| Lost Time Adjust (s)       |      |      |       |      | 0.0   | 0.0   |      | 0.0  | 0.0   |      | 0.0  |       |
| Total Lost Time (s)        |      |      |       |      | 6.0   | 6.0   |      | 5.0  | 5.0   |      | 5.0  |       |
| Lead/Lag                   |      |      |       |      |       |       |      | Lead | Lead  |      | Lag  |       |
| Lead-Lag Optimize?         |      |      |       |      |       |       |      | Yes  | Yes   |      | Yes  |       |
| Act Effect Green (s)       |      |      |       |      | 95.0  | 95.0  |      | 8.0  | 8.0   |      | 25.0 |       |
| Actuated g/C Ratio         |      |      |       |      | 0.66  | 0.66  |      | 0.06 | 0.06  |      | 0.17 |       |
| v/c Ratio                  |      |      |       |      | 0.80  | 0.39  |      | 0.59 | 0.22  |      | 0.28 |       |
| Control Delay              |      |      |       |      | 21.2  | 5.9   |      | 79.0 | 2.7   |      | 5.6  |       |
| Queue Delay                |      |      |       |      | 0.0   | 0.0   |      | 0.3  | 0.0   |      | 2.4  |       |
| Total Delay                |      |      |       |      | 21.2  | 5.9   |      | 79.3 | 2.7   |      | 8.0  |       |

Grade Separation on Kingwood Drive  
 139: Kingwood High School & Kingwood Dr.

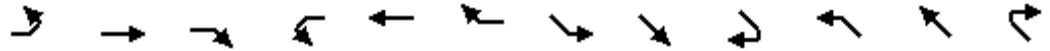
AM Peak Hour

| Lane Group                 | ø2    | ø15  |
|----------------------------|-------|------|
| Lane Configurations        |       |      |
| Volume (vph)               |       |      |
| Ideal Flow (vphpl)         |       |      |
| Storage Length (ft)        |       |      |
| Storage Lanes              |       |      |
| Taper Length (ft)          |       |      |
| Lane Util. Factor          |       |      |
| Frt                        |       |      |
| Flt Protected              |       |      |
| Satd. Flow (prot)          |       |      |
| Flt Permitted              |       |      |
| Satd. Flow (perm)          |       |      |
| Right Turn on Red          |       |      |
| Satd. Flow (RTOR)          |       |      |
| Link Speed (mph)           |       |      |
| Link Distance (ft)         |       |      |
| Travel Time (s)            |       |      |
| Peak Hour Factor           |       |      |
| Growth Factor              |       |      |
| Adj. Flow (vph)            |       |      |
| Shared Lane Traffic (%)    |       |      |
| Lane Group Flow (vph)      |       |      |
| Enter Blocked Intersection |       |      |
| Lane Alignment             |       |      |
| Median Width(ft)           |       |      |
| Link Offset(ft)            |       |      |
| Crosswalk Width(ft)        |       |      |
| Two way Left Turn Lane     |       |      |
| Headway Factor             |       |      |
| Turning Speed (mph)        |       |      |
| Turn Type                  |       |      |
| Protected Phases           | 2     | 15   |
| Permitted Phases           |       |      |
| Minimum Split (s)          | 10.0  | 10.0 |
| Total Split (s)            | 101.0 | 20.0 |
| Total Split (%)            | 70%   | 14%  |
| Maximum Green (s)          | 95.0  | 14.0 |
| Yellow Time (s)            | 4.0   | 4.0  |
| All-Red Time (s)           | 2.0   | 2.0  |
| Lost Time Adjust (s)       |       |      |
| Total Lost Time (s)        |       |      |
| Lead/Lag                   |       |      |
| Lead-Lag Optimize?         |       |      |
| Act Effect Green (s)       |       |      |
| Actuated g/C Ratio         |       |      |
| v/c Ratio                  |       |      |
| Control Delay              |       |      |
| Queue Delay                |       |      |
| Total Delay                |       |      |



Grade Separation on Kingwood Drive  
 139: Kingwood High School & Kingwood Dr.

AM Peak Hour



| Lane Group     | EBL | EBT | EBR | WBL | WBT  | WBR | SEL | SET  | SER | NWL | NWT | NWR |
|----------------|-----|-----|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| LOS            |     |     |     |     | C    | A   |     | E    | A   |     | A   |     |
| Approach Delay |     |     |     |     | 18.3 |     |     | 59.2 |     |     | 8.0 |     |
| Approach LOS   |     |     |     |     | B    |     |     | E    |     |     | A   |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBR and 6:, Start of Green |
| Natural Cycle:                    | 80   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.80   |
| Intersection Signal Delay:        | 20.4   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 69.5%  |
| ICU Level of Service              | C  |
| Analysis Period (min)             | 15   |

Splits and Phases: 139: Kingwood High School & Kingwood Dr.



|                      |    |     |
|----------------------|----|-----|
| Lane Group           | ø2 | ø15 |
| LOS                  |    |     |
| Approach Delay       |    |     |
| Approach LOS         |    |     |
| Intersection Summary |    |     |

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Grade Separation on Kingwood Drive  
141: Lake Houston Parkway & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        | ↕↕    | ↕↕    | ↗     | ↕↕    | ↕↕    | ↗     | ↕↕    | ↕↕    | ↗     | ↕↕    | ↕↕    | ↗     |
| Volume (vph)               | 154   | 298   | 331   | 154   | 791   | 135   | 450   | 642   | 60    | 169   | 807   | 265   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 150   | 150   |       | 150   | 150   |       | 150   | 150   |       | 150   |
| Storage Lanes              | 2     |       | 1     | 2     |       | 1     | 2     |       | 1     | 2     |       | 1     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 0.97  | 0.95  | 1.00  | 0.97  | 0.95  | 1.00  | 0.97  | 0.95  | 1.00  | 0.97  | 0.95  | 1.00  |
| Fr <sub>t</sub>            |       |       | 0.850 |       |       | 0.850 |       |       | 0.850 |       |       | 0.850 |
| Fl <sub>t</sub> Protected  | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       | 0.950 |       |       |
| Satd. Flow (prot)          | 3433  | 3539  | 1583  | 3433  | 3539  | 1583  | 3433  | 3539  | 1583  | 3433  | 3539  | 1583  |
| Fl <sub>t</sub> Permitted  | 0.250 |       |       | 0.534 |       |       | 0.250 |       |       | 0.283 |       |       |
| Satd. Flow (perm)          | 903   | 3539  | 1583  | 1930  | 3539  | 1583  | 903   | 3539  | 1583  | 1023  | 3539  | 1583  |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       |       | 39    |       |       | 79    |       |       | 74    |       |       | 41    |
| Link Speed (mph)           |       | 40    |       |       | 40    |       |       | 40    |       |       | 40    |       |
| Link Distance (ft)         |       | 513   |       |       | 546   |       |       | 450   |       |       | 568   |       |
| Travel Time (s)            |       | 8.7   |       |       | 9.3   |       |       | 7.7   |       |       | 9.7   |       |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 189   | 366   | 407   | 189   | 972   | 166   | 553   | 789   | 74    | 208   | 991   | 325   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 189   | 366   | 407   | 189   | 972   | 166   | 553   | 789   | 74    | 208   | 991   | 325   |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 24    |       |       | 24    |       |       | 24    |       |       | 24    |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    | Perm  | Perm  | NA    | Perm  | Perm  | NA    | Perm  | Perm  | NA    | Perm  |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       | 4     | 8     |       | 8     | 2     |       | 2     | 6     |       | 6     |
| Minimum Split (s)          | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (s)            | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  | 20.0  |
| Total Split (%)            | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% | 50.0% |
| Maximum Green (s)          | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Yellow Time (s)            | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |
| All-Red Time (s)           | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   | 0.5   |
| Lost Time Adjust (s)       | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| Total Lost Time (s)        | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   | 4.0   |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   | 5.0   |
| Flash Dont Walk (s)        | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  | 11.0  |
| Pedestrian Calls (#/hr)    | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| Act Effect Green (s)       | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  | 16.0  |
| Actuated g/C Ratio         | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  | 0.40  |
| v/c Ratio                  | 0.52  | 0.26  | 0.62  | 0.24  | 0.69  | 0.24  | 1.53  | 0.56  | 0.11  | 0.51  | 0.70  | 0.49  |

Grade Separation on Kingwood Drive  
 141: Lake Houston Parkway & Kingwood Dr.

AM Peak Hour

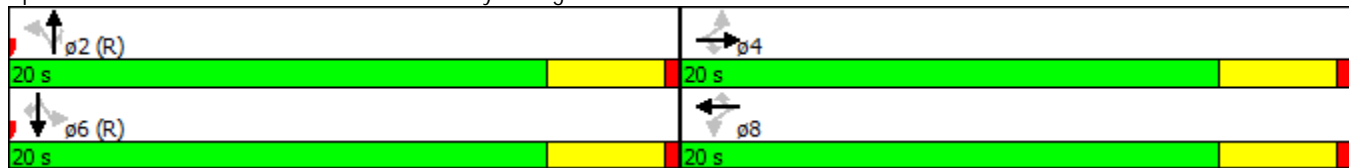


| Lane Group     | EBL  | EBT  | EBR  | WBL | WBT  | WBR | NBL   | NBT   | NBR | SBL  | SBT  | SBR  |
|----------------|------|------|------|-----|------|-----|-------|-------|-----|------|------|------|
| Control Delay  | 15.6 | 8.6  | 13.7 | 9.9 | 14.2 | 7.5 | 272.6 | 11.1  | 3.1 | 14.5 | 13.3 | 11.0 |
| Queue Delay    | 0.0  | 0.0  | 0.0  | 0.0 | 0.0  | 0.0 | 0.0   | 0.0   | 0.0 | 0.0  | 0.0  | 0.0  |
| Total Delay    | 15.6 | 8.6  | 13.7 | 9.9 | 14.2 | 7.5 | 272.6 | 11.1  | 3.1 | 14.5 | 13.3 | 11.0 |
| LOS            | B    | A    | B    | A   | B    | A   | F     | B     | A   | B    | B    | B    |
| Approach Delay |      | 12.1 |      |     | 12.8 |     |       | 112.8 |     |      | 13.0 |      |
| Approach LOS   |      | B    |      |     | B    |     |       | F     |     |      | B    |      |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 65  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 1.53  |
| Intersection Signal Delay:        | 39.8  |
| Intersection LOS:                 | D   |
| Intersection Capacity Utilization | 82.7%   |
| ICU Level of Service              | E   |
| Analysis Period (min)             | 15  |

Splits and Phases: 141: Lake Houston Parkway & Kingwood Dr.



Grade Separation on Kingwood Drive  
144: Forest Garden Dr. & Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBL   | EBT   | EBR   | WBL   | WBT   | WBR   | NBL   | NBT   | NBR   | SBL   | SBT   | SBR   |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Lane Configurations        |       |       |       |       |       |       |       |       |       |       |       |       |
| Volume (vph)               | 124   | 437   | 44    | 10    | 1006  | 80    | 107   | 44    | 16    | 78    | 30    | 239   |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 150   |       | 0     | 150   |       | 0     | 0     |       | 0     | 0     |       | 0     |
| Storage Lanes              | 1     |       | 0     | 1     |       | 0     | 0     |       | 0     | 0     |       | 0     |
| Taper Length (ft)          | 25    |       |       | 25    |       |       | 25    |       |       | 25    |       |       |
| Lane Util. Factor          | 1.00  | 0.95  | 0.95  | 1.00  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  | 0.95  |
| Frt                        |       | 0.986 |       |       | 0.989 |       |       | 0.985 |       |       | 0.897 |       |
| Flt Protected              | 0.950 |       |       | 0.950 |       |       |       | 0.969 |       |       | 0.989 |       |
| Satd. Flow (prot)          | 1770  | 3490  | 0     | 1770  | 3500  | 0     | 0     | 3378  | 0     | 0     | 3140  | 0     |
| Flt Permitted              | 0.250 |       |       | 0.402 |       |       |       | 0.657 |       |       | 0.846 |       |
| Satd. Flow (perm)          | 466   | 3490  | 0     | 749   | 3500  | 0     | 0     | 2290  | 0     | 0     | 2686  | 0     |
| Right Turn on Red          |       |       | Yes   |       |       | Yes   |       |       | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |       | 32    |       |       | 24    |       |       | 20    |       |       | 16    |       |
| Link Speed (mph)           |       | 40    |       |       | 40    |       |       | 30    |       |       | 30    |       |
| Link Distance (ft)         |       | 821   |       |       | 549   |       |       | 426   |       |       | 481   |       |
| Travel Time (s)            |       | 14.0  |       |       | 9.4   |       |       | 9.7   |       |       | 10.9  |       |
| 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  |
| Growth Factor              | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 152   | 537   | 54    | 12    | 1236  | 98    | 131   | 54    | 20    | 96    | 37    | 294   |
| Shared Lane Traffic (%)    |       |       |       |       |       |       |       |       |       |       |       |       |
| Lane Group Flow (vph)      | 152   | 591   | 0     | 12    | 1334  | 0     | 0     | 205   | 0     | 0     | 427   | 0     |
| Enter Blocked Intersection | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    | No    |
| Lane Alignment             | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right | Left  | Left  | Right |
| Median Width(ft)           |       | 12    |       |       | 12    |       |       | 0     |       |       | 0     |       |
| Link Offset(ft)            |       | 0     |       |       | 0     |       |       | 0     |       |       | 0     |       |
| Crosswalk Width(ft)        |       | 16    |       |       | 16    |       |       | 16    |       |       | 16    |       |
| Two way Left Turn Lane     |       |       |       |       |       |       |       |       |       |       |       |       |
| Headway Factor             | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     | 15    |       | 9     |
| Turn Type                  | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       | Perm  | NA    |       |
| Protected Phases           |       | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |
| Permitted Phases           | 4     |       |       | 8     |       |       | 2     |       |       | 6     |       |       |
| Minimum Split (s)          | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (s)            | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       | 20.0  | 20.0  |       |
| Total Split (%)            | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       | 50.0% | 50.0% |       |
| Maximum Green (s)          | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Yellow Time (s)            | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       | 3.5   | 3.5   |       |
| All-Red Time (s)           | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       | 0.5   | 0.5   |       |
| Lost Time Adjust (s)       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       | 4.0   | 4.0   |       |
| Lead/Lag                   |       |       |       |       |       |       |       |       |       |       |       |       |
| Lead-Lag Optimize?         |       |       |       |       |       |       |       |       |       |       |       |       |
| Walk Time (s)              | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       | 5.0   | 5.0   |       |
| Flash Dont Walk (s)        | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       | 11.0  | 11.0  |       |
| Pedestrian Calls (#/hr)    | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       | 0     | 0     |       |
| Act Effect Green (s)       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       | 16.0  | 16.0  |       |
| Actuated g/C Ratio         | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       | 0.40  | 0.40  |       |
| v/c Ratio                  | 0.82  | 0.42  |       | 0.04  | 0.94  |       | 0.22  |       |       |       | 0.39  |       |

Grade Separation on Kingwood Drive  
144: Forest Garden Dr. & Kingwood Dr.

AM Peak Hour

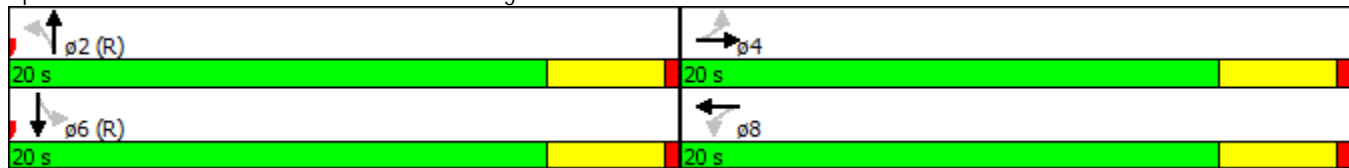


| Lane Group     | EBL  | EBT  | EBR | WBL | WBT  | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|----------------|------|------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|
| Control Delay  | 51.6 | 9.9  |     | 7.8 | 28.3 |     |     | 7.9 |     |     | 9.6 |     |
| Queue Delay    | 0.0  | 0.0  |     | 0.0 | 0.0  |     |     | 0.0 |     |     | 0.0 |     |
| Total Delay    | 51.6 | 9.9  |     | 7.8 | 28.3 |     |     | 7.9 |     |     | 9.6 |     |
| LOS            | D    | A    |     | A   | C    |     |     | A   |     |     | A   |     |
| Approach Delay |      | 18.4 |     |     | 28.1 |     |     | 7.9 |     |     | 9.6 |     |
| Approach LOS   |      | B    |     |     | C    |     |     | A   |     |     | A   |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 40  |
| Actuated Cycle Length:            | 40  |
| Offset:                           | 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle:                    | 70  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.94  |
| Intersection Signal Delay:        | 21.0  |
| Intersection LOS:                 | C   |
| Intersection Capacity Utilization | 74.3%   |
| ICU Level of Service              | D   |
| Analysis Period (min)             | 15  |

Splits and Phases: 144: Forest Garden Dr. & Kingwood Dr.



Grade Separation on Kingwood Drive  
147: Kingwood Dr. & Timber Shade Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | EBR   | WBL   | WBT   | WBR   | NBL  | NBT   | NBR   | SBL  | SBT   | SBR   |
|----------------------------|------|------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|
| Lane Configurations        |      |      |       |       |       |       |      |       |       |      |       |       |
| Volume (vph)               | 0    | 0    | 0     | 11    | 994   | 11    | 36   | 38    | 0     | 0    | 16    | 81    |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  |
| Storage Length (ft)        | 0    |      | 0     | 150   |       | 0     | 0    |       | 0     | 0    |       | 0     |
| Storage Lanes              | 0    |      | 0     | 1     |       | 0     | 0    |       | 0     | 0    |       | 0     |
| Taper Length (ft)          | 25   |      |       | 25    |       |       | 25   |       |       | 25   |       |       |
| Lane Util. Factor          | 1.00 | 1.00 | 1.00  | 1.00  | 0.95  | 0.95  | 0.95 | 0.95  | 1.00  | 1.00 | 0.95  | 0.95  |
| Frt                        |      |      |       |       | 0.998 |       |      |       |       |      | 0.875 |       |
| Flt Protected              |      |      |       | 0.950 |       |       |      | 0.976 |       |      |       |       |
| Satd. Flow (prot)          | 0    | 0    | 0     | 1770  | 3532  | 0     | 0    | 3454  | 0     | 0    | 3097  | 0     |
| Flt Permitted              |      |      |       | 0.950 |       |       |      | 0.976 |       |      |       |       |
| Satd. Flow (perm)          | 0    | 0    | 0     | 1770  | 3532  | 0     | 0    | 3454  | 0     | 0    | 3097  | 0     |
| Right Turn on Red          |      |      | Yes   |       |       | Yes   |      |       | Yes   |      |       | Yes   |
| Satd. Flow (RTOR)          |      |      |       |       | 1     |       |      |       |       |      |       | 99    |
| Link Speed (mph)           |      | 40   |       |       | 40    |       |      | 30    |       |      |       | 30    |
| Link Distance (ft)         |      | 841  |       |       | 1628  |       |      | 83    |       |      |       | 459   |
| Travel Time (s)            |      | 14.3 |       |       | 27.8  |       |      | 1.9   |       |      |       | 10.4  |
| 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  |
| Growth Factor              | 113% | 113% | 113%  | 113%  | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0     | 14    | 1221  | 14    | 44   | 47    | 0     | 0    | 20    | 99    |
| Shared Lane Traffic (%)    |      |      |       |       |       |       |      |       |       |      |       |       |
| Lane Group Flow (vph)      | 0    | 0    | 0     | 14    | 1235  | 0     | 0    | 91    | 0     | 0    | 119   | 0     |
| Enter Blocked Intersection | No   | No   | No    | No    | No    | No    | No   | No    | No    | No   | No    | No    |
| Lane Alignment             | Left | Left | Right | Left  | Left  | Right | Left | Left  | Right | Left | Left  | Right |
| Median Width(ft)           |      | 12   |       |       | 12    |       |      | 0     |       |      |       | 0     |
| Link Offset(ft)            |      | 0    |       |       | 0     |       |      | 0     |       |      |       | 0     |
| Crosswalk Width(ft)        |      | 16   |       |       | 16    |       |      | 16    |       |      |       | 16    |
| Two way Left Turn Lane     |      |      |       |       |       |       |      |       |       |      |       |       |
| Headway Factor             | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |      | 9     | 15    |       | 9     | 15   |       | 9     | 15   |       | 9     |
| Turn Type                  |      |      |       | Prot  | NA    |       | Prot | NA    |       |      |       | NA    |
| Protected Phases           |      |      |       | 1     | 6     |       | 15   | 8     |       |      |       | 4     |
| Permitted Phases           |      |      |       |       |       |       |      |       |       |      |       |       |
| Minimum Split (s)          |      |      |       | 11.0  | 10.0  |       |      | 18.0  |       |      |       | 10.0  |
| Total Split (s)            |      |      |       | 13.0  | 91.0  |       |      | 20.0  |       |      |       | 16.0  |
| Total Split (%)            |      |      |       | 9.0%  | 63.2% |       |      | 13.9% |       |      |       | 11.1% |
| Maximum Green (s)          |      |      |       | 7.0   | 85.0  |       |      | 15.0  |       |      |       | 11.0  |
| Yellow Time (s)            |      |      |       | 4.0   | 4.0   |       |      | 4.0   |       |      |       | 4.0   |
| All-Red Time (s)           |      |      |       | 2.0   | 2.0   |       |      | 1.0   |       |      |       | 1.0   |
| Lost Time Adjust (s)       |      |      |       | 0.0   | 0.0   |       |      | 0.0   |       |      |       | 0.0   |
| Total Lost Time (s)        |      |      |       | 6.0   | 6.0   |       |      | 5.0   |       |      |       | 5.0   |
| Lead/Lag                   |      |      |       | Lag   |       |       |      | Lag   |       |      |       | Lead  |
| Lead-Lag Optimize?         |      |      |       | Yes   |       |       |      | Yes   |       |      |       | Yes   |
| Walk Time (s)              |      |      |       |       |       |       |      | 6.0   |       |      |       |       |
| Flash Dont Walk (s)        |      |      |       |       |       |       |      | 7.0   |       |      |       |       |
| Pedestrian Calls (#/hr)    |      |      |       |       |       |       |      | 0     |       |      |       |       |
| Act Effect Green (s)       |      |      |       | 7.0   | 85.0  |       |      | 32.0  |       |      |       | 11.0  |
| Actuated g/C Ratio         |      |      |       | 0.05  | 0.59  |       |      | 0.22  |       |      |       | 0.08  |
| v/c Ratio                  |      |      |       | 0.16  | 0.59  |       |      | 0.12  |       |      |       | 0.36  |

Grade Separation on Kingwood Drive  
 147: Kingwood Dr. & Timber Shade Dr.

AM Peak Hour

| Lane Group                 | ø2   | ø15  |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphp)          |      |      |
| Storage Length (ft)        |      |      |
| Storage Lanes              |      |      |
| Taper Length (ft)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 2    | 15   |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 20.0 | 11.0 |
| Total Split (s)            | 78.0 | 17.0 |
| Total Split (%)            | 54%  | 12%  |
| Maximum Green (s)          | 72.0 | 11.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lead |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              | 4.0  |      |
| Flash Dont Walk (s)        | 10.0 |      |
| Pedestrian Calls (#/hr)    | 0    |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |



Grade Separation on Kingwood Drive  
 147: Kingwood Dr. & Timber Shade Dr.

AM Peak Hour

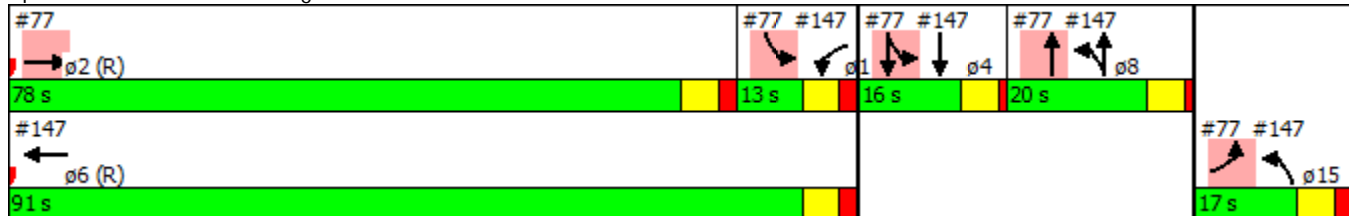


| Lane Group     | EBL | EBT | EBR | WBL  | WBT  | WBR | NBL | NBT | NBR | SBL | SBT  | SBR |
|----------------|-----|-----|-----|------|------|-----|-----|-----|-----|-----|------|-----|
| Control Delay  |     |     |     | 51.5 | 9.6  |     |     | 4.3 |     |     | 19.9 |     |
| Queue Delay    |     |     |     | 0.0  | 0.0  |     |     | 0.0 |     |     | 0.0  |     |
| Total Delay    |     |     |     | 51.5 | 9.6  |     |     | 4.3 |     |     | 19.9 |     |
| LOS            |     |     |     | D    | A    |     |     | A   |     |     | B    |     |
| Approach Delay |     |     |     |      | 10.1 |     |     | 4.3 |     |     | 19.9 |     |
| Approach LOS   |     |     |     |      | B    |     |     | A   |     |     | B    |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 12 (8%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 70  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.59  |
| Intersection Signal Delay:        | 10.6  |
| Intersection LOS:                 | B   |
| Intersection Capacity Utilization | 49.5%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 147: Kingwood Dr. & Timber Shade Dr.



Grade Separation on Kingwood Drive  
147: Kingwood Dr. & Timber Shade Dr.

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AM Peak Hour

|                      |    |     |
|----------------------|----|-----|
| Lane Group           | ø2 | ø15 |
| Control Delay        |    |     |
| Queue Delay          |    |     |
| Total Delay          |    |     |
| LOS                  |    |     |
| Approach Delay       |    |     |
| Approach LOS         |    |     |
| Intersection Summary |    |     |

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Grade Separation on Kingwood Drive  
149: Kingwood Dr. & Willow Terrace

AM Peak Hour



| Lane Group                 | SEL  | SET   | SER   | NWL   | NWT   | NWR   | NEL  | NET  | NER   | SWL   | SWT   | SWR   |
|----------------------------|------|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    |       | ↖     | ↗     |       |      |      |       | ↖     | ↑↑    |       |
| Volume (vph)               | 0    | 23    | 52    | 424   | 40    | 0     | 0    | 0    | 0     | 32    | 574   | 17    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0    |       | 0     | 0     |       | 0     | 0    |      | 0     | 150   |       | 0     |
| Storage Lanes              | 0    |       | 0     | 1     |       | 0     | 0    |      | 0     | 1     |       | 0     |
| Taper Length (ft)          | 25   |       |       | 25    |       |       | 25   |      |       | 25    |       |       |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 0.95  | 0.95  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 0.95  | 0.95  |
| Frt                        |      | 0.896 |       |       |       |       |      |      |       |       |       | 0.996 |
| Flt Protected              |      |       |       | 0.950 | 0.960 |       |      |      |       | 0.950 |       |       |
| Satd. Flow (prot)          | 0    | 3171  | 0     | 1681  | 1699  | 0     | 0    | 0    | 0     | 1770  | 3525  | 0     |
| Flt Permitted              |      |       |       | 0.950 | 0.960 |       |      |      |       | 0.950 |       |       |
| Satd. Flow (perm)          | 0    | 3171  | 0     | 1681  | 1699  | 0     | 0    | 0    | 0     | 1770  | 3525  | 0     |
| Right Turn on Red          |      |       | Yes   |       |       | Yes   |      |      | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |      | 64    |       |       |       |       |      |      |       |       |       | 2     |
| Link Speed (mph)           |      | 30    |       |       | 30    |       |      | 40   |       |       |       | 40    |
| Link Distance (ft)         |      | 359   |       |       | 105   |       |      | 1388 |       |       |       | 466   |
| Travel Time (s)            |      | 8.2   |       |       | 2.4   |       |      | 23.7 |       |       |       | 7.9   |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113%  | 113%  | 113%  | 113% | 113% | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 28    | 64    | 521   | 49    | 0     | 0    | 0    | 0     | 39    | 705   | 21    |
| Shared Lane Traffic (%)    |      |       |       | 46%   |       |       |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 92    | 0     | 281   | 289   | 0     | 0    | 0    | 0     | 39    | 726   | 0     |
| Enter Blocked Intersection | No   | No    | No    | No    | No    | No    | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left  | Left  | Right | Left | Left | Right | Left  | Left  | Right |
| Median Width(ft)           |      | 12    |       |       | 12    |       |      | 12   |       |       |       | 12    |
| Link Offset(ft)            |      | 0     |       |       | 0     |       |      | 0    |       |       |       | 0     |
| Crosswalk Width(ft)        |      | 16    |       |       | 16    |       |      | 16   |       |       |       | 16    |
| Two way Left Turn Lane     |      |       |       |       |       |       |      |      |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15    |       | 9     | 15   |      | 9     | 15    |       | 9     |
| Turn Type                  |      | NA    |       | Prot  | NA    |       |      |      |       | Prot  | NA    |       |
| Protected Phases           |      | 4     |       | 15    | 8     |       |      |      |       | 1     | 6     |       |
| Permitted Phases           |      |       |       |       |       |       |      |      |       |       |       |       |
| Minimum Split (s)          |      | 10.0  |       |       | 18.0  |       |      |      |       | 11.0  | 10.0  |       |
| Total Split (s)            |      | 14.0  |       |       | 42.0  |       |      |      |       | 15.0  | 63.0  |       |
| Total Split (%)            |      | 9.7%  |       |       | 29.2% |       |      |      |       | 10.4% | 43.8% |       |
| Maximum Green (s)          |      | 9.0   |       |       | 37.0  |       |      |      |       | 9.0   | 57.0  |       |
| Yellow Time (s)            |      | 4.0   |       |       | 4.0   |       |      |      |       | 4.0   | 4.0   |       |
| All-Red Time (s)           |      | 1.0   |       |       | 1.0   |       |      |      |       | 2.0   | 2.0   |       |
| Lost Time Adjust (s)       |      | 0.0   |       |       | 0.0   |       |      |      |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        |      | 5.0   |       |       | 5.0   |       |      |      |       | 6.0   | 6.0   |       |
| Lead/Lag                   |      | Lead  |       |       | Lag   |       |      |      |       | Lag   |       |       |
| Lead-Lag Optimize?         |      | Yes   |       |       | Yes   |       |      |      |       | Yes   |       |       |
| Walk Time (s)              |      |       |       |       | 6.0   |       |      |      |       |       |       |       |
| Flash Dont Walk (s)        |      |       |       |       | 7.0   |       |      |      |       |       |       |       |
| Pedestrian Calls (#/hr)    |      |       |       |       | 0     |       |      |      |       |       |       |       |
| Act Effect Green (s)       |      | 9.0   |       | 61.0  | 62.0  |       |      |      |       | 9.0   | 57.0  |       |
| Actuated g/C Ratio         |      | 0.06  |       | 0.42  | 0.43  |       |      |      |       | 0.06  | 0.40  |       |
| v/c Ratio                  |      | 0.36  |       | 0.39  | 0.40  |       |      |      |       | 0.35  | 0.52  |       |

Grade Separation on Kingwood Drive  
 149: Kingwood Dr. & Willow Terrace

AM Peak Hour

| Lane Group                 | ø2   | ø15  |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphp)          |      |      |
| Storage Length (ft)        |      |      |
| Storage Lanes              |      |      |
| Taper Length (ft)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 2    | 15   |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 20.0 | 11.0 |
| Total Split (s)            | 48.0 | 25.0 |
| Total Split (%)            | 33%  | 17%  |
| Maximum Green (s)          | 42.0 | 19.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lead |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              | 4.0  |      |
| Flash Dont Walk (s)        | 10.0 |      |
| Pedestrian Calls (#/hr)    | 0    |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |

Grade Separation on Kingwood Drive  
149: Kingwood Dr. & Willow Terrace

AM Peak Hour



| Lane Group     | SEL | SET  | SER | NWL | NWT | NWR | NEL | NET | NER | SWL  | SWT  | SWR |
|----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|
| Control Delay  |     | 28.1 |     | 1.7 | 1.7 |     |     |     |     | 79.2 | 39.0 |     |
| Queue Delay    |     | 0.0  |     | 1.3 | 1.3 |     |     |     |     | 0.0  | 0.0  |     |
| Total Delay    |     | 28.1 |     | 3.0 | 3.0 |     |     |     |     | 79.2 | 39.0 |     |
| LOS            |     | C    |     | A   | A   |     |     |     |     | E    | D    |     |
| Approach Delay |     | 28.1 |     |     | 3.0 |     |     |     |     |      | 41.1 |     |
| Approach LOS   |     | C    |     |     | A   |     |     |     |     |      | D    |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 12 (8%), Referenced to phase 2:NEL and 6:, Start of Green |
| Natural Cycle:                    | 70  |
| Control Type:                     | Pretimed  |
| Maximum v/c Ratio:                | 0.65  |
| Intersection Signal Delay:        | 25.0  |
| Intersection LOS:                 | C   |
| Intersection Capacity Utilization | 48.8%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 149: Kingwood Dr. & Willow Terrace

|                             |                             |                             |                             |                              |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|------------------------------|
| #74<br>↑<br>ø2 (R)<br>48 s  | #74 #149<br>↘<br>ø1<br>15 s | #74 #149<br>↘<br>ø4<br>14 s | #74 #149<br>↘<br>ø8<br>42 s |                              |
| #149<br>↘<br>ø6 (R)<br>63 s |                             |                             |                             | #74 #149<br>↘<br>ø15<br>25 s |

Grade Separation on Kingwood Drive  
149: Kingwood Dr. & Willow Terrace

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AM Peak Hour

|                      |    |     |
|----------------------|----|-----|
| Lane Group           | ø2 | ø15 |
| Control Delay        |    |     |
| Queue Delay          |    |     |
| Total Delay          |    |     |
| LOS                  |    |     |
| Approach Delay       |    |     |
| Approach LOS         |    |     |
| Intersection Summary |    |     |

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Grade Separation on Kingwood Drive  
 151: Kingwood Dr. & High Valley

AM Peak Hour

| Lane Group                 | ø2   | ø15  |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphp)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 2    | 15   |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 20.0 | 11.0 |
| Total Split (s)            | 67.0 | 16.0 |
| Total Split (%)            | 47%  | 11%  |
| Maximum Green (s)          | 61.0 | 10.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lead |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              | 4.0  |      |
| Flash Dont Walk (s)        | 10.0 |      |
| Pedestrian Calls (#/hr)    | 0    |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |
| Control Delay              |      |      |
| Queue Delay                |      |      |
| Total Delay                |      |      |



Grade Separation on Kingwood Drive  
 151: Kingwood Dr. & High Valley

AM Peak Hour

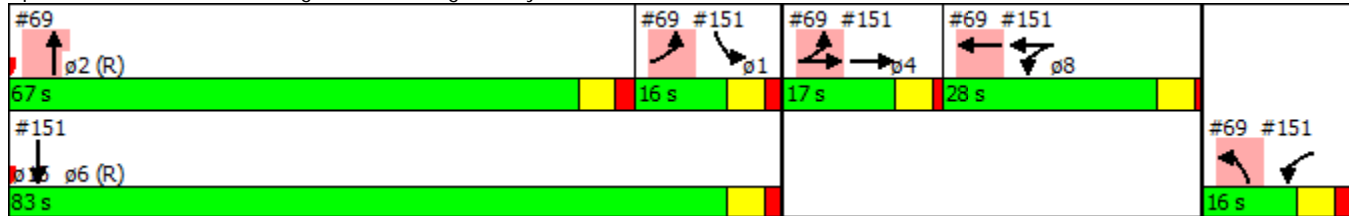


| Lane Group     | EBL | EBT  | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR  |
|----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| LOS            |     | D    |     | A   | A   |     |     |     |     |     |     | C    |
| Approach Delay |     | 45.8 |     |     | 7.6 |     |     |     |     |     |     | 26.0 |
| Approach LOS   |     | D    |     |     | A   |     |     |     |     |     |     | C    |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 90 (63%), Referenced to phase 2:NBT and 6:, Start of Green |
| Natural Cycle:                    | 70   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.54   |
| Intersection Signal Delay:        | 24.5   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 51.8%  |
| ICU Level of Service              | A  |
| Analysis Period (min)             | 15   |

Splits and Phases: 151: Kingwood Dr. & High Valley



Grade Separation on Kingwood Drive  
151: Kingwood Dr. & High Valley

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AM Peak Hour

|                      |    |     |
|----------------------|----|-----|
| Lane Group           | ø2 | ø15 |
| LOS                  |    |     |
| Approach Delay       |    |     |
| Approach LOS         |    |     |
| Intersection Summary |    |     |

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Grade Separation on Kingwood Drive  
 154: Kingwood Dr. & Mills Branch

AM Peak Hour



| Lane Group | EBL | EBR | NBL | NBR | NWL | NWR | SWL | SWR |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|
|------------|-----|-----|-----|-----|-----|-----|-----|-----|

|     |  |  |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|--|--|
| LOS |  |  |  |  |  |  |  |  |
|-----|--|--|--|--|--|--|--|--|

|                |  |  |  |  |  |  |  |  |
|----------------|--|--|--|--|--|--|--|--|
| Approach Delay |  |  |  |  |  |  |  |  |
|----------------|--|--|--|--|--|--|--|--|

|              |  |  |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|--|
| Approach LOS |  |  |  |  |  |  |  |  |
|--------------|--|--|--|--|--|--|--|--|

**Intersection Summary**

|            |       |
|------------|-------|
| Area Type: | Other |
|------------|-------|

|               |    |
|---------------|----|
| Cycle Length: | 20 |
|---------------|----|

|                        |    |
|------------------------|----|
| Actuated Cycle Length: | 20 |
|------------------------|----|

|         |   |
|---------|---|
| Offset: | 0 (0%), Referenced to phase 2: and 6:, Start of Green |
|---------|---|

|                |    |
|----------------|----|
| Natural Cycle: | 40 |
|----------------|----|

|               |          |
|---------------|----------|
| Control Type: | Pretimed |
|---------------|----------|

|                    |      |
|--------------------|------|
| Maximum v/c Ratio: | 0.00 |
|--------------------|------|

|                            |     |                   |   |
|----------------------------|-----|-------------------|---|
| Intersection Signal Delay: | 0.0 | Intersection LOS: | A |
|----------------------------|-----|-------------------|---|

|                                    |      |                       |   |
|------------------------------------|------|-----------------------|---|
| Intersection Capacity Utilization: | 0.0% | ICU Level of Service: | A |
|------------------------------------|------|-----------------------|---|

|                        |    |
|------------------------|----|
| Analysis Period (min): | 15 |
|------------------------|----|

Splits and Phases: 154: Kingwood Dr. & Mills Branch



Grade Separation on Kingwood Drive  
157: US 59 NBFR

AM Peak Hour



| Lane Group                 | NBU      | NBT      | NBR   | SBL  | SBT  | SWL  | SWR   |
|----------------------------|----------|----------|-------|------|------|------|-------|
| Lane Configurations        | <b>A</b> | <b>B</b> |       |      |      |      |       |
| Volume (vph)               | 233      | 705      | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900     | 1900     | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00     | 0.76     | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Frt                        |          |          |       |      |      |      |       |
| Flt Protected              | 0.950    |          |       |      |      |      |       |
| Satd. Flow (prot)          | 1770     | 8494     | 0     | 0    | 0    | 0    | 0     |
| Flt Permitted              | 0.950    |          |       |      |      |      |       |
| Satd. Flow (perm)          | 1770     | 8494     | 0     | 0    | 0    | 0    | 0     |
| Link Speed (mph)           |          | 55       |       |      | 30   | 55   |       |
| Link Distance (ft)         |          | 6172     |       |      | 362  | 365  |       |
| Travel Time (s)            |          | 76.5     |       |      | 8.2  | 4.5  |       |
| Peak Hour Factor           | 0.92     | 0.92     | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113%     | 113%     | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 286      | 866      | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |          |          |       |      |      |      |       |
| Lane Group Flow (vph)      | 286      | 866      | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No       | No       | No    | No   | No   | No   | No    |
| Lane Alignment             | R NA     | Left     | Right | Left | Left | Left | Right |
| Median Width(ft)           |          | 12       |       |      | 12   | 0    |       |
| Link Offset(ft)            |          | 0        |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        |          | 16       |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |          |          |       |      |      |      |       |
| Headway Factor             | 1.00     | 1.00     | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9        |          | 9     | 15   |      | 15   | 9     |
| Sign Control               |          | Free     |       |      | Stop | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 31.4%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
159: Russel Palmer & Northpark Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL    | WBT   | NBL   | NBR   | ø2 | ø4 |
|----------------------------|------|-------|--------|-------|-------|-------|----|----|
| Lane Configurations        |      |       |        |       |       |       |    |    |
| Volume (vph)               | 0    | 0     | 77     | 1865  | 126   | 0     |    |    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900   | 1900  | 1900  | 1900  |    |    |
| Storage Length (ft)        |      | 0     | 150    |       | 0     | 0     |    |    |
| Storage Lanes              |      | 0     | 1      |       | 1     | 0     |    |    |
| Taper Length (ft)          |      |       | 25     |       | 25    |       |    |    |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00   | 0.95  | 1.00  | 1.00  |    |    |
| Frt                        |      |       |        |       |       |       |    |    |
| Frt Protected              |      |       | 0.950  |       | 0.950 |       |    |    |
| Satd. Flow (prot)          | 0    | 0     | 1770   | 3539  | 1770  | 0     |    |    |
| Frt Permitted              |      |       | 0.950  |       | 0.950 |       |    |    |
| Satd. Flow (perm)          | 0    | 0     | 1770   | 3539  | 1770  | 0     |    |    |
| Right Turn on Red          |      | Yes   |        |       |       | Yes   |    |    |
| Satd. Flow (RTOR)          |      |       |        |       |       |       |    |    |
| Link Speed (mph)           | 45   |       |        | 45    | 30    |       |    |    |
| Link Distance (ft)         | 128  |       |        | 3286  | 106   |       |    |    |
| Travel Time (s)            | 1.9  |       |        | 49.8  | 2.4   |       |    |    |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  |    |    |
| Growth Factor              | 113% | 113%  | 113%   | 113%  | 113%  | 113%  |    |    |
| Adj. Flow (vph)            | 0    | 0     | 95     | 2291  | 155   | 0     |    |    |
| Shared Lane Traffic (%)    |      |       |        |       |       |       |    |    |
| Lane Group Flow (vph)      | 0    | 0     | 95     | 2291  | 155   | 0     |    |    |
| Enter Blocked Intersection | No   | No    | No     | No    | No    | No    |    |    |
| Lane Alignment             | Left | Right | Left   | Left  | Left  | Right |    |    |
| Median Width(ft)           | 12   |       |        | 12    | 12    |       |    |    |
| Link Offset(ft)            | 0    |       |        | 0     | 0     |       |    |    |
| Crosswalk Width(ft)        | 16   |       |        | 16    | 16    |       |    |    |
| Two way Left Turn Lane     |      |       |        |       |       |       |    |    |
| Headway Factor             | 1.00 | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  |    |    |
| Turning Speed (mph)        |      | 9     | 15     |       | 15    | 9     |    |    |
| Number of Detectors        |      |       | 1      | 2     | 1     |       |    |    |
| Detector Template          |      |       | Left   | Thru  | Left  |       |    |    |
| Leading Detector (ft)      |      |       | 20     | 100   | 20    |       |    |    |
| Trailing Detector (ft)     |      |       | 0      | 0     | 0     |       |    |    |
| Detector 1 Position(ft)    |      |       | 0      | 0     | 0     |       |    |    |
| Detector 1 Size(ft)        |      |       | 20     | 6     | 20    |       |    |    |
| Detector 1 Type            |      |       | Cl+Ex  | Cl+Ex | Cl+Ex |       |    |    |
| Detector 1 Channel         |      |       |        |       |       |       |    |    |
| Detector 1 Extend (s)      |      |       | 0.0    | 0.0   | 0.0   |       |    |    |
| Detector 1 Queue (s)       |      |       | 0.0    | 0.0   | 0.0   |       |    |    |
| Detector 1 Delay (s)       |      |       | 0.0    | 0.0   | 0.0   |       |    |    |
| Detector 2 Position(ft)    |      |       |        | 94    |       |       |    |    |
| Detector 2 Size(ft)        |      |       |        | 6     |       |       |    |    |
| Detector 2 Type            |      |       |        | Cl+Ex |       |       |    |    |
| Detector 2 Channel         |      |       |        |       |       |       |    |    |
| Detector 2 Extend (s)      |      |       |        | 0.0   |       |       |    |    |
| Turn Type                  |      |       | custom | NA    | NA    |       |    |    |
| Protected Phases           |      |       |        | 6     | 8     |       | 2  | 4  |
| Permitted Phases           |      |       | 1      |       |       |       |    |    |

Grade Separation on Kingwood Drive  
159: Russel Palmer & Northpark Dr.

AM Peak Hour



| Lane Group            | EBT | EBR | WBL   | WBT   | NBL   | NBR | ø2    | ø4   |
|-----------------------|-----|-----|-------|-------|-------|-----|-------|------|
| Detector Phase        |     |     | 1     | 6     | 8     |     |       |      |
| Switch Phase          |     |     |       |       |       |     |       |      |
| Minimum Initial (s)   |     |     | 5.0   | 15.0  | 5.0   |     | 15.0  | 5.0  |
| Minimum Split (s)     |     |     | 11.3  | 21.3  | 11.2  |     | 21.3  | 11.3 |
| Total Split (s)       |     |     | 21.0  | 116.0 | 28.0  |     | 95.0  | 28.0 |
| Total Split (%)       |     |     | 14.6% | 80.6% | 19.4% |     | 66%   | 19%  |
| Maximum Green (s)     |     |     | 14.7  | 109.7 | 21.8  |     | 88.7  | 21.7 |
| Yellow Time (s)       |     |     | 4.3   | 4.3   | 3.6   |     | 4.3   | 4.3  |
| All-Red Time (s)      |     |     | 2.0   | 2.0   | 2.6   |     | 2.0   | 2.0  |
| Lost Time Adjust (s)  |     |     | 0.0   | 0.0   | 0.0   |     |       |      |
| Total Lost Time (s)   |     |     | 6.3   | 6.3   | 6.2   |     |       |      |
| Lead/Lag              |     |     | Lead  |       |       |     | Lag   |      |
| Lead-Lag Optimize?    |     |     | Yes   |       |       |     | Yes   |      |
| Vehicle Extension (s) |     |     | 3.0   | 3.0   | 3.0   |     | 3.0   | 3.0  |
| Recall Mode           |     |     | None  | C-Max | Max   |     | C-Max | None |
| Act Effect Green (s)  |     |     | 12.3  | 109.7 | 21.8  |     |       |      |
| Actuated g/C Ratio    |     |     | 0.09  | 0.76  | 0.15  |     |       |      |
| v/c Ratio             |     |     | 0.63  | 0.85  | 0.58  |     |       |      |
| Control Delay         |     |     | 81.7  | 15.7  | 10.0  |     |       |      |
| Queue Delay           |     |     | 127.1 | 0.0   | 0.2   |     |       |      |
| Total Delay           |     |     | 208.8 | 15.7  | 10.1  |     |       |      |
| LOS                   |     |     | F     | B     | B     |     |       |      |
| Approach Delay        |     |     |       | 23.4  | 10.1  |     |       |      |
| Approach LOS          |     |     |       | C     | B     |     |       |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 0 (0%), Referenced to phase 2:EBT and 6:, Start of Green |
| Natural Cycle:                    | 70   |
| Control Type:                     | Actuated-Coordinated                                     |
| Maximum v/c Ratio:                | 0.85   |
| Intersection Signal Delay:        | 22.6   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 76.6%  |
| ICU Level of Service              | D  |
| Analysis Period (min)             | 15   |

Splits and Phases: 159: Russel Palmer & Northpark Dr.

|                         |                       |                        |
|-------------------------|-----------------------|------------------------|
| #159<br>ø1<br>21 s      | #35<br>ø2 (R)<br>95 s | #35<br>ø4<br>28 s      |
| #159<br>ø6 (R)<br>116 s |                       | #35 #159<br>ø8<br>28 s |

Grade Separation on Kingwood Drive  
161: Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT   | WBT  | WBR   | SBL  | SBR   |
|----------------------------|------|-------|------|-------|------|-------|
| Lane Configurations        |      | ↕↕    |      |       |      |       |
| Volume (vph)               | 41   | 986   | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 0.95 | 0.95  | 1.00 | 1.00  | 1.00 | 1.00  |
| Frt                        |      |       |      |       |      |       |
| Flt Protected              |      | 0.998 |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3532  | 0    | 0     | 0    | 0     |
| Flt Permitted              |      | 0.998 |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3532  | 0    | 0     | 0    | 0     |
| Link Speed (mph)           |      | 45    | 45   |       | 30   |       |
| Link Distance (ft)         |      | 2834  | 117  |       | 111  |       |
| Travel Time (s)            |      | 42.9  | 1.8  |       | 2.5  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 50   | 1211  | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 1261  | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No    |
| Lane Alignment             | Left | Left  | Left | Right | Left | Right |
| Median Width(ft)           |      | 0     | 0    |       | 0    |       |
| Link Offset(ft)            |      | 0     | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16    | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |       |      |       |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |       |      | 9     | 15   | 9     |
| Sign Control               |      | Free  | Stop |       | Stop |       |

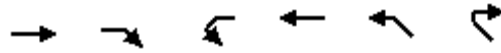
Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 42.1%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
162: Northpark Dr.

AM Peak Hour



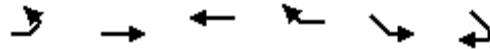
| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NWL   | NWR   |
|----------------------------|------|-------|------|------|-------|-------|
| Lane Configurations        |      |       |      | ↑↑   | ↑     |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 41    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900  | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.95 | 1.00  | 1.00  |
| Frt                        |      |       |      |      |       |       |
| Flt Protected              |      |       |      |      | 0.950 |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 3539 | 1770  | 0     |
| Flt Permitted              |      |       |      |      | 0.950 |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 3539 | 1770  | 0     |
| Link Speed (mph)           | 45   |       |      | 45   | 30    |       |
| Link Distance (ft)         | 2834 |       |      | 128  | 111   |       |
| Travel Time (s)            | 42.9 |       |      | 1.9  | 2.5   |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92  | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 50    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |       |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 50    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No    | No    |
| Lane Alignment             | Left | Right | Left | Left | Left  | Right |
| Median Width(ft)           | 0    |       |      | 0    | 12    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0     |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16    |       |
| Two way Left Turn Lane     |      |       |      |      |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  |
| Turning Speed (mph)        |      | 9     | 15   |      | 15    | 9     |
| Sign Control               | Free |       |      | Free | Yield |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 13.3%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
163: Northpark Dr.

AM Peak Hour



| Lane Group                 | EBL  | EBT  | WBT  | WBR   | SEL  | SER   |
|----------------------------|------|------|------|-------|------|-------|
| Lane Configurations        |      | ↕↕   | ↕↕   |       |      |       |
| Volume (vph)               | 0    | 0    | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 0.95 | 0.95 | 0.95 | 1.00  | 1.00 | 1.00  |
| Frt                        |      |      |      |       |      |       |
| Flt Protected              |      |      |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Flt Permitted              |      |      |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3539 | 3539 | 0     | 0    | 0     |
| Link Speed (mph)           |      | 45   | 45   |       | 30   |       |
| Link Distance (ft)         |      | 4389 | 944  |       | 1100 |       |
| Travel Time (s)            |      | 66.5 | 14.3 |       | 25.0 |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No   | No    | No   | No    |
| Lane Alignment             | Left | Left | Left | Right | Left | Right |
| Median Width(ft)           |      | 12   | 12   |       | 0    |       |
| Link Offset(ft)            |      | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |      |      |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |      | 9     | 15   | 9     |
| Sign Control               |      | Free | Free |       | Free |       |

Intersection Summary

|                                   |                             |
|-----------------------------------|-----------------------------|
| Area Type:                        | Other                       |
| Control Type:                     | Unsignalized                |
| Intersection Capacity Utilization | 0.0% ICU Level of Service A |
| Analysis Period (min)             | 15                          |

Grade Separation on Kingwood Drive  
164: Northpark Dr.

AM Peak Hour



| Lane Group                 | WBL  | WBR   | NET  | NER   | SWL  | SWT  |
|----------------------------|------|-------|------|-------|------|------|
| Lane Configurations        |      |       |      | ↑↑    |      | ↑↑   |
| Volume (vph)               | 0    | 0     | 0    | 0     | 0    | 0    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900  | 1900 | 1900 |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.88  | 1.00 | 0.95 |
| Frt                        |      |       |      |       |      |      |
| Flt Protected              |      |       |      |       |      |      |
| Satd. Flow (prot)          | 0    | 0     | 0    | 3278  | 0    | 3539 |
| Flt Permitted              |      |       |      |       |      |      |
| Satd. Flow (perm)          | 0    | 0     | 0    | 3278  | 0    | 3539 |
| Link Speed (mph)           | 40   |       | 40   |       |      | 40   |
| Link Distance (ft)         | 609  |       | 2651 |       |      | 576  |
| Travel Time (s)            | 10.4 |       | 45.2 |       |      | 9.8  |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92  | 0.92 | 0.92 |
| Growth Factor              | 113% | 113%  | 113% | 113%  | 113% | 113% |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0     | 0    | 0    |
| Shared Lane Traffic (%)    |      |       |      |       |      |      |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0     | 0    | 0    |
| Enter Blocked Intersection | No   | No    | No   | No    | No   | No   |
| Lane Alignment             | Left | Right | Left | Right | Left | Left |
| Median Width(ft)           | 12   |       | 12   |       |      | 12   |
| Link Offset(ft)            | 0    |       | 0    |       |      | 0    |
| Crosswalk Width(ft)        | 16   |       | 16   |       |      | 16   |
| Two way Left Turn Lane     |      |       |      |       |      |      |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00  | 1.00 | 1.00 |
| Turning Speed (mph)        | 15   | 9     |      | 9     | 15   |      |
| Sign Control               | Stop |       | Stop |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 0.0%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
 165: Northpark Dr. & Rock Springs

AM Peak Hour

| Lane Group                 | ø1 | ø6 |
|----------------------------|----|----|
| Lane Configurations        |    |    |
| Volume (vph)               |    |    |
| Ideal Flow (vphpl)         |    |    |
| Storage Length (ft)        |    |    |
| Storage Lanes              |    |    |
| Taper Length (ft)          |    |    |
| Lane Util. Factor          |    |    |
| Frt                        |    |    |
| Flt Protected              |    |    |
| Satd. Flow (prot)          |    |    |
| Flt Permitted              |    |    |
| Satd. Flow (perm)          |    |    |
| Right Turn on Red          |    |    |
| Satd. Flow (RTOR)          |    |    |
| Link Speed (mph)           |    |    |
| Link Distance (ft)         |    |    |
| Travel Time (s)            |    |    |
| Peak Hour Factor           |    |    |
| Growth Factor              |    |    |
| Adj. Flow (vph)            |    |    |
| Shared Lane Traffic (%)    |    |    |
| Lane Group Flow (vph)      |    |    |
| Enter Blocked Intersection |    |    |
| Lane Alignment             |    |    |
| Median Width(ft)           |    |    |
| Link Offset(ft)            |    |    |
| Crosswalk Width(ft)        |    |    |
| Two way Left Turn Lane     |    |    |
| Headway Factor             |    |    |
| Turning Speed (mph)        |    |    |
| Number of Detectors        |    |    |
| Detector Template          |    |    |
| Leading Detector (ft)      |    |    |
| Trailing Detector (ft)     |    |    |
| Detector 1 Position(ft)    |    |    |
| Detector 1 Size(ft)        |    |    |
| Detector 1 Type            |    |    |
| Detector 1 Channel         |    |    |
| Detector 1 Extend (s)      |    |    |
| Detector 1 Queue (s)       |    |    |
| Detector 1 Delay (s)       |    |    |
| Detector 2 Position(ft)    |    |    |
| Detector 2 Size(ft)        |    |    |
| Detector 2 Type            |    |    |
| Detector 2 Channel         |    |    |
| Detector 2 Extend (s)      |    |    |
| Turn Type                  |    |    |
| Protected Phases           | 1  | 6  |
| Permitted Phases           |    |    |

Grade Separation on Kingwood Drive  
165: Northpark Dr. & Rock Springs

AM Peak Hour

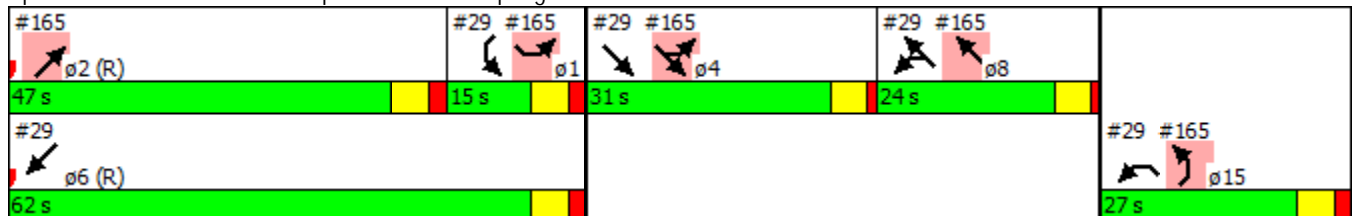


| Lane Group              | SEL  | SET   | SER | NWL | NWT   | NWR | NEL   | NET   | NER | SWL | SWT | SWR |
|-------------------------|------|-------|-----|-----|-------|-----|-------|-------|-----|-----|-----|-----|
| Detector Phase          | 1 4  | 4     |     |     | 8     |     | 15    | 2     |     |     |     |     |
| Switch Phase            |      |       |     |     |       |     |       |       |     |     |     |     |
| Minimum Initial (s)     |      | 5.0   |     |     | 5.0   |     | 5.0   | 4.0   |     |     |     |     |
| Minimum Split (s)       |      | 22.0  |     |     | 20.0  |     | 11.0  | 18.0  |     |     |     |     |
| Total Split (s)         |      | 31.0  |     |     | 24.0  |     | 27.0  | 47.0  |     |     |     |     |
| Total Split (%)         |      | 21.5% |     |     | 16.7% |     | 18.8% | 32.6% |     |     |     |     |
| Maximum Green (s)       |      | 26.0  |     |     | 19.0  |     | 21.0  | 41.0  |     |     |     |     |
| Yellow Time (s)         |      | 4.0   |     |     | 4.0   |     | 4.0   | 4.0   |     |     |     |     |
| All-Red Time (s)        |      | 1.0   |     |     | 1.0   |     | 2.0   | 2.0   |     |     |     |     |
| Lost Time Adjust (s)    |      | 0.0   |     |     | 0.0   |     | 0.0   | 0.0   |     |     |     |     |
| Total Lost Time (s)     |      | 5.0   |     |     | 5.0   |     | 6.0   | 6.0   |     |     |     |     |
| Lead/Lag                |      | Lead  |     |     | Lag   |     |       | Lead  |     |     |     |     |
| Lead-Lag Optimize?      |      | Yes   |     |     | Yes   |     |       | Yes   |     |     |     |     |
| Vehicle Extension (s)   |      | 3.0   |     |     | 3.0   |     | 3.0   | 3.0   |     |     |     |     |
| Recall Mode             |      | None  |     |     | Max   |     | Max   | C-Max |     |     |     |     |
| Walk Time (s)           |      | 5.0   |     |     | 5.0   |     |       | 5.0   |     |     |     |     |
| Flash Dont Walk (s)     |      | 11.0  |     |     | 10.0  |     |       | 7.0   |     |     |     |     |
| Pedestrian Calls (#/hr) |      | 0     |     |     | 0     |     |       | 0     |     |     |     |     |
| Act Effct Green (s)     | 23.9 | 9.9   |     |     | 35.1  |     | 21.0  | 41.0  |     |     |     |     |
| Actuated g/C Ratio      | 0.17 | 0.07  |     |     | 0.24  |     | 0.15  | 0.28  |     |     |     |     |
| v/c Ratio               | 0.18 | 0.13  |     |     | 0.16  |     | 0.36  | 0.35  |     |     |     |     |
| Control Delay           | 36.4 | 42.7  |     |     | 40.9  |     | 60.0  | 40.9  |     |     |     |     |
| Queue Delay             | 0.3  | 0.0   |     |     | 0.0   |     | 0.0   | 0.0   |     |     |     |     |
| Total Delay             | 36.7 | 42.7  |     |     | 40.9  |     | 60.0  | 40.9  |     |     |     |     |
| LOS                     | D    | D     |     |     | D     |     | E     | D     |     |     |     |     |
| Approach Delay          |      | 38.9  |     |     | 40.9  |     |       | 44.9  |     |     |     |     |
| Approach LOS            |      | D     |     |     | D     |     |       | D     |     |     |     |     |

Intersection Summary

|                                   |   |
|-----------------------------------|---|
| Area Type:                        | Other   |
| Cycle Length:                     | 144   |
| Actuated Cycle Length:            | 144   |
| Offset:                           | 114 (79%), Referenced to phase 2:NET and 6:, Start of Green |
| Natural Cycle:                    | 85  |
| Control Type:                     | Actuated-Coordinated  |
| Maximum v/c Ratio:                | 0.73  |
| Intersection Signal Delay:        | 43.3  |
| Intersection LOS:                 | D   |
| Intersection Capacity Utilization | 46.5%   |
| ICU Level of Service              | A   |
| Analysis Period (min)             | 15  |

Splits and Phases: 165: Northpark Dr. & Rock Springs



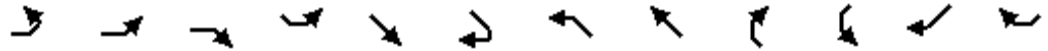
Grade Separation on Kingwood Drive  
 165: Northpark Dr. & Rock Springs

AM Peak Hour

| Lane Group              | ø1   | ø6    |
|-------------------------|------|-------|
| Detector Phase          |      |       |
| Switch Phase            |      |       |
| Minimum Initial (s)     | 5.0  | 4.0   |
| Minimum Split (s)       | 11.0 | 18.0  |
| Total Split (s)         | 15.0 | 62.0  |
| Total Split (%)         | 10%  | 43%   |
| Maximum Green (s)       | 9.0  | 56.0  |
| Yellow Time (s)         | 4.0  | 4.0   |
| All-Red Time (s)        | 2.0  | 2.0   |
| Lost Time Adjust (s)    |      |       |
| Total Lost Time (s)     |      |       |
| Lead/Lag                | Lag  |       |
| Lead-Lag Optimize?      | Yes  |       |
| Vehicle Extension (s)   | 3.0  | 3.0   |
| Recall Mode             | Max  | C-Max |
| Walk Time (s)           |      | 5.0   |
| Flash Dont Walk (s)     |      | 7.0   |
| Pedestrian Calls (#/hr) |      | 0     |
| Act Effect Green (s)    |      |       |
| Actuated g/C Ratio      |      |       |
| v/c Ratio               |      |       |
| Control Delay           |      |       |
| Queue Delay             |      |       |
| Total Delay             |      |       |
| LOS                     |      |       |
| Approach Delay          |      |       |
| Approach LOS            |      |       |
| Intersection Summary    |      |       |

Grade Separation on Kingwood Drive  
168: W Lake Houston Pkwy & Kings Crossing

AM Peak Hour



| Lane Group                 | EBL2 | EBL           | EBR   | SEL  | SET  | SER   | NWL  | NWT           | NWR   | SWL  | SWR           | SWR2  |
|----------------------------|------|---------------|-------|------|------|-------|------|---------------|-------|------|---------------|-------|
| Lane Configurations        |      | <del>57</del> |       |      |      |       |      | <del>47</del> |       |      | <del>77</del> |       |
| Volume (vph)               | 57   | 28            | 0     | 0    | 0    | 0     | 11   | 1070          | 155   | 0    | 290           | 33    |
| Ideal Flow (vphpl)         | 1900 | 1900          | 1900  | 1900 | 1900 | 1900  | 1900 | 1900          | 1900  | 1900 | 1900          | 1900  |
| Lane Util. Factor          | 0.95 | 0.97          | 1.00  | 1.00 | 1.00 | 1.00  | 0.95 | 0.95          | 0.95  | 1.00 | 0.88          | 1.00  |
| Frt                        |      |               |       |      |      |       |      | 0.981         |       |      | 0.850         |       |
| Flt Protected              |      | 0.950         |       |      |      |       |      |               |       |      |               |       |
| Satd. Flow (prot)          | 0    | 3433          | 0     | 0    | 0    | 0     | 0    | 3472          | 0     | 0    | 2787          | 0     |
| Flt Permitted              |      | 0.950         |       |      |      |       |      |               |       |      |               |       |
| Satd. Flow (perm)          | 0    | 3433          | 0     | 0    | 0    | 0     | 0    | 3472          | 0     | 0    | 2787          | 0     |
| Right Turn on Red          |      |               | Yes   |      |      | Yes   |      |               | Yes   |      |               | Yes   |
| Satd. Flow (RTOR)          |      |               |       |      |      |       |      | 17            |       |      | 152           |       |
| Link Speed (mph)           |      | 30            |       |      | 40   |       |      | 40            |       | 30   |               |       |
| Link Distance (ft)         |      | 148           |       |      | 829  |       |      | 954           |       | 813  |               |       |
| Travel Time (s)            |      | 3.4           |       |      | 14.1 |       |      | 16.3          |       | 18.5 |               |       |
| 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  |
| Growth Factor              | 113% | 113%          | 113%  | 113% | 113% | 113%  | 113% | 113%          | 113%  | 113% | 113%          | 113%  |
| Adj. Flow (vph)            | 70   | 34            | 0     | 0    | 0    | 0     | 14   | 1314          | 190   | 0    | 356           | 41    |
| Shared Lane Traffic (%)    |      |               |       |      |      |       |      |               |       |      |               |       |
| Lane Group Flow (vph)      | 0    | 104           | 0     | 0    | 0    | 0     | 0    | 1518          | 0     | 0    | 397           | 0     |
| Enter Blocked Intersection | No   | No            | No    | No   | No   | No    | No   | No            | No    | No   | No            | No    |
| Lane Alignment             | Left | Left          | Right | Left | Left | Right | Left | Left          | Right | Left | Right         | Right |
| Median Width(ft)           |      | 24            |       |      | 0    |       |      | 0             |       | 0    |               |       |
| Link Offset(ft)            |      | 0             |       |      | 0    |       |      | 0             |       | 0    |               |       |
| Crosswalk Width(ft)        |      | 16            |       |      | 16   |       |      | 16            |       | 16   |               |       |
| Two way Left Turn Lane     |      |               |       |      |      |       |      |               |       |      |               |       |
| Headway Factor             | 1.00 | 1.00          | 1.00  | 1.00 | 1.00 | 1.00  | 1.00 | 1.00          | 1.00  | 1.00 | 1.00          | 1.00  |
| Turning Speed (mph)        | 15   | 15            | 9     | 15   |      | 9     | 15   |               | 9     | 15   | 9             | 9     |
| Turn Type                  | Prot | NA            |       |      |      |       | Prot | NA            |       |      | custom        |       |
| Protected Phases           | 1 4  | 4             |       |      |      |       | 15   | 2             |       |      | 8             |       |
| Permitted Phases           |      |               |       |      |      |       |      |               |       |      |               |       |
| Minimum Split (s)          |      | 21.0          |       |      |      |       | 11.0 | 17.0          |       |      | 21.0          |       |
| Total Split (s)            |      | 21.0          |       |      |      |       | 11.0 | 80.0          |       |      | 21.0          |       |
| Total Split (%)            |      | 14.6%         |       |      |      |       | 7.6% | 55.6%         |       |      | 14.6%         |       |
| Maximum Green (s)          |      | 16.0          |       |      |      |       | 5.0  | 74.0          |       |      | 16.0          |       |
| Yellow Time (s)            |      | 4.0           |       |      |      |       | 4.0  | 4.0           |       |      | 4.0           |       |
| All-Red Time (s)           |      | 1.0           |       |      |      |       | 2.0  | 2.0           |       |      | 1.0           |       |
| Lost Time Adjust (s)       |      | 0.0           |       |      |      |       |      | 0.0           |       |      | 0.0           |       |
| Total Lost Time (s)        |      | 5.0           |       |      |      |       |      | 6.0           |       |      | 5.0           |       |
| Lead/Lag                   |      | Lead          |       |      |      |       |      | Lead          |       |      | Lag           |       |
| Lead-Lag Optimize?         |      | Yes           |       |      |      |       |      | Yes           |       |      | Yes           |       |
| Walk Time (s)              |      | 5.0           |       |      |      |       |      | 4.0           |       |      | 4.0           |       |
| Flash Dont Walk (s)        |      | 11.0          |       |      |      |       |      | 7.0           |       |      | 12.0          |       |
| Pedestrian Calls (#/hr)    |      | 0             |       |      |      |       |      | 0             |       |      | 0             |       |
| Act Effct Green (s)        |      | 27.0          |       |      |      |       |      | 79.0          |       |      | 16.0          |       |
| Actuated g/C Ratio         |      | 0.19          |       |      |      |       |      | 0.55          |       |      | 0.11          |       |
| v/c Ratio                  |      | 0.16          |       |      |      |       |      | 2.64dr        |       |      | 0.89          |       |
| Control Delay              |      | 45.7          |       |      |      |       |      | 273.0         |       |      | 61.7          |       |
| Queue Delay                |      | 3.6           |       |      |      |       |      | 0.2           |       |      | 26.5          |       |
| Total Delay                |      | 49.3          |       |      |      |       |      | 273.2         |       |      | 88.2          |       |



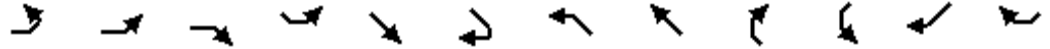
Grade Separation on Kingwood Drive  
 168: W Lake Houston Pkwy & Kings Crossing

AM Peak Hour

| Lane Group                 | ø1   | ø6   |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphpl)         |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 1    | 6    |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 11.0 | 17.0 |
| Total Split (s)            | 11.0 | 91.0 |
| Total Split (%)            | 8%   | 63%  |
| Maximum Green (s)          | 5.0  | 85.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lag  |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              |      | 4.0  |
| Flash Dont Walk (s)        |      | 7.0  |
| Pedestrian Calls (#/hr)    |      | 0    |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |
| Control Delay              |      |      |
| Queue Delay                |      |      |
| Total Delay                |      |      |

Grade Separation on Kingwood Drive  
 168: W Lake Houston Pkwy & Kings Crossing

AM Peak Hour



| Lane Group     | EBL2 | EBL  | EBR | SEL | SET | SER | NWL | NWT   | NWR | SWL | SWR | SWR2 |
|----------------|------|------|-----|-----|-----|-----|-----|-------|-----|-----|-----|------|
| LOS            |      | D    |     |     |     |     |     | F     |     |     |     | F    |
| Approach Delay |      | 49.3 |     |     |     |     |     | 273.2 |     |     |     |      |
| Approach LOS   |      | D    |     |     |     |     |     | F     |     |     |     |      |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 48 (33%), Referenced to phase 2:NWT and 6:, Start of Green     |
| Natural Cycle:                    | 145  |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 1.54   |
| Intersection Signal Delay:        | 225.3  |
| Intersection LOS:                 | F  |
| Intersection Capacity Utilization | 61.3%  |
| ICU Level of Service              | B  |
| Analysis Period (min)             | 15   |
| dr                                | Defacto Right Lane. Recode with 1 though lane as a right lane. |

Splits and Phases: 168: W Lake Houston Pkwy & Kings Crossing

|                     |                |                |          |
|---------------------|----------------|----------------|----------|
| #168<br>ø2 (R)      | #168#172<br>ø4 | #168#172<br>ø8 | #168#172 |
| 80 s                | 11 s           | 21 s           | 21 s     |
| #172<br>ø15, ø6 (R) |                |                | #168#172 |
| 91 s                |                |                | 11 s     |

Grade Separation on Kingwood Drive  
168: W Lake Houston Pkwy & Kings Crossing

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AM Peak Hour

| Lane Group           | ø1 | ø6 |
|----------------------|----|----|
| LOS                  |    |    |
| Approach Delay       |    |    |
| Approach LOS         |    |    |
| Intersection Summary |    |    |

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Grade Separation on Kingwood Drive  
171: Lake Houston Parkway

AM Peak Hour



| Lane Group                 | NBL  | NBT  | SBT  | SBR   | SEL  | SER   |
|----------------------------|------|------|------|-------|------|-------|
| Lane Configurations        |      | ↑↑   |      |       |      | ↑↑    |
| Volume (vph)               | 0    | 0    | 0    | 0     | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900 | 1900 | 1900  | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 0.95 | 1.00 | 1.00  | 1.00 | 0.88  |
| Frt                        |      |      |      |       |      |       |
| Flt Protected              |      |      |      |       |      |       |
| Satd. Flow (prot)          | 0    | 3539 | 0    | 0     | 0    | 3278  |
| Flt Permitted              |      |      |      |       |      |       |
| Satd. Flow (perm)          | 0    | 3539 | 0    | 0     | 0    | 3278  |
| Link Speed (mph)           |      | 40   | 40   |       | 40   |       |
| Link Distance (ft)         |      | 568  | 1308 |       | 1315 |       |
| Travel Time (s)            |      | 9.7  | 22.3 |       | 22.4 |       |
| Peak Hour Factor           | 0.92 | 0.92 | 0.92 | 0.92  | 0.92 | 0.92  |
| Growth Factor              | 113% | 113% | 113% | 113%  | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0    | 0    | 0     | 0    | 0     |
| Shared Lane Traffic (%)    |      |      |      |       |      |       |
| Lane Group Flow (vph)      | 0    | 0    | 0    | 0     | 0    | 0     |
| Enter Blocked Intersection | No   | No   | No   | No    | No   | No    |
| Lane Alignment             | Left | Left | Left | Right | Left | Right |
| Median Width(ft)           |      | 24   | 24   |       | 0    |       |
| Link Offset(ft)            |      | 0    | 0    |       | 0    |       |
| Crosswalk Width(ft)        |      | 16   | 16   |       | 16   |       |
| Two way Left Turn Lane     |      |      |      |       |      |       |
| Headway Factor             | 1.00 | 1.00 | 1.00 | 1.00  | 1.00 | 1.00  |
| Turning Speed (mph)        | 15   |      |      | 9     | 15   | 9     |
| Sign Control               |      | Free | Free |       | Free |       |

Intersection Summary

|                                   |                             |
|-----------------------------------|-----------------------------|
| Area Type:                        | Other                       |
| Control Type:                     | Unsignalized                |
| Intersection Capacity Utilization | 0.0% ICU Level of Service A |
| Analysis Period (min)             | 15                          |

Grade Separation on Kingwood Drive  
172: Kings Crossing & W Lake Houston Pkwy

AM Peak Hour



| Lane Group                 | WBL2 | WBL           | WBR   | SBL2 | SBL           | SBR   | NWL  | NWR   | NEL  | NER           | NER2  | ø2   |
|----------------------------|------|---------------|-------|------|---------------|-------|------|-------|------|---------------|-------|------|
| Lane Configurations        |      | <del>57</del> |       |      | <del>57</del> |       |      |       |      | <del>76</del> |       |      |
| Volume (vph)               | 284  | 31            | 0     | 27   | 1080          | 18    | 0    | 0     | 0    | 59            | 4     |      |
| Ideal Flow (vphpl)         | 1900 | 1900          | 1900  | 1900 | 1900          | 1900  | 1900 | 1900  | 1900 | 1900          | 1900  |      |
| Lane Util. Factor          | 0.95 | 0.97          | 1.00  | 0.95 | 0.97          | 0.95  | 1.00 | 1.00  | 1.00 | 0.88          | 1.00  |      |
| Frt                        |      |               |       |      | 0.998         |       |      |       |      | 0.850         |       |      |
| Flt Protected              |      | 0.950         |       |      | 0.953         |       |      |       |      |               |       |      |
| Satd. Flow (prot)          | 0    | 3433          | 0     | 0    | 3437          | 0     | 0    | 0     | 0    | 2787          | 0     |      |
| Flt Permitted              |      | 0.950         |       |      | 0.953         |       |      |       |      |               |       |      |
| Satd. Flow (perm)          | 0    | 3433          | 0     | 0    | 3437          | 0     | 0    | 0     | 0    | 2787          | 0     |      |
| Right Turn on Red          |      |               | Yes   |      |               | Yes   |      |       |      |               |       | Yes  |
| Satd. Flow (RTOR)          |      |               |       |      | 98            |       |      |       |      | 152           |       |      |
| Link Speed (mph)           |      | 30            |       |      | 40            |       | 40   |       | 30   |               |       |      |
| Link Distance (ft)         |      | 148           |       |      | 871           |       | 719  |       | 472  |               |       |      |
| Travel Time (s)            |      | 3.4           |       |      | 14.8          |       | 12.3 |       | 10.7 |               |       |      |
| 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  |      |
| Growth Factor              | 113% | 113%          | 113%  | 113% | 113%          | 113%  | 113% | 113%  | 113% | 113%          | 113%  |      |
| Adj. Flow (vph)            | 349  | 38            | 0     | 33   | 1327          | 22    | 0    | 0     | 0    | 72            | 5     |      |
| Shared Lane Traffic (%)    |      |               |       |      |               |       |      |       |      |               |       |      |
| Lane Group Flow (vph)      | 0    | 387           | 0     | 0    | 1382          | 0     | 0    | 0     | 0    | 77            | 0     |      |
| Enter Blocked Intersection | No   | No            | No    | No   | No            | No    | No   | No    | No   | No            | No    |      |
| Lane Alignment             | Left | Left          | Right | Left | Left          | Right | Left | Right | Left | Right         | Right |      |
| Median Width(ft)           |      | 24            |       |      | 24            |       | 0    |       | 0    |               |       |      |
| Link Offset(ft)            |      | 0             |       |      | 0             |       | 0    |       | 0    |               |       |      |
| Crosswalk Width(ft)        |      | 16            |       |      | 16            |       | 16   |       | 16   |               |       |      |
| Two way Left Turn Lane     |      |               |       |      |               |       |      |       |      |               |       |      |
| Headway Factor             | 1.00 | 1.00          | 1.00  | 1.00 | 1.00          | 1.00  | 1.00 | 1.00  | 1.00 | 1.00          | 1.00  |      |
| Turning Speed (mph)        | 15   | 15            | 9     | 15   | 15            | 9     | 15   | 9     | 15   | 9             | 9     |      |
| Turn Type                  | Prot | NA            |       | Prot | NA            |       |      |       |      | custom        |       |      |
| Protected Phases           | 15 8 | 8             |       | 1    | 6             |       |      |       |      | 4             |       | 2    |
| Permitted Phases           |      |               |       |      |               |       |      |       |      |               |       |      |
| Minimum Split (s)          |      | 21.0          |       | 11.0 | 17.0          |       |      |       |      | 21.0          |       | 17.0 |
| Total Split (s)            |      | 21.0          |       | 11.0 | 91.0          |       |      |       |      | 21.0          |       | 80.0 |
| Total Split (%)            |      | 14.6%         |       | 7.6% | 63.2%         |       |      |       |      | 14.6%         |       | 56%  |
| Maximum Green (s)          |      | 16.0          |       | 5.0  | 85.0          |       |      |       |      | 16.0          |       | 74.0 |
| Yellow Time (s)            |      | 4.0           |       | 4.0  | 4.0           |       |      |       |      | 4.0           |       | 4.0  |
| All-Red Time (s)           |      | 1.0           |       | 2.0  | 2.0           |       |      |       |      | 1.0           |       | 2.0  |
| Lost Time Adjust (s)       |      | 0.0           |       |      | 0.0           |       |      |       |      | 0.0           |       |      |
| Total Lost Time (s)        |      | 5.0           |       |      | 6.0           |       |      |       |      | 5.0           |       |      |
| Lead/Lag                   |      | Lag           |       | Lag  |               |       |      |       |      | Lead          |       | Lead |
| Lead-Lag Optimize?         |      | Yes           |       | Yes  |               |       |      |       |      | Yes           |       | Yes  |
| Walk Time (s)              |      | 4.0           |       |      | 4.0           |       |      |       |      | 5.0           |       | 4.0  |
| Flash Dont Walk (s)        |      | 12.0          |       |      | 7.0           |       |      |       |      | 11.0          |       | 7.0  |
| Pedestrian Calls (#/hr)    |      | 0             |       |      | 0             |       |      |       |      | 0             |       | 0    |
| Act Effct Green (s)        |      | 27.0          |       |      | 85.0          |       |      |       |      | 16.0          |       |      |
| Actuated g/C Ratio         |      | 0.19          |       |      | 0.59          |       |      |       |      | 0.11          |       |      |
| v/c Ratio                  |      | 1.05dl        |       |      | 1.29          |       |      |       |      | 0.17          |       |      |
| Control Delay              |      | 25.9          |       |      | 167.3         |       |      |       |      | 0.8           |       |      |
| Queue Delay                |      | 32.8          |       |      | 0.3           |       |      |       |      | 0.0           |       |      |
| Total Delay                |      | 58.7          |       |      | 167.5         |       |      |       |      | 0.9           |       |      |

Grade Separation on Kingwood Drive  
 172: Kings Crossing & W Lake Houston Pkwy

AM Peak Hour

|                            |      |
|----------------------------|------|
| Lane Group                 | ø15  |
| Lane Configurations        |      |
| Volume (vph)               |      |
| Ideal Flow (vphp)          |      |
| Lane Util. Factor          |      |
| Frt                        |      |
| Flt Protected              |      |
| Satd. Flow (prot)          |      |
| Flt Permitted              |      |
| Satd. Flow (perm)          |      |
| Right Turn on Red          |      |
| Satd. Flow (RTOR)          |      |
| Link Speed (mph)           |      |
| Link Distance (ft)         |      |
| Travel Time (s)            |      |
| Peak Hour Factor           |      |
| Growth Factor              |      |
| Adj. Flow (vph)            |      |
| Shared Lane Traffic (%)    |      |
| Lane Group Flow (vph)      |      |
| Enter Blocked Intersection |      |
| Lane Alignment             |      |
| Median Width(ft)           |      |
| Link Offset(ft)            |      |
| Crosswalk Width(ft)        |      |
| Two way Left Turn Lane     |      |
| Headway Factor             |      |
| Turning Speed (mph)        |      |
| Turn Type                  |      |
| Protected Phases           | 15   |
| Permitted Phases           |      |
| Minimum Split (s)          | 11.0 |
| Total Split (s)            | 11.0 |
| Total Split (%)            | 8%   |
| Maximum Green (s)          | 5.0  |
| Yellow Time (s)            | 4.0  |
| All-Red Time (s)           | 2.0  |
| Lost Time Adjust (s)       |      |
| Total Lost Time (s)        |      |
| Lead/Lag                   |      |
| Lead-Lag Optimize?         |      |
| Walk Time (s)              |      |
| Flash Dont Walk (s)        |      |
| Pedestrian Calls (#/hr)    |      |
| Act Effct Green (s)        |      |
| Actuated g/C Ratio         |      |
| v/c Ratio                  |      |
| Control Delay              |      |
| Queue Delay                |      |
| Total Delay                |      |

Grade Separation on Kingwood Drive  
 172: Kings Crossing & W Lake Houston Pkwy

AM Peak Hour

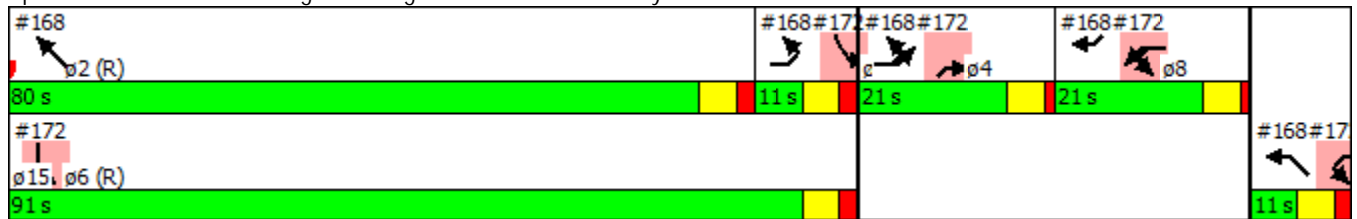


| Lane Group     | WBL2 | WBL  | WBR | SBL2 | SBL   | SBR | NWL | NWR | NEL | NER | NER2 | ø2 |
|----------------|------|------|-----|------|-------|-----|-----|-----|-----|-----|------|----|
| LOS            |      | E    |     |      | F     |     |     |     |     |     | A    |    |
| Approach Delay |      | 58.7 |     |      | 167.5 |     |     |     |     |     |      |    |
| Approach LOS   |      | E    |     |      | F     |     |     |     |     |     |      |    |

Intersection Summary

|   |  |
|---|--|
| Area Type:  | Other  |
| Cycle Length:   | 144  |
| Actuated Cycle Length:  | 144  |
| Offset:   | 48 (33%), Referenced to phase 2:NWT and 6:, Start of Green |
| Natural Cycle:  | 145  |
| Control Type:   | Pretimed   |
| Maximum v/c Ratio:  | 1.54   |
| Intersection Signal Delay:                                      | 137.8  |
| Intersection LOS:   | F  |
| Intersection Capacity Utilization                               | 63.3%  |
| ICU Level of Service  | B  |
| Analysis Period (min)   | 15   |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |  |

Splits and Phases: 172: Kings Crossing & W Lake Houston Pkwy



|                      |     |
|----------------------|-----|
| Lane Group           | ø15 |
| LOS                  |     |
| Approach Delay       |     |
| Approach LOS         |     |
| Intersection Summary |     |

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Grade Separation on Kingwood Drive  
174:

AM Peak Hour

|                                   | ↑            | ↖     | ↙    | ↓                      | ↘    | ↗     |
|-----------------------------------|--------------|-------|------|------------------------|------|-------|
| Lane Group                        | NBT          | NBR   | SBL  | SBT                    | NWL  | NWR   |
| Lane Configurations               |              |       |      | ↑↑                     |      | ↗↗    |
| Volume (vph)                      | 0            | 0     | 0    | 0                      | 0    | 0     |
| Ideal Flow (vphpl)                | 1900         | 1900  | 1900 | 1900                   | 1900 | 1900  |
| Lane Util. Factor                 | 1.00         | 1.00  | 1.00 | 0.95                   | 1.00 | 0.88  |
| Frt                               |              |       |      |                        |      |       |
| Flt Protected                     |              |       |      |                        |      |       |
| Satd. Flow (prot)                 | 0            | 0     | 0    | 3539                   | 0    | 3278  |
| Flt Permitted                     |              |       |      |                        |      |       |
| Satd. Flow (perm)                 | 0            | 0     | 0    | 3539                   | 0    | 3278  |
| Link Speed (mph)                  | 40           |       |      | 40                     | 30   |       |
| Link Distance (ft)                | 672          |       |      | 450                    | 712  |       |
| Travel Time (s)                   | 11.5         |       |      | 7.7                    | 16.2 |       |
| Peak Hour Factor                  | 0.92         | 0.92  | 0.92 | 0.92                   | 0.92 | 0.92  |
| Growth Factor                     | 113%         | 113%  | 113% | 113%                   | 113% | 113%  |
| Adj. Flow (vph)                   | 0            | 0     | 0    | 0                      | 0    | 0     |
| Shared Lane Traffic (%)           |              |       |      |                        |      |       |
| Lane Group Flow (vph)             | 0            | 0     | 0    | 0                      | 0    | 0     |
| Enter Blocked Intersection        | No           | No    | No   | No                     | No   | No    |
| Lane Alignment                    | Left         | Right | Left | Left                   | Left | Right |
| Median Width(ft)                  | 24           |       |      | 24                     | 0    |       |
| Link Offset(ft)                   | 0            |       |      | 0                      | 0    |       |
| Crosswalk Width(ft)               | 16           |       |      | 16                     | 16   |       |
| Two way Left Turn Lane            |              |       |      |                        |      |       |
| Headway Factor                    | 1.00         | 1.00  | 1.00 | 1.00                   | 1.00 | 1.00  |
| Turning Speed (mph)               |              | 9     | 15   |                        | 15   | 9     |
| Sign Control                      | Free         |       |      | Free                   | Free |       |
| <b>Intersection Summary</b>       |              |       |      |                        |      |       |
| Area Type:                        | Other        |       |      |                        |      |       |
| Control Type:                     | Unsignalized |       |      |                        |      |       |
| Intersection Capacity Utilization | 0.0%         |       |      | ICU Level of Service A |      |       |
| Analysis Period (min)             | 15           |       |      |                        |      |       |

Grade Separation on Kingwood Drive  
175: Lake Houston Parkway & Rustic Woods

AM Peak Hour



| Lane Group                 | EBL  | EBT   | EBR   | WBL  | WBT   | WBR   | NBL  | NBT  | NBR   | SBL   | SBT   | SBR   |
|----------------------------|------|-------|-------|------|-------|-------|------|------|-------|-------|-------|-------|
| Lane Configurations        |      | ↑↑    |       |      | ↑↑    |       |      |      |       | ↑     | ↑↑    |       |
| Volume (vph)               | 0    | 42    | 134   | 113  | 92    | 0     | 0    | 0    | 0     | 15    | 1093  | 12    |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900 | 1900  | 1900  | 1900  | 1900  |
| Storage Length (ft)        | 0    |       | 0     | 0    |       | 0     | 0    |      | 0     | 150   |       | 0     |
| Storage Lanes              | 0    |       | 0     | 0    |       | 0     | 0    |      | 0     | 1     |       | 0     |
| Taper Length (ft)          | 25   |       |       | 25   |       |       | 25   |      |       | 25    |       |       |
| Lane Util. Factor          | 1.00 | 0.95  | 0.95  | 0.95 | 0.95  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 0.95  | 0.95  |
| Frt                        |      | 0.886 |       |      |       |       |      |      |       |       | 0.998 |       |
| Flt Protected              |      |       |       |      | 0.973 |       |      |      |       | 0.950 |       |       |
| Satd. Flow (prot)          | 0    | 3136  | 0     | 0    | 3444  | 0     | 0    | 0    | 0     | 1770  | 3532  | 0     |
| Flt Permitted              |      |       |       |      | 0.973 |       |      |      |       | 0.950 |       |       |
| Satd. Flow (perm)          | 0    | 3136  | 0     | 0    | 3444  | 0     | 0    | 0    | 0     | 1770  | 3532  | 0     |
| Right Turn on Red          |      |       | Yes   |      |       | Yes   |      |      | Yes   |       |       | Yes   |
| Satd. Flow (RTOR)          |      | 165   |       |      |       |       |      |      |       |       | 1     |       |
| Link Speed (mph)           |      | 30    |       |      | 30    |       |      | 40   |       |       | 40    |       |
| Link Distance (ft)         |      | 576   |       |      | 82    |       |      | 1315 |       |       | 563   |       |
| Travel Time (s)            |      | 13.1  |       |      | 1.9   |       |      | 22.4 |       |       | 9.6   |       |
| 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  |
| Growth Factor              | 113% | 113%  | 113%  | 113% | 113%  | 113%  | 113% | 113% | 113%  | 113%  | 113%  | 113%  |
| Adj. Flow (vph)            | 0    | 52    | 165   | 139  | 113   | 0     | 0    | 0    | 0     | 18    | 1342  | 15    |
| Shared Lane Traffic (%)    |      |       |       |      |       |       |      |      |       |       |       |       |
| Lane Group Flow (vph)      | 0    | 217   | 0     | 0    | 252   | 0     | 0    | 0    | 0     | 18    | 1357  | 0     |
| Enter Blocked Intersection | No   | No    | No    | No   | No    | No    | No   | No   | No    | No    | No    | No    |
| Lane Alignment             | Left | Left  | Right | Left | Left  | Right | Left | Left | Right | Left  | Left  | Right |
| Median Width(ft)           |      | 0     |       |      | 0     |       |      | 12   |       |       | 12    |       |
| Link Offset(ft)            |      | 0     |       |      | 0     |       |      | 0    |       |       | 0     |       |
| Crosswalk Width(ft)        |      | 16    |       |      | 16    |       |      | 16   |       |       | 16    |       |
| Two way Left Turn Lane     |      |       |       |      |       |       |      |      |       |       |       |       |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00 | 1.00  | 1.00  | 1.00 | 1.00 | 1.00  | 1.00  | 1.00  | 1.00  |
| Turning Speed (mph)        | 15   |       | 9     | 15   |       | 9     | 15   |      | 9     | 15    |       | 9     |
| Turn Type                  |      | NA    |       | Prot | NA    |       |      |      |       | Prot  | NA    |       |
| Protected Phases           |      | 4     |       | 15   | 8     |       |      |      |       | 1     | 6     |       |
| Permitted Phases           |      |       |       |      |       |       |      |      |       |       |       |       |
| Minimum Split (s)          |      | 10.0  |       |      | 18.0  |       |      |      |       | 11.0  | 10.0  |       |
| Total Split (s)            |      | 17.0  |       |      | 21.0  |       |      |      |       | 13.0  | 84.0  |       |
| Total Split (%)            |      | 11.8% |       |      | 14.6% |       |      |      |       | 9.0%  | 58.3% |       |
| Maximum Green (s)          |      | 12.0  |       |      | 16.0  |       |      |      |       | 7.0   | 78.0  |       |
| Yellow Time (s)            |      | 4.0   |       |      | 4.0   |       |      |      |       | 4.0   | 4.0   |       |
| All-Red Time (s)           |      | 1.0   |       |      | 1.0   |       |      |      |       | 2.0   | 2.0   |       |
| Lost Time Adjust (s)       |      | 0.0   |       |      | 0.0   |       |      |      |       | 0.0   | 0.0   |       |
| Total Lost Time (s)        |      | 5.0   |       |      | 5.0   |       |      |      |       | 6.0   | 6.0   |       |
| Lead/Lag                   |      | Lead  |       |      | Lag   |       |      |      |       | Lag   |       |       |
| Lead-Lag Optimize?         |      | Yes   |       |      | Yes   |       |      |      |       | Yes   |       |       |
| Walk Time (s)              |      |       |       |      | 6.0   |       |      |      |       |       |       |       |
| Flash Dont Walk (s)        |      |       |       |      | 7.0   |       |      |      |       |       |       |       |
| Pedestrian Calls (#/hr)    |      |       |       |      | 0     |       |      |      |       |       |       |       |
| Act Effct Green (s)        |      | 12.0  |       |      | 38.0  |       |      |      |       | 7.0   | 78.0  |       |
| Actuated g/C Ratio         |      | 0.08  |       |      | 0.26  |       |      |      |       | 0.05  | 0.54  |       |
| v/c Ratio                  |      | 0.53  |       |      | 0.28  |       |      |      |       | 0.21  | 0.71  |       |

Grade Separation on Kingwood Drive  
 175: Lake Houston Parkway & Rustic Woods

AM Peak Hour

| Lane Group                 | ø2   | ø15  |
|----------------------------|------|------|
| Lane Configurations        |      |      |
| Volume (vph)               |      |      |
| Ideal Flow (vphpl)         |      |      |
| Storage Length (ft)        |      |      |
| Storage Lanes              |      |      |
| Taper Length (ft)          |      |      |
| Lane Util. Factor          |      |      |
| Frt                        |      |      |
| Flt Protected              |      |      |
| Satd. Flow (prot)          |      |      |
| Flt Permitted              |      |      |
| Satd. Flow (perm)          |      |      |
| Right Turn on Red          |      |      |
| Satd. Flow (RTOR)          |      |      |
| Link Speed (mph)           |      |      |
| Link Distance (ft)         |      |      |
| Travel Time (s)            |      |      |
| Peak Hour Factor           |      |      |
| Growth Factor              |      |      |
| Adj. Flow (vph)            |      |      |
| Shared Lane Traffic (%)    |      |      |
| Lane Group Flow (vph)      |      |      |
| Enter Blocked Intersection |      |      |
| Lane Alignment             |      |      |
| Median Width(ft)           |      |      |
| Link Offset(ft)            |      |      |
| Crosswalk Width(ft)        |      |      |
| Two way Left Turn Lane     |      |      |
| Headway Factor             |      |      |
| Turning Speed (mph)        |      |      |
| Turn Type                  |      |      |
| Protected Phases           | 2    | 15   |
| Permitted Phases           |      |      |
| Minimum Split (s)          | 20.0 | 11.0 |
| Total Split (s)            | 71.0 | 22.0 |
| Total Split (%)            | 49%  | 15%  |
| Maximum Green (s)          | 65.0 | 16.0 |
| Yellow Time (s)            | 4.0  | 4.0  |
| All-Red Time (s)           | 2.0  | 2.0  |
| Lost Time Adjust (s)       |      |      |
| Total Lost Time (s)        |      |      |
| Lead/Lag                   | Lead |      |
| Lead-Lag Optimize?         | Yes  |      |
| Walk Time (s)              | 4.0  |      |
| Flash Dont Walk (s)        | 10.0 |      |
| Pedestrian Calls (#/hr)    | 0    |      |
| Act Effct Green (s)        |      |      |
| Actuated g/C Ratio         |      |      |
| v/c Ratio                  |      |      |

Grade Separation on Kingwood Drive  
 175: Lake Houston Parkway & Rustic Woods

AM Peak Hour



| Lane Group     | EBL | EBT  | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL  | SBT  | SBR |
|----------------|-----|------|-----|-----|-----|-----|-----|-----|-----|------|------|-----|
| Control Delay  |     | 22.2 |     |     | 3.2 |     |     |     |     | 71.8 | 27.1 |     |
| Queue Delay    |     | 0.0  |     |     | 0.0 |     |     |     |     | 0.0  | 0.0  |     |
| Total Delay    |     | 22.2 |     |     | 3.2 |     |     |     |     | 71.8 | 27.1 |     |
| LOS            |     | C    |     |     | A   |     |     |     |     | E    | C    |     |
| Approach Delay |     | 22.2 |     |     | 3.2 |     |     |     |     |      | 27.7 |     |
| Approach LOS   |     | C    |     |     | A   |     |     |     |     |      | C    |     |

Intersection Summary

|                                   |  |
|-----------------------------------|--|
| Area Type:                        | Other  |
| Cycle Length:                     | 144  |
| Actuated Cycle Length:            | 144  |
| Offset:                           | 90 (63%), Referenced to phase 2:NBT and 6:, Start of Green |
| Natural Cycle:                    | 80   |
| Control Type:                     | Pretimed   |
| Maximum v/c Ratio:                | 0.71   |
| Intersection Signal Delay:        | 23.7   |
| Intersection LOS:                 | C  |
| Intersection Capacity Utilization | 61.2%  |
| ICU Level of Service              | B  |
| Analysis Period (min)             | 15   |

Splits and Phases: 175: Lake Houston Parkway & Rustic Woods

|                          |                          |                          |                           |  |
|--------------------------|--------------------------|--------------------------|---------------------------|--|
| #111<br>↑ ϕ2 (R)<br>71 s | #111#175<br>↑ ϕ1<br>13 s | #111#175<br>→ ϕ4<br>17 s | #111#175<br>← ϕ8<br>21 s  |  |
| #175<br>↓ ϕ6 (R)<br>84 s |                          |                          | #111#175<br>↑ ϕ15<br>22 s |  |

Grade Separation on Kingwood Drive  
175: Lake Houston Parkway & Rustic Woods

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AM Peak Hour

| Lane Group           | ø2 | ø15 |
|----------------------|----|-----|
| Control Delay        |    |     |
| Queue Delay          |    |     |
| Total Delay          |    |     |
| LOS                  |    |     |
| Approach Delay       |    |     |
| Approach LOS         |    |     |
| Intersection Summary |    |     |

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Grade Separation on Kingwood Drive  
185: Hamblen

AM Peak Hour



| Lane Group                 | EBT   | EBR   | WBL  | WBT  | NBL  | NBR   |
|----------------------------|-------|-------|------|------|------|-------|
| Lane Configurations        |       |       |      |      |      |       |
| Volume (vph)               | 121   | 4     | 305  | 217  | 0    | 0     |
| Ideal Flow (vphpl)         | 1900  | 1900  | 1900 | 1900 | 1900 | 1900  |
| Storage Length (ft)        |       | 0     | 150  |      | 0    | 0     |
| Storage Lanes              |       | 0     | 1    |      | 1    | 0     |
| Taper Length (ft)          |       |       | 25   |      | 25   |       |
| Lane Util. Factor          | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Frt                        | 0.996 |       |      |      |      |       |
| Flt Protected              | 0.950 |       |      |      |      |       |
| Satd. Flow (prot)          | 1855  | 0     | 1770 | 1863 | 1863 | 0     |
| Flt Permitted              | 0.950 |       |      |      |      |       |
| Satd. Flow (perm)          | 1855  | 0     | 1770 | 1863 | 1863 | 0     |
| Link Speed (mph)           | 35    |       | 35   |      | 30   |       |
| Link Distance (ft)         | 123   |       | 358  |      | 309  |       |
| Travel Time (s)            | 2.4   |       | 7.0  |      | 7.0  |       |
| Peak Hour Factor           | 0.92  | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113%  | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 149   | 5     | 375  | 267  | 0    | 0     |
| Shared Lane Traffic (%)    |       |       |      |      |      |       |
| Lane Group Flow (vph)      | 154   | 0     | 375  | 267  | 0    | 0     |
| Enter Blocked Intersection | No    | No    | No   | No   | No   | No    |
| Lane Alignment             | Left  | Right | Left | Left | Left | Right |
| Median Width(ft)           | 12    |       | 12   |      | 12   |       |
| Link Offset(ft)            | 0     |       | 0    |      | 0    |       |
| Crosswalk Width(ft)        | 16    |       | 16   |      | 16   |       |
| Two way Left Turn Lane     |       |       |      |      |      |       |
| Headway Factor             | 1.00  | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9     |       | 15   |      | 15   |       |
| Sign Control               | Free  |       | Free |      | Stop |       |

Intersection Summary

|                                   |              |
|-----------------------------------|--------------|
| Area Type:                        | Other        |
| Control Type:                     | Unsignalized |
| Intersection Capacity Utilization | 33.2%        |
| ICU Level of Service              | A            |
| Analysis Period (min)             | 15           |

Grade Separation on Kingwood Drive  
188: Sorters & Northpark Dr.

AM Peak Hour



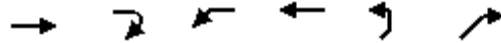
| Lane Group                 | WBL  | WBR   | NBT   | NBR   | SBL  | SBT  |
|----------------------------|------|-------|-------|-------|------|------|
| Lane Configurations        |      |       | ↔     |       |      | ↕    |
| Volume (vph)               | 0    | 0     | 71    | 15    | 0    | 341  |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900  | 1900  | 1900 | 1900 |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Frt                        |      |       | 0.977 |       |      |      |
| Flt Protected              |      |       |       |       |      |      |
| Satd. Flow (prot)          | 0    | 0     | 1820  | 0     | 0    | 1863 |
| Flt Permitted              |      |       |       |       |      |      |
| Satd. Flow (perm)          | 0    | 0     | 1820  | 0     | 0    | 1863 |
| Link Speed (mph)           | 40   |       | 35    |       |      | 30   |
| Link Distance (ft)         | 1492 |       | 3855  |       |      | 70   |
| Travel Time (s)            | 25.4 |       | 75.1  |       |      | 1.6  |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92  | 0.92  | 0.92 | 0.92 |
| Growth Factor              | 113% | 113%  | 113%  | 113%  | 113% | 113% |
| Adj. Flow (vph)            | 0    | 0     | 87    | 18    | 0    | 419  |
| Shared Lane Traffic (%)    |      |       |       |       |      |      |
| Lane Group Flow (vph)      | 0    | 0     | 105   | 0     | 0    | 419  |
| Enter Blocked Intersection | No   | No    | No    | No    | No   | No   |
| Lane Alignment             | Left | Right | Left  | Right | Left | Left |
| Median Width(ft)           | 0    |       | 0     |       |      | 0    |
| Link Offset(ft)            | 0    |       | 0     |       |      | 0    |
| Crosswalk Width(ft)        | 16   |       | 16    |       |      | 16   |
| Two way Left Turn Lane     |      |       |       |       |      |      |
| Headway Factor             | 1.00 | 1.00  | 1.00  | 1.00  | 1.00 | 1.00 |
| Turning Speed (mph)        | 15   | 9     |       | 9     | 15   |      |
| Sign Control               | Stop |       | Free  |       |      | Free |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 23.6%                  |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |

Grade Separation on Kingwood Drive  
189: Northpark Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NEL  | NER   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        |      |       |      | ↑↑   |      | ↑↑    |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.95 | 1.00 | 0.88  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 3539 | 0    | 3278  |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 3539 | 0    | 3278  |
| Link Speed (mph)           | 40   |       |      | 40   | 30   |       |
| Link Distance (ft)         | 1488 |       |      | 3907 | 1492 |       |
| Travel Time (s)            | 25.4 |       |      | 66.6 | 33.9 |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 0    |       |      | 0    | 0    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9    |       | 15   | 15   |      | 9     |
| Sign Control               | Free |       |      | Free | Free |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 0.0%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |



Grade Separation on Kingwood Drive  
190: Kingwood Dr.

AM Peak Hour



| Lane Group                 | EBT  | EBR   | WBL  | WBT  | NBL  | NBR   |
|----------------------------|------|-------|------|------|------|-------|
| Lane Configurations        |      |       |      | ↑↑   |      |       |
| Volume (vph)               | 0    | 0     | 0    | 0    | 0    | 0     |
| Ideal Flow (vphpl)         | 1900 | 1900  | 1900 | 1900 | 1900 | 1900  |
| Lane Util. Factor          | 1.00 | 1.00  | 1.00 | 0.95 | 1.00 | 1.00  |
| Frt                        |      |       |      |      |      |       |
| Flt Protected              |      |       |      |      |      |       |
| Satd. Flow (prot)          | 0    | 0     | 0    | 3539 | 0    | 0     |
| Flt Permitted              |      |       |      |      |      |       |
| Satd. Flow (perm)          | 0    | 0     | 0    | 3539 | 0    | 0     |
| Link Speed (mph)           | 40   |       |      | 40   | 30   |       |
| Link Distance (ft)         | 392  |       |      | 804  | 60   |       |
| Travel Time (s)            | 6.7  |       |      | 13.7 | 1.4  |       |
| Peak Hour Factor           | 0.92 | 0.92  | 0.92 | 0.92 | 0.92 | 0.92  |
| Growth Factor              | 113% | 113%  | 113% | 113% | 113% | 113%  |
| Adj. Flow (vph)            | 0    | 0     | 0    | 0    | 0    | 0     |
| Shared Lane Traffic (%)    |      |       |      |      |      |       |
| Lane Group Flow (vph)      | 0    | 0     | 0    | 0    | 0    | 0     |
| Enter Blocked Intersection | No   | No    | No   | No   | No   | No    |
| Lane Alignment             | Left | Right | Left | Left | Left | Right |
| Median Width(ft)           | 40   |       |      | 40   | 0    |       |
| Link Offset(ft)            | 0    |       |      | 0    | 0    |       |
| Crosswalk Width(ft)        | 16   |       |      | 16   | 16   |       |
| Two way Left Turn Lane     |      |       |      |      |      |       |
| Headway Factor             | 1.00 | 1.00  | 1.00 | 1.00 | 1.00 | 1.00  |
| Turning Speed (mph)        | 9    |       | 15   |      | 9    |       |
| Sign Control               | Stop |       |      | Free | Stop |       |

Intersection Summary

|                                   |                        |
|-----------------------------------|------------------------|
| Area Type:                        | Other                  |
| Control Type:                     | Unsignalized           |
| Intersection Capacity Utilization | 6.7%                   |
| Analysis Period (min)             | 15                     |
|                                   | ICU Level of Service A |