ATSPMs Pilot Project

Project Location

Key Features:

- 2 Corridor
- 25 Signals
  - 21 Signals – State Road
  - 4 Signals – County Roads
Traffop ATSPM – System Requirements

- Traffic Signals connected to the Central Server
- Advanced Transportation Controller (ATC)
- Stop Bar and Advance Vehicle Detection (Preferably lane by lane) for full Range of Purdue SPMs

85% CONNECTED
40% ATC
40% ADVANCE DETECTION

225 TRAFFIC SIGNALS
Traffop – System Architecture
Recommended Detector Placement

**Approach Counts/Speed**
- Zones can be by lane or combined
- Zones should be located past queues, ideally 5s behind stop bar (~350’ to 500’)
- Use existing dilemma zone detection, if possible

**Presence at Stop Bar**
- Zones can be combined within a lane group
- Zone length may be more relevant at higher speeds

**Stop Bar Counts**
- Zones should be located near stop bar
- Exit zones can be configured

Source: UDOT
Detector Configuration

Advance Detector Configuration

- Lane By lane Preferred
- Set them on Presence not on Pulse
- Accuracy over Distance

Source: Traffop
When configuring Stop Bar Detector Configuration, it is preferable to do it lane by lane, but it is not necessary. The length of the zone will impact the split failure calculation. Longer detector zones are more prone to reporting split failures.

Source: Traffop
Detector Configuration

- Lane By Lane necessary
- Set them on Presence or Pulse
- Observe and fine tune

Source: Traffop
## Detector Configuration

<table>
<thead>
<tr>
<th>IP Address</th>
<th>Latitude &amp; Longitude</th>
<th>Ø1EBL(32)</th>
<th>Ø2WBT(33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44)</th>
<th>Ø3SBL(45, 46)</th>
<th>Ø4NBT(47, 48, 49, 50, 51)</th>
<th>Ø5WBL(52, 53, 54, 55)</th>
<th>Ø6EBT(56, 57, 58, 59, 60)</th>
<th>Ø7NBL(61, 62)</th>
<th>Ø8SBT(63, 64)</th>
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<tbody>
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<td>Ø4NBT(47, 48, 49, 50, 51)</td>
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</table>
Detector Configuration
ATSPMs - Application
Federal Grant Recipients:

Accelerated Innovation Deployment (AID) Demonstration: $1 Million
**Project Background**

**Intersection** | **Distance to next intersection (Feet)** | **Intersection** | **Distance to next intersection (Feet)**
---|---|---|---
SR 70 @ US 41 | 2660 | SR 70 @ Division of Forestry (Emergency Signal) | 2530
SR 70 @ 5th St W | 4000 | SR 70 @ Natalie Way | 1880
SR 70 @ 9th St E | 2650 | SR 70 @ Caruso Rd. | 5325
SR 70 @ 15th St E | 3405 | SR 70 @ Tara Blvd | 2365
SR 70 @ 22nd St Ct. E | 1895 | SR 70 @ I-75 SB W-R | 1545
SR 70 @ US 301 | 1300 | SR 70 @ I-75 NB E-R | 2140
SR 70 @ 30th St E | 1475 | SR 70 @ 87th St E | 1445
SR 70 @ 33rd. St E | 1850 | SR 70 @ Braden Run Fire Station (Emergency Signal) | 445
SR 70 @ 37th St E | 2300 | SR 70 @ Braden Run | 3615
SR 70 @ 39th St E | 1210 | SR 70 @ Forest Run E/River Club Blvd | 2345
SR 70 @ Lockwood Ridge Rd | 1540 | SR 70 @ Lakewood Ranch Rd | -

**Key Features:**
- 9.2 Mile Corridor
- 6-Lane Divided Principal Arterial
- AADT 58,000
- Designated Evacuation Route
- 20 Intersections – Limited Access Thoroughfare (US 301) and a Major Interchange w/I-75
Typical Weekday Cycle Lengths: TOD (Coordinated) vs. Synchro Green (Adaptive)

- **TOD Cycle Lengths**
- **Synchro Green (SG) Cycle Lengths**

**AM Peak Period:**
- TOD: 11%
- SG: 0%

**Mid-Day Period:**
- TOD: 12%
- SG: 12%

**PM Peak Period:**
- TOD: 12%
- SG: 12%

**Time-of-Day (TOD):**
- Synchro Green (SG)
- Time-of-Day (TOD)
Typical Weekday Coordinated Phase Splits: TOD (Coordinated) vs. Synchro Green

TOD Green Times

SG Cycle Green Times

AM Peak Period

Mid-Day Period

PM Peak Period

Synchro Green (SG) vs. Time-of-Day (TOD)
Operations – Performance

2019 (APR) VS. 2018 (APR): (Tue, Wed, Thu) 7 AM – 9 AM (EB/WB)

Smoothed (15 min) for Route 1160: SR 70 – 5th St E to Tara Blvd (EB)

from 04–01–2019 to 04–30–2019, 07:00 – 09:00 daily

Smoothed (15 min) for Route 1162: SR 70 – Tara Blvd to 5th St E (WB)

from 04–01–2019 to 04–30–2019, 07:00 – 09:00 daily
Operations – Performance

2019 (APR) VS. 2018 (APR): (Tue, Wed, Thu) 4 PM – 6 PM (EB/WB)

Smoothed (15 min) for Route 1160: SR 70 – 5th St E to Tara Blvd (EB)
from 04-01-2019 to 04-30-2019, 16:00 – 18:00 daily

Smoothed (15 min) for Route 1162: SR 70 – Tara Blvd to 5th St E (WB)
from 04-01-2019 to 04-30-2019, 16:00 – 18:00 daily
Operations – Incident Response

• Incident: May 14th, 2019
• Time: 7:40 AM
• Location: East of SR 70 @ Caruso Road
• Impact: 2 out of 3 WB lanes closed
Operations - Incident Response

Typical Tuesday AM

Day of Incident - Tuesday AM
Operations – Incident Response

Incident Timeline:

1. **bluetooth_alarms...** BlueTOAD Alarm: Pair #MC-72: SR 70 - Caruso Road to Tara Boulevard (EB)
   
   Tue 5/14/2019 7:42 AM

   Please note,
   The following Pair’s speed has fallen below your set alarm threshold of 50%:
   Pair #MC-72: SR 70 - Caruso Road to Tara Boulevard (EB) The speed is currently 17.1 and historically 35.6. To acknowledge the alarm and

2. **RTMC Email**
   CRASH: SR70 east of Caruso Rd.
   CRASH: SR70 east of Caruso Rd., Manatee County. 2 westbound lanes are blocked. RTMC staff is observing westbound traffic backup on SR70 from
   Tue 5/14/2019 7:47 AM

3. **RTMC Email**
   CRASH CLEARED: SR70 east of Caruso Rd.
   CRASH CLEARED: SR70 east of Caruso Rd., Manatee County.
   From: Robert Else
   Sent: Tuesday, May 14, 2019 7:47 AM
   Tue 5/14/2019 8:29 AM
# Operations – Incident Response

## Table 1

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<th>Pat</th>
<th>Dbase</th>
<th>Last Status Message</th>
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<td>3059</td>
<td>SR 70 @ Caruso (3059)</td>
<td>7</td>
<td>1</td>
<td>08:08 (19) Controller time outside tolerance</td>
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Operations – Incident Response

Smoothed (5 min) for Pair 73: SR 70 – Tara Boulevard to Caruso Road (WB)

from 05–14–2019 to 05–14–2019, 07:00 - 09:30 daily

Begin Incident

INCIDENT- WB Lane Blockage

Lane Blockage Cleared

Queue Cleared

Back to Normal Operations

Smoothed travel times

Comparison Index #1 : Historical Avg of Tue: From 2019–05–07 to 2019–05–28
WAZE CCP – Road Closures
WAZE CCP – Road Closures

Google Maps
WAZE CCP – Road Closures

Google Maps
WAZE CCP – Travel Time

Traffic is at a decent pace. You may encounter slight delays.

There are no irregular traffic events at the moment.

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
<th>Travel Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 301 - University Parkway to 44th Avenue E</td>
<td>Light traffic as usual</td>
<td>8 min 36 mph, 10 min 15 mph</td>
</tr>
<tr>
<td>I-75 N (University to US 301)</td>
<td>3 min longer than usual</td>
<td>14 min 47 mph, 10 min 34 mph</td>
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<tr>
<td>SR 70 - 5th St W to Caesars Road</td>
<td>Free flow as usual</td>
<td>9 min, 32 mph</td>
</tr>
<tr>
<td>Upper Manatee River Rd, Fort Hamer Rd</td>
<td>Free flow as usual</td>
<td>9 min, 30 mph</td>
</tr>
<tr>
<td>I-75 S (US 301 to University)</td>
<td>Free flow as usual</td>
<td>8 min, 75 mph, 8 min, 75 mph</td>
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</table>
Upcoming Projects – ATMS Expansion
Upcoming Projects – Adaptive Signal Control System & CV/EVP

44th AVENUE EAST: 10 Intersections
Upcoming Projects – Adaptive Signal Control System & CV/EVP

FORT HAMER ROAD: 6 Intersections
Thank You