UDOT Signal Performance Metrics: New and Upcoming Metrics

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Split Monitor

Foothill Drive Sunnyside SIG#7219 Phase 5
Tuesday, September 01, 2015 12:00 AM - Tuesday, September 01, 2015 11:59 PM

Phase Duration (Seconds)

Time (Hour of Day)
**Purdue Split Failure**

SIG#7219 – Foothill & Sunnyside
Phase 5
11:00 a.m. to 1:00 p.m.

**Split Fail Rate:** 16% (9/57 cycles)

**Max Consecutive Failures:** 3
Purdue Split Failure – 24-hr format
Purdue Split Failure – 24-hr format
Purdue Split Failure – 24-hr format
Purdue Split Failure – 24-hr format

Foothill Drive Sunnyside Signal 7219 Phase: 5 Southbound
Tuesday, September 01, 2015 12:00 AM - Wednesday, September 02, 2015 12:00 AM

Plan 10

Occupancy Ratio (%)

Time (Hour of Day)

- GOR - MaxOut
- GOR - GapOut
- GOR - ForceOff
- GOR - Unknown
- ROR - MaxOut
- ROR - GapOut
- ROR - ForceOff
- ROR - Unknown
Purdue Split Failure – 24-hr format
Detection for Purdue Split Failure
New Metrics

Metric Type

- Approach Delay
- Approach Volume
- Arrivals On Red
- Purdue Coordination Diagram
- Purdue Split Failure
- Pedestrian Delay
- Transitions
- Purdue Phase Termination
- Speed
- Split Monitor
- Turning Movement Counts
- Yellow and Red Actuations
- Preemption Details
- Transit Signal Priority Details
Pedestrian Delay

EVENT CODES
45 – Ped Call on
21 – Ped Walk on
Pedestrian Delay

Phase 2
Coordinated phase

Phase 4
Side street

EVENT CODES
45 – Ped Call on
21 – Ped Walk on
Transition

State St & Orem Center St - SIG#6311
12/9/2015 0:00 to 12/9/2015 23:59

Pattern Change

Add  Subtract  Dwell

EVENT CODES
150, Param 1 – In Step
150, Param 2 – Transition Add
150, Param 3 – Transition Subtract
150, Param 4 – Transition Dwell
Transition

State St & Orem Center St - SIG#6311
12/9/2015 0:00 to 12/9/2015 23:59

Number Transitions | 108 | Total Duration | 48:19 | Average Duration | 00:27 |
--- | --- | --- | --- | --- | --- |
Type 2 - Add | 1 | Type 2 - Add | 01:04 | Type 2 - Add | 01:04 |
Type 3 - Subtract | 107 | Type 3 - Subtract | 14:15 | Type 3 - Subtract | 00:27 |
Type 4 - Dwell | 0 | Type 4 - Dwell | 00:00 | Type 4 - Dwell | 00:00 |

EVENT CODES
150, Param 1 – In Step
150, Param 2 – Transition Add
150, Param 3 – Transition Subtract
150, Param 4 – Transition Dwell
Preemption Requests & Services

EVENT CODES
- 102 – Preempt Call On
- 105 – Preempt Entry Started
Preemption Details (Rail)

Preemptor #1 Event Details
Geneva Pkwy & 400 S - SIG#6312
12/9/2015 0:00 to 12/9/2015 23:59

EVENT CODES
102 – Preempt Call On
103 – Gate Down
104 – Preempt Call Off
105 – Preempt Entry Started
106 – Begin Track Clearance
111 – Begin Exit Interval
150, Param 1 – In Step
# Preemption Details (Rail)

## Preemption Event Details

**Geneva Pkwy & 400 S - SIG#6312**

**Number of Preempt Requests**: 63
- Preempt 1: 63

**Number of Preempt Services**: 63
- Preempt 1: 63

**Number of Preempt Max Outs**: 0
- Preempt 1: 0

**Dwell Time**
- Preempt 1: Minimum 1:13, Maximum 7:03, Average 1:50, Total 1:56:06

**Request Duration**
- Preempt: Minimum 1:12, Maximum 7:03, Average 1:42, Total 1:47:17

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### EVENT CODES
- 102 – Preempt Call On
- 103 – Gate Down
- 104 – Preempt Call Off
- 105 – Preempt Entry Started
- 106 – Begin Track Clearance
- 111 – Begin Exit Interval
- 150, Param 1 – In Step

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**Preemption Call Active**

- In Step
- End Dwell
- Time to Service
- Entry Delay
- Call End
- Call Max Out
- Track Clear
- Gate Down
Preemption Requests & Services

EVENT CODES
102 – Preempt Call On
105 – Preempt Entry Started
Preemption Details (EMV)

**Preemtior #3 Event Details**
Geneva Pkwy & 400 S - SIG#6312
12/9/2015 0:00 to 12/9/2015 23:59

**Preemtior #4 Event Details**
Geneva Pkwy & 400 S - SIG#6312
12/9/2015 0:00 to 12/9/2015 23:59

**Preemtior #5 Details**
Geneva Pkwy & 400 S
12/9/2015 0:00 to 23:59

**EVENT CODES**
- 102 – Preempt Call On
- 104 – Preempt Call Off
- 105 – Preempt Entry Started
- 107 – Begin Dwell
- 110 - Preempt Max Out
- 111 – Begin Exit Interval
Transit Signal Priority Requests & Services

Priority Request
3500 S & 3450 W - SIG#7284
12/9/2015 0:00 to 12/9/2015 23:59

EVENT CODES
112 – TSP Check In
113 – Early Green
114 – Extend Green
Transit Signal Priority – Request Duration

Transit Signal Priority Request Duration
3500 S & 3450 W - SIG#7284
12/9/2015 0:00 to 12/9/2015 23:59

EVENT CODES
112 – TSP Check In
115 – TSP Check Out
Transit Signal Priority – Request Duration

Event Codes
112 – TSP Check In
115 – TSP Check Out

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<th>Time of Day</th>
<th>00:00</th>
<th>00:30</th>
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Transit Signal Priority Request Duration

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<thead>
<tr>
<th>Number of Priority Requests</th>
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<tbody>
<tr>
<td>TSP 1</td>
<td>62</td>
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<td>Priority 1</td>
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<tr>
<td>Early Green</td>
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<table>
<thead>
<tr>
<th>Priority Request Duration</th>
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<tbody>
<tr>
<td>TSP 1 Minimum</td>
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<tr>
<td>TSP 1 Maximum</td>
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<tr>
<td>TSP 1 Average</td>
<td>00:45</td>
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<tr>
<td>TSP 2 Minimum</td>
<td>00:00</td>
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<td>TSP 2 Maximum</td>
<td>01:59</td>
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<tr>
<td>TSP 2 Average</td>
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Transit Signal Priority – Request Duration

Priority Service
3500 S & 3450 W - SIG#7284
12/9/2015 0:00 to 12/9/2015 23:59

EVENT CODES
112 – TSP Check In
115 – TSP Check Out

Number of Priority Requests

- TSP #1: 62
- TSP #2: 64

Number of Priority Services

- Priority 1: 106
- Early Green: 84
- Extend Green: 22

Priority Request Duration

- TSP #1:
  - Minimum: 00:06
  - Maximum: 01:59
  - Average: 00:45
- TSP #2:
  - Minimum: 00:00
  - Maximum: 01:59
  - Average: 00:23

Time of Day

00:00 01:00 02:00

TSP Plan Number

TSP #1

TSP #2

Early Green

Green Extend
Case Study: Impact of Fully Actuated Coordination on Arrivals on Green

US-89 & 200 N – SIG#5382
11/11/2015

US-89 & 200 N – SIG#5382
1/13/2016

Split Extension

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<tr>
<td>20</td>
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Arrivals on Green SB / NB

**Before**

Split Ext = 0

AM: 82 / 93
MD: 88 / 91
PM: 93 / 94

**After**

Split Ext = 25 / 20 / 25

AM: 82 / 90
MD: 87 / 91
PM: 92 / 93