Utah Department of Transportation
Traffic Management Division

November 2015

Monthly Report

2060 South 2760 West Salt Lake City, Utah 84104 801-887-3710 www.udottraffic.utah.gov

Mission of the Traffic Management Division

- To Support UDOT and the Department of Public Safety to Achieve Zero Fatalities.
- To Help Provide Reliable and Efficient Travel Throughout Utah.
- To Provide Useful and Timely Real-time Traffic Information.
- To Work Together with Other Government Agencies to Serve the Public.
- To Provide Excellent Customer Service.

Field Devices Summary

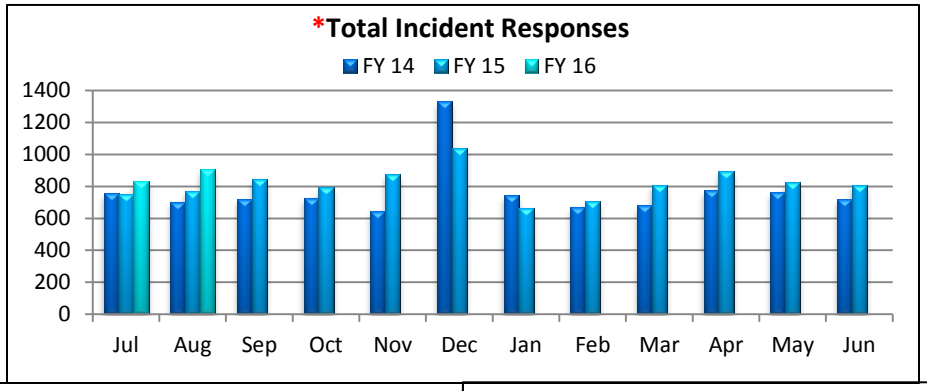
Freeway PTZ Cameras	374	Freeway VMS	97
Arterial PTZ Cameras	449	Surface Street VMS	49
RWIS & Contracted Weather Cameras	210	Portable TOC VMS	7
Viewable Detection Cameras	66	Legacy Trucks Prohibited VMS	21
Total Cameras	1099	Variable Speed Limit VMS	15
HAR (27 permanent/5 portable)	32	Chain-Up Signs	19
RWIS	98	Total VMS	208
Ramp Meters	63	TMS	544
Express Lane Plazas	63	Traffic Signals	2117

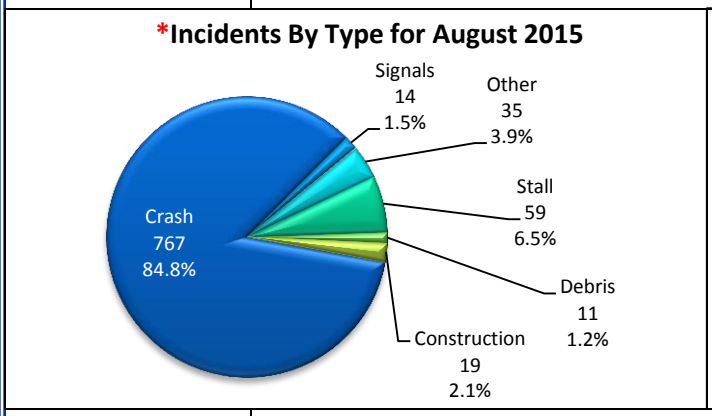
Operations Summary

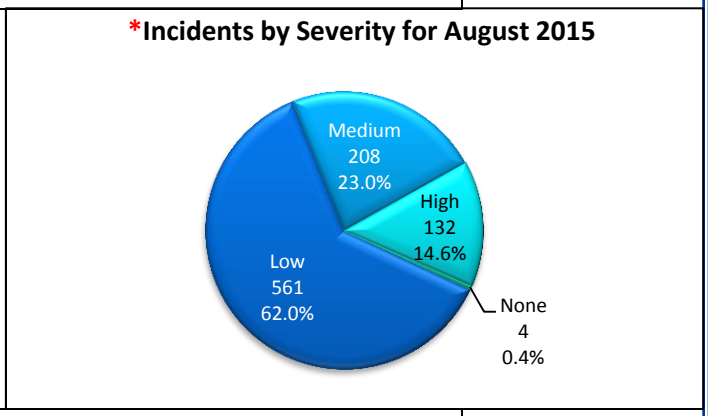
VMS Messages Displayed	84,041	IMT Assists	1793
Signal Timing Work Orders	37	Website Visitor Sessions	241,911
Signal Maintenance Work Orders	148	511 Calls	32,330
All New Work Orders	412	Weather Desk Calls	836
Incident Responses by the TOC	905	Ask CommuterLink Questions	30
Incident Duration Average Minutes	58	UDOT Traffic Followers and Re-tweets	362,729

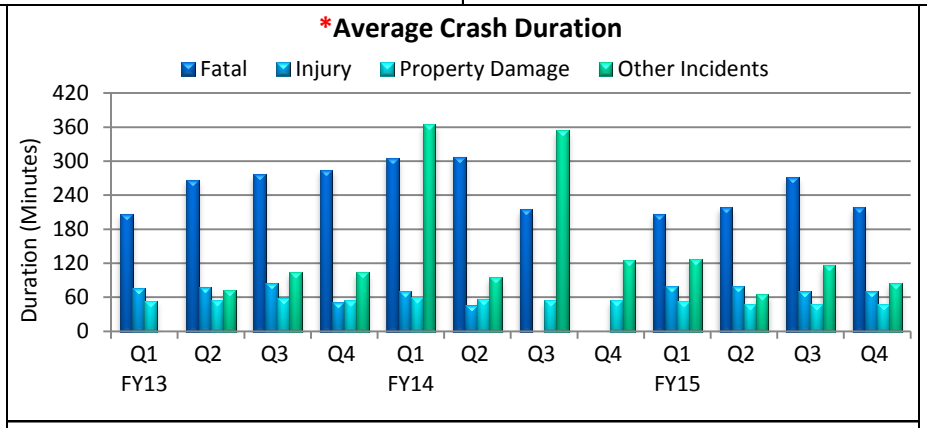
*Safety – *Note: Due to a server change. No safety data has been captured since August*

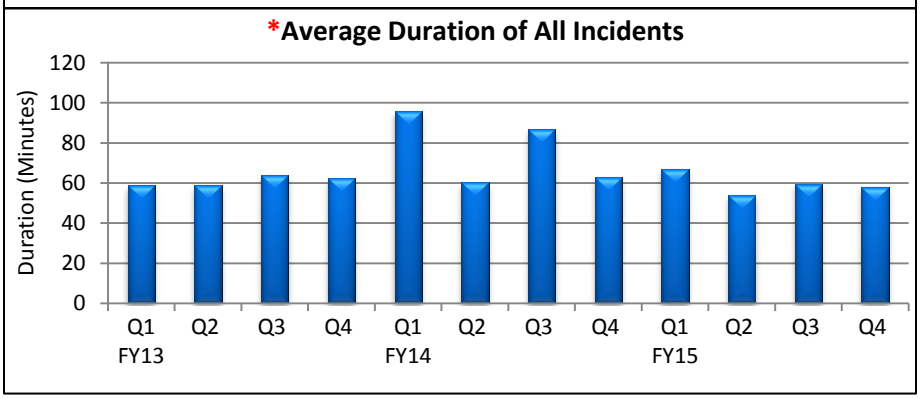
An incident response occurs each time an incident is recorded in the ATMS system. These can be of several types, including crash, construction, debris, stall, congestion, or other. Crashes are separated into three subcategories: property damage, personal injury, and fatal. Each time an incident is created, information is sent to the 511 system, the website, and to the public through email alerts. An incident remains active until it has been completely cleared from the roadway.



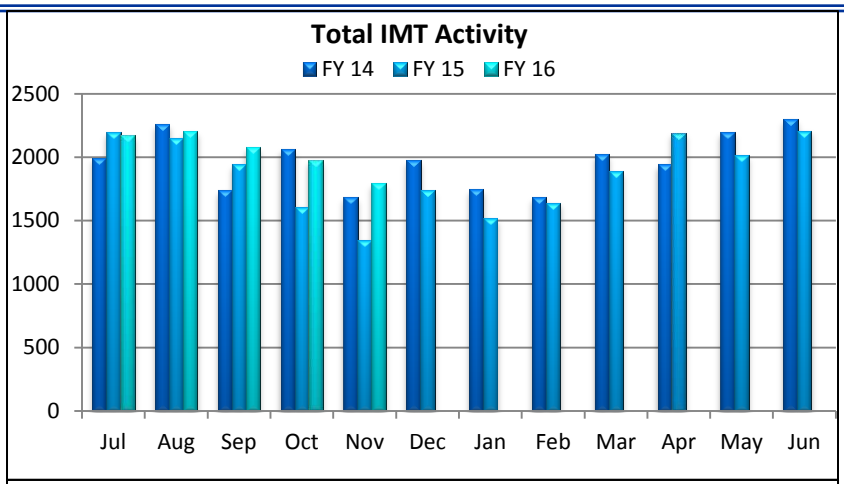


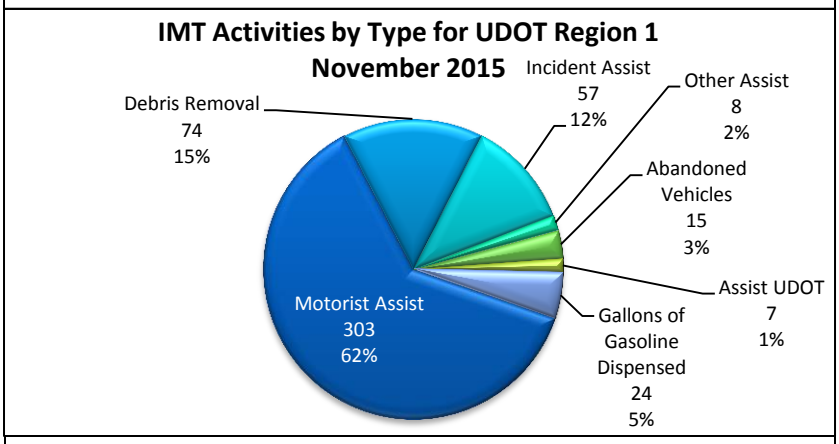


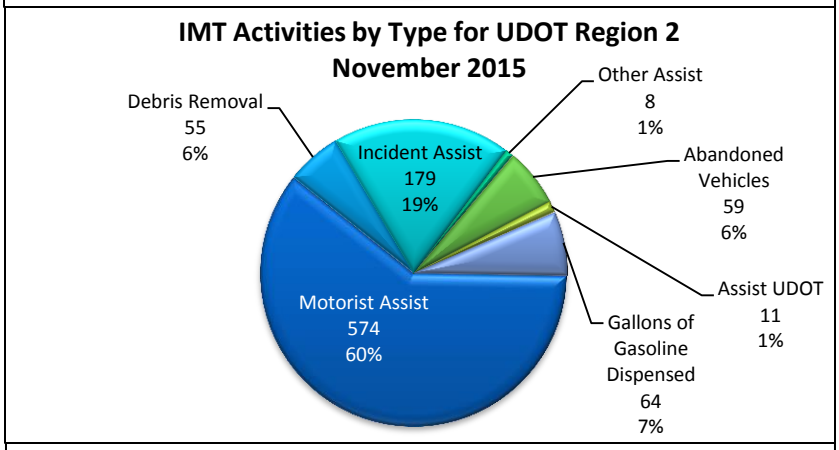


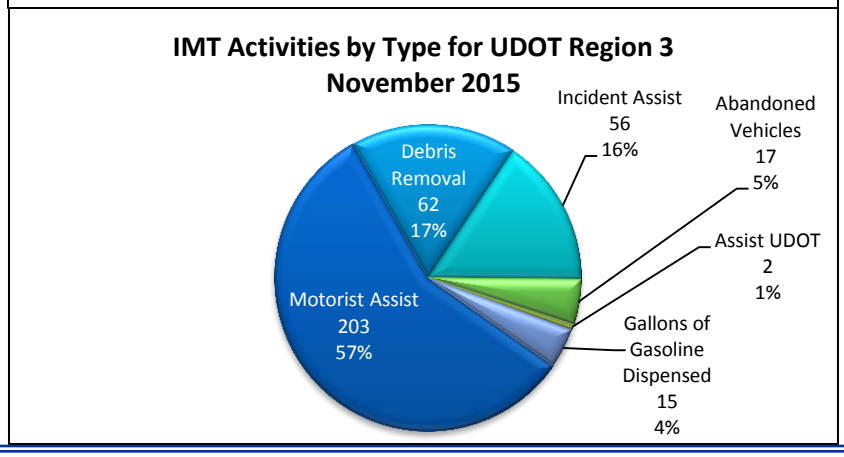


Incident Management Team (IMT) Activities









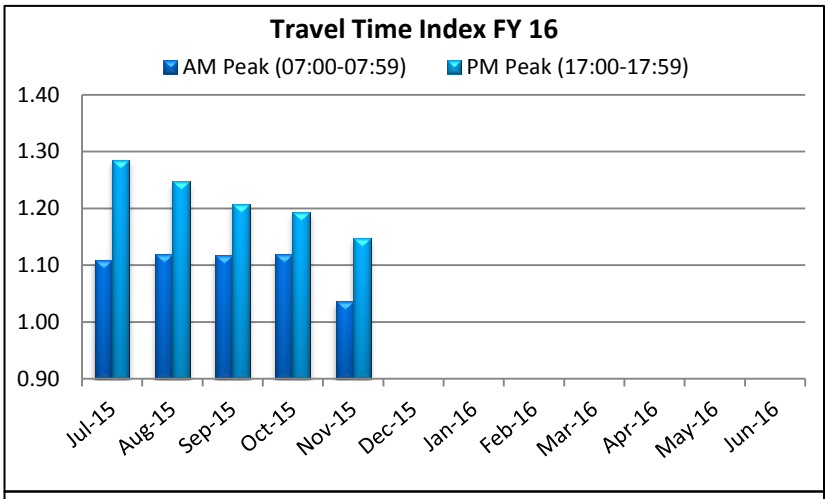
Freeway Traffic Level of Service

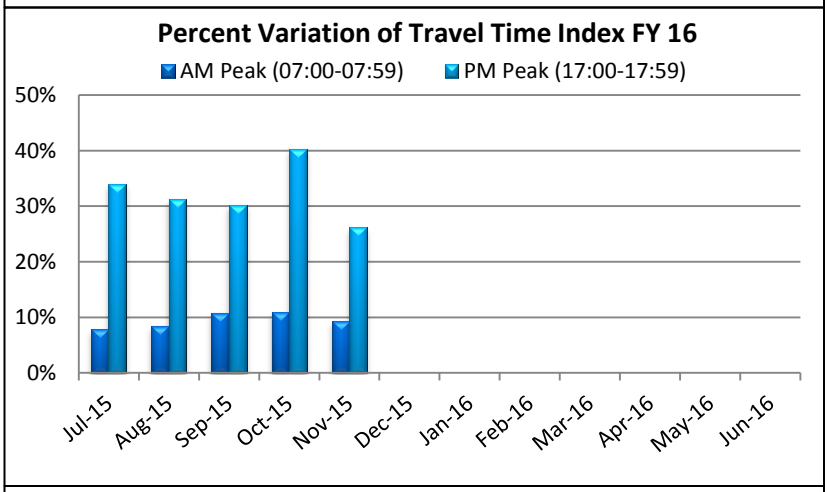
Freeway flow measures are taken from the Traffic Monitoring Stations (TMS) located throughout the Wasatch Front. As more TMS sites are installed throughout the state, they will be included in these performance measures.

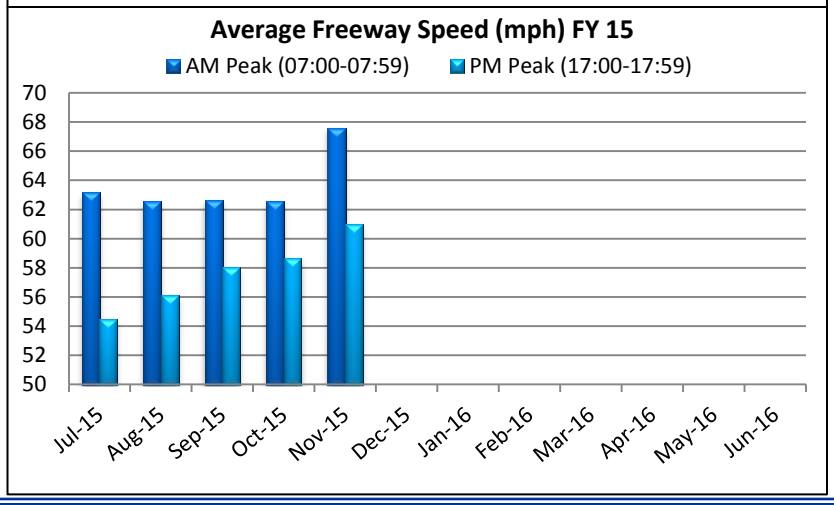
Travel Time Index: This measure of mobility is based on freeway speeds and is weighted by segment lengths and by the traffic volume. A value of 1.0 represents free-flow speeds. A value of 1.12 indicates that the average vehicle trip takes 12% longer than if that were the only vehicle on the freeway.

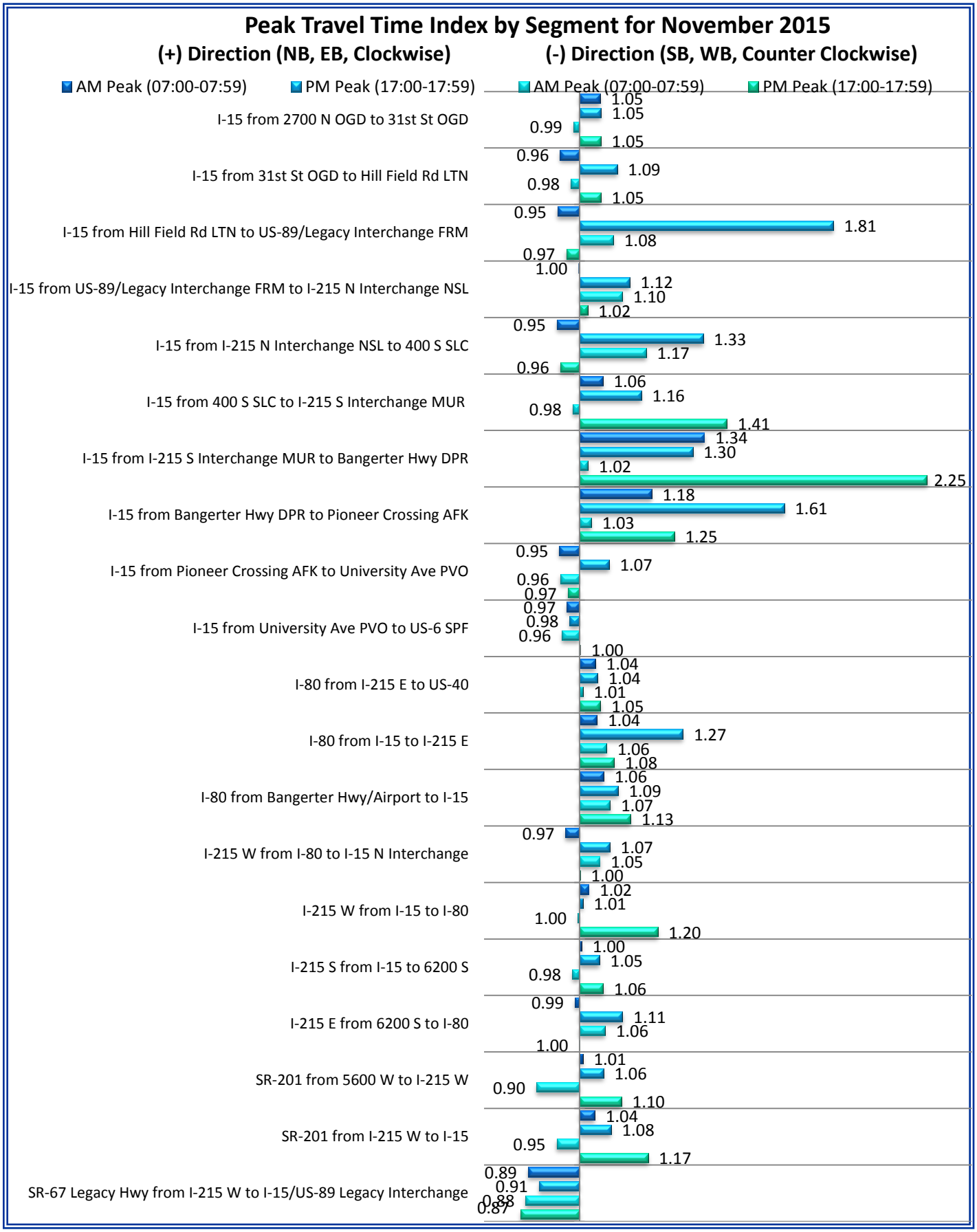
Percent Variation of Travel Time Index: The percent variation in the Travel Time Index is a measure of how much the Travel Time Index changes from day-to-day.

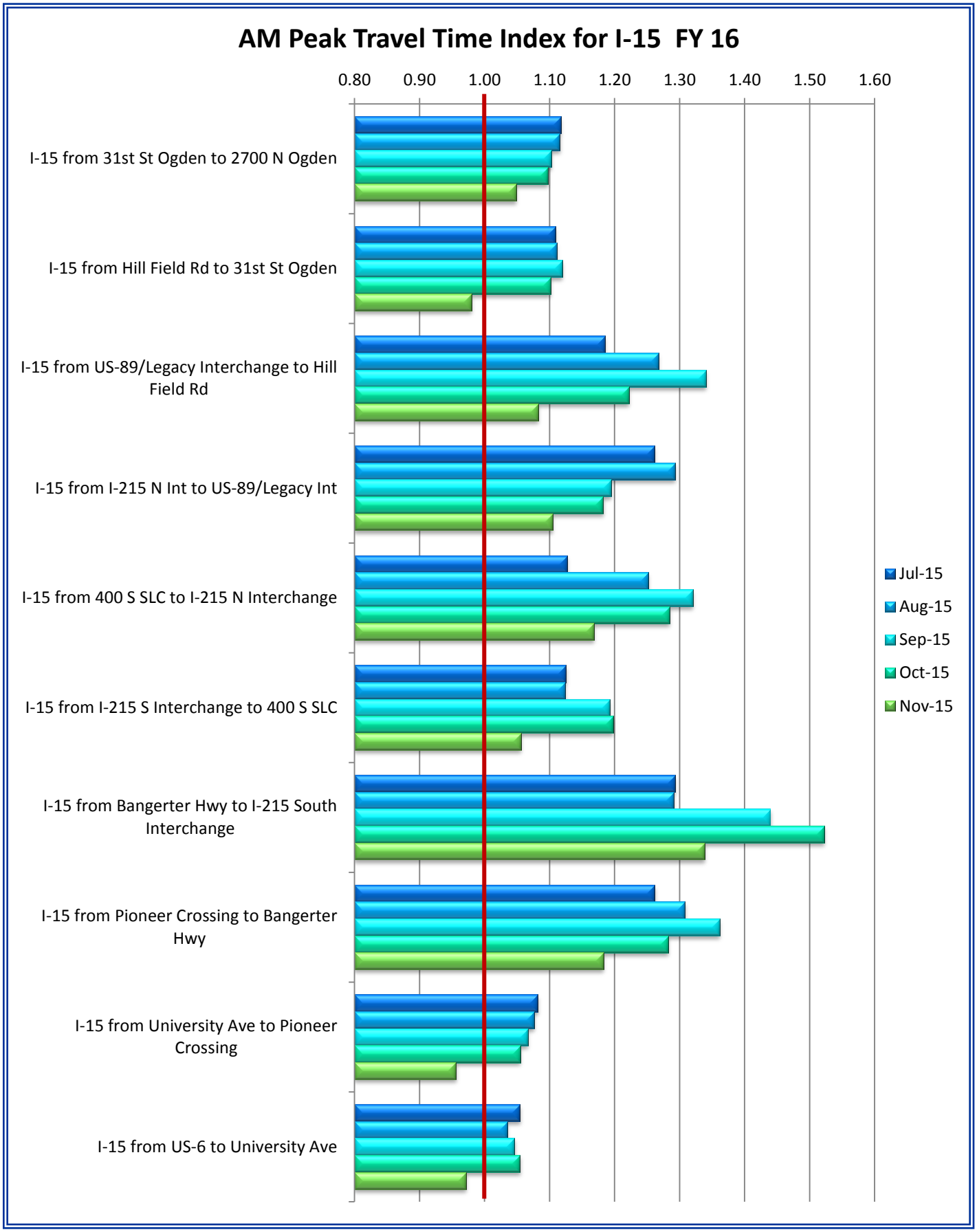
Average Freeway Speed: The freeway speed is weighted by volume.

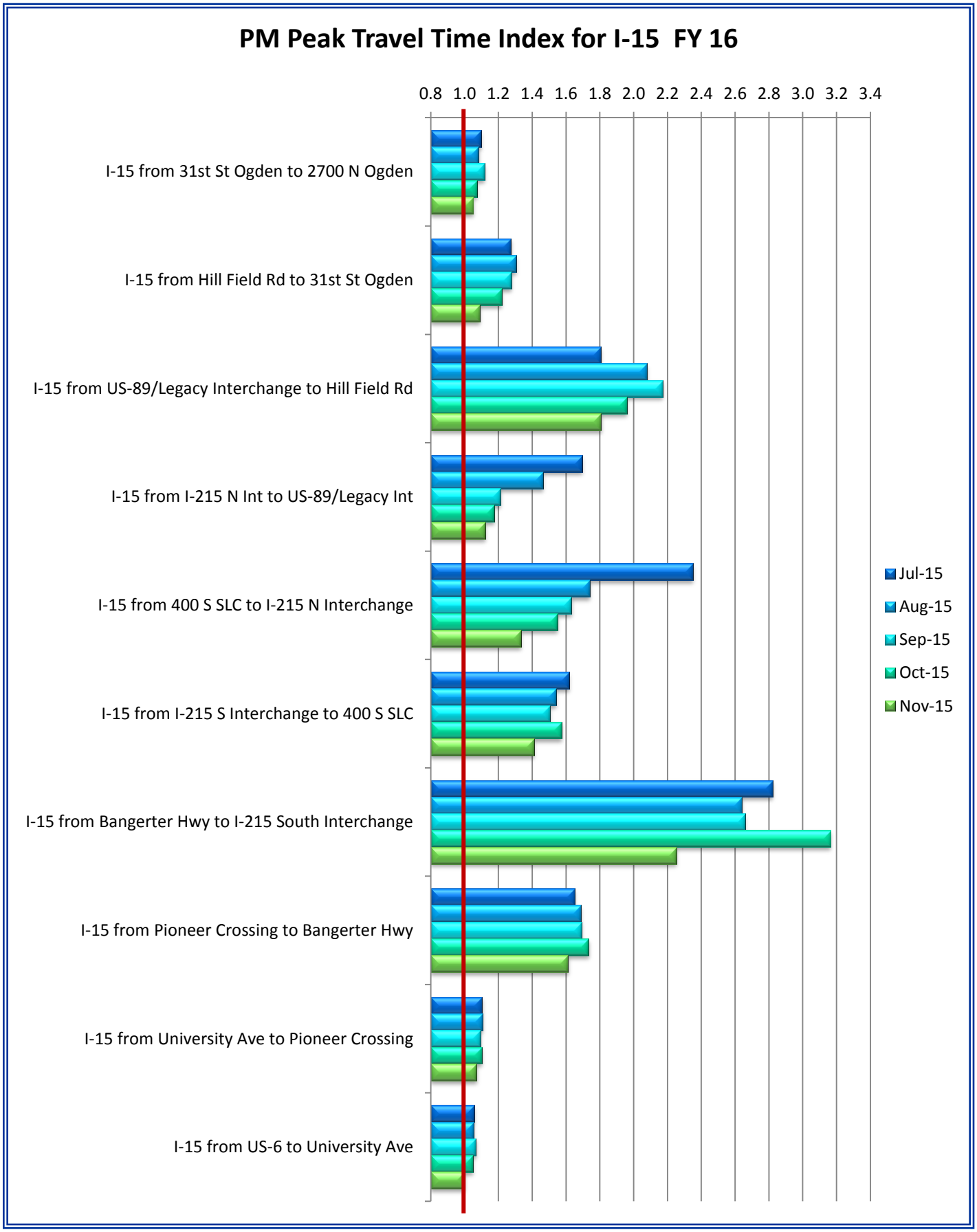


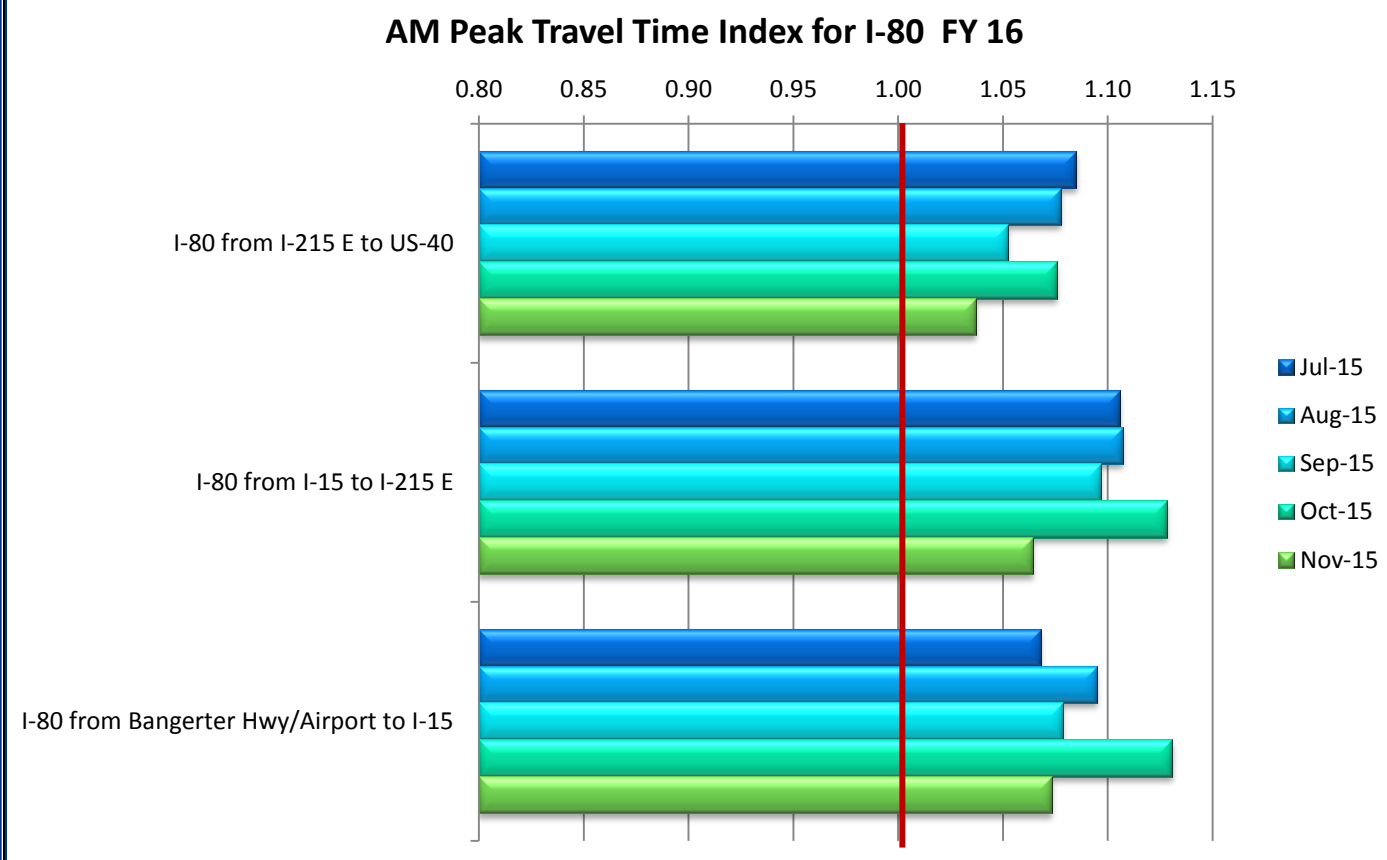


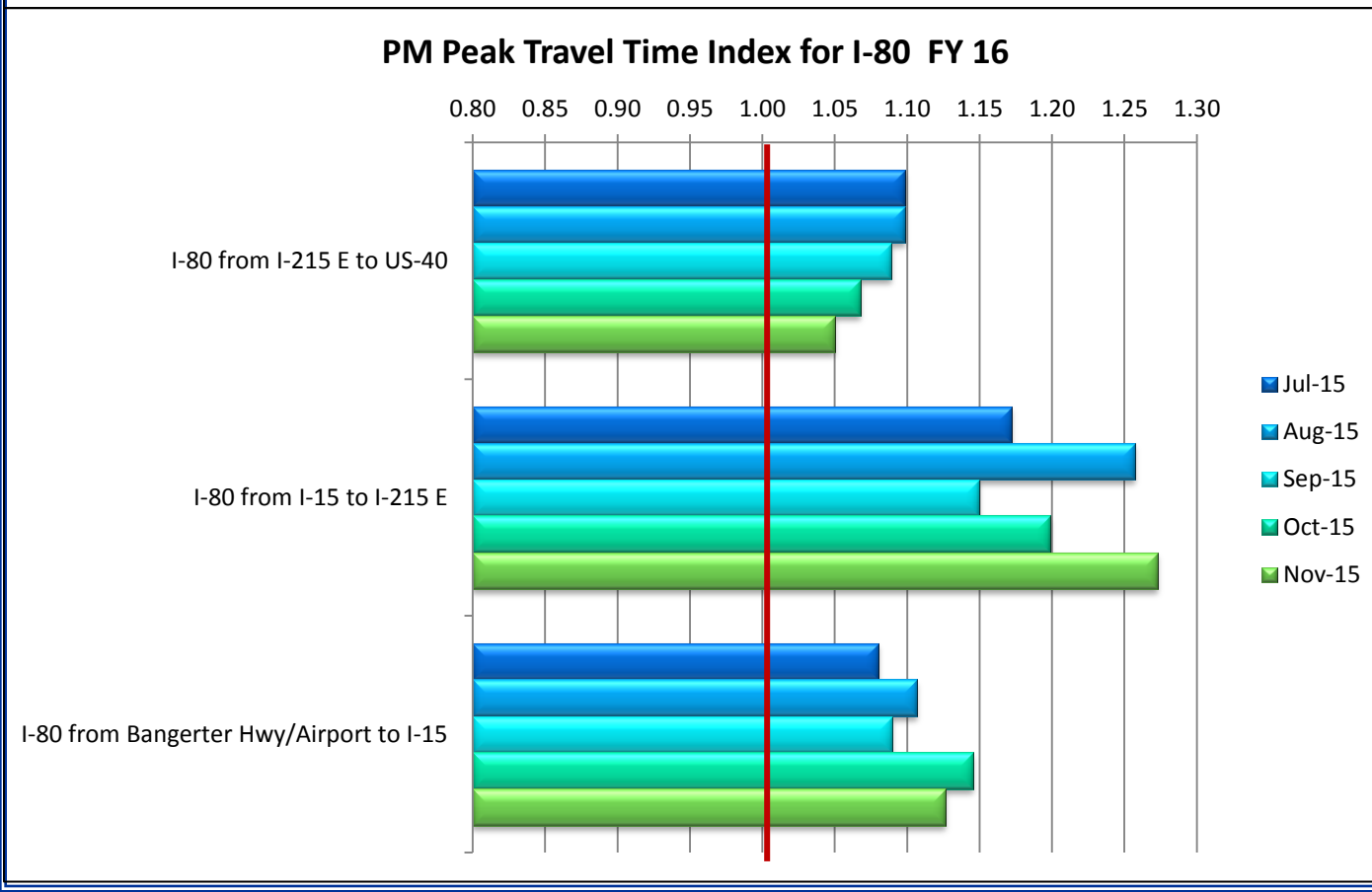


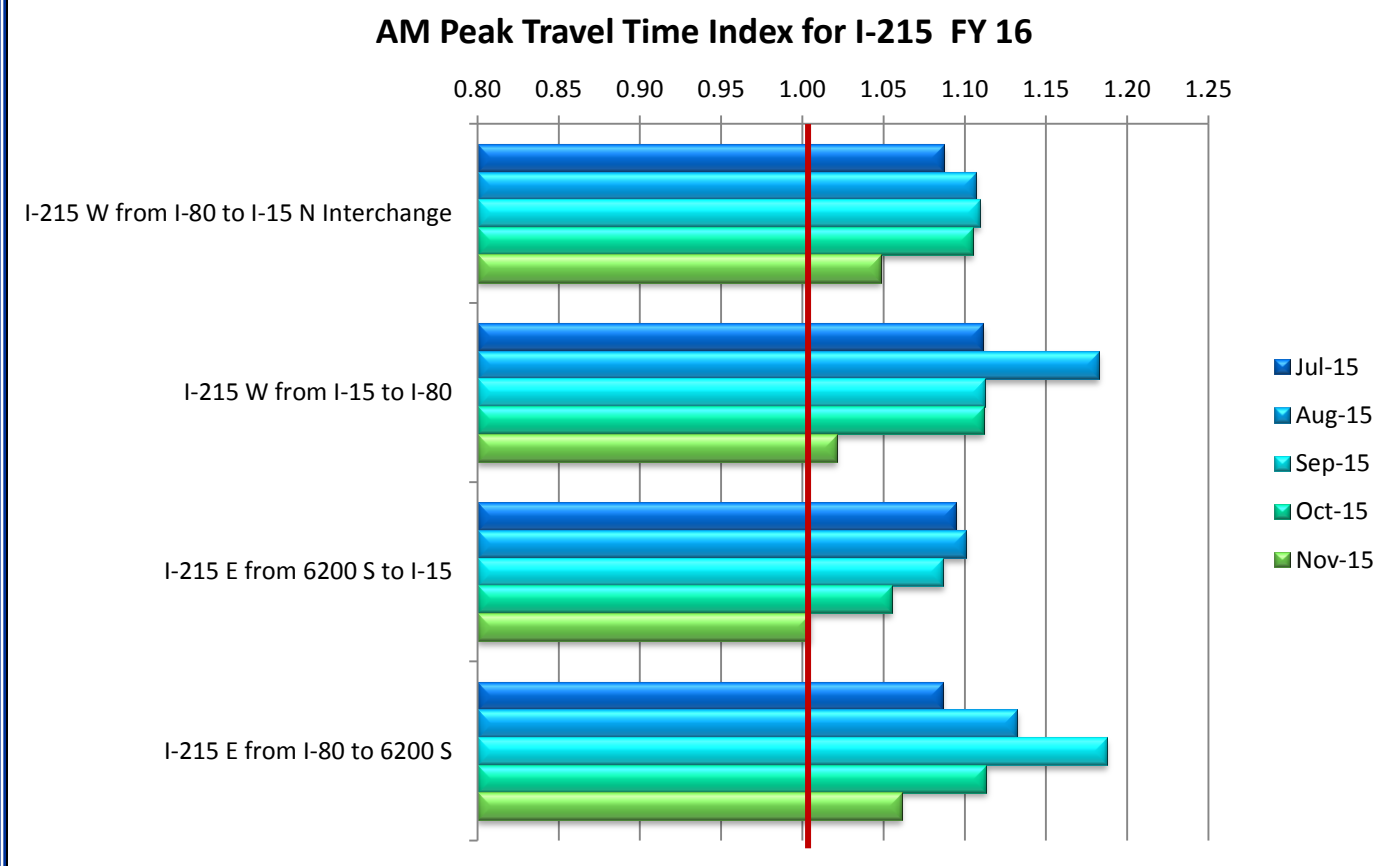

Peak Travel Time Index by Segment for November 2015
(+) Direction (NB, EB, Clockwise)
(-) Direction (SB, WB, Counter Clockwise)
AM Peak (07:00-07:59)
PM Peak (17:00-17:59)
AM Peak (07:00-07:59)
PM Peak (17:00-17:59)
I-15 from 2700 N OGD to 31st St OGD
1.05
1.05
0.99
1.05
I-15 from 31st St OGD to Hill Field Rd LTN
0.96
1.09
0.98
1.05
I-15 from Hill Field Rd LTN to US-89/Legacy Interchange FRM
0.95
1.81
1.08
0.97
I-15 from US-89/Legacy Interchange FRM to I-215 N Interchange NSL
1.00
1.12
1.10
1.02
I-15 from I-215 N Interchange NSL to 400 S SLC
0.95
1.33
1.17
0.96
I-15 from 400 S SLC to I-215 S Interchange MUR
1.06
1.16
0.98
1.41
I-15 from I-215 S Interchange MUR to Bangerter Hwy DPR
1.34
1.30
1.02
2.25
I-15 from Bangerter Hwy DPR to Pioneer Crossing AFK
1.18
1.61
1.03
1.25
I-15 from Pioneer Crossing AFK to University Ave PVO
0.95
1.07
0.96
0.97
I-15 from University Ave PVO to US-6 SPF
0.97
0.98
0.96
1.00
I-80 from I-215 E to US-40
1.04
1.04
1.01
1.05
I-80 from I-15 to I-215 E
1.04
1.27
1.06
1.08
I-80 from Bangerter Hwy/Airport to I-15
1.06
1.09
1.07
1.13
I-215 W from I-80 to I-15 N Interchange
0.97
1.07
1.05
1.00
I-215 W from I-15 to I-80
1.02
1.01
1.00
1.20
I-215 S from I-15 to 6200 S
1.00
1.05
0.98
1.06
I-215 E from 6200 S to I-80
0.99
1.11
1.06
1.00
SR-201 from 5600 W to I-215 W
1.01
1.06
0.90
1.10
SR-201 from I-215 W to I-15
1.04
1.08
0.95
1.17
SR-67 Legacy Hwy from I-215 W to I-15/US-89 Legacy Interchange
0.89
0.91
0.88
0.87

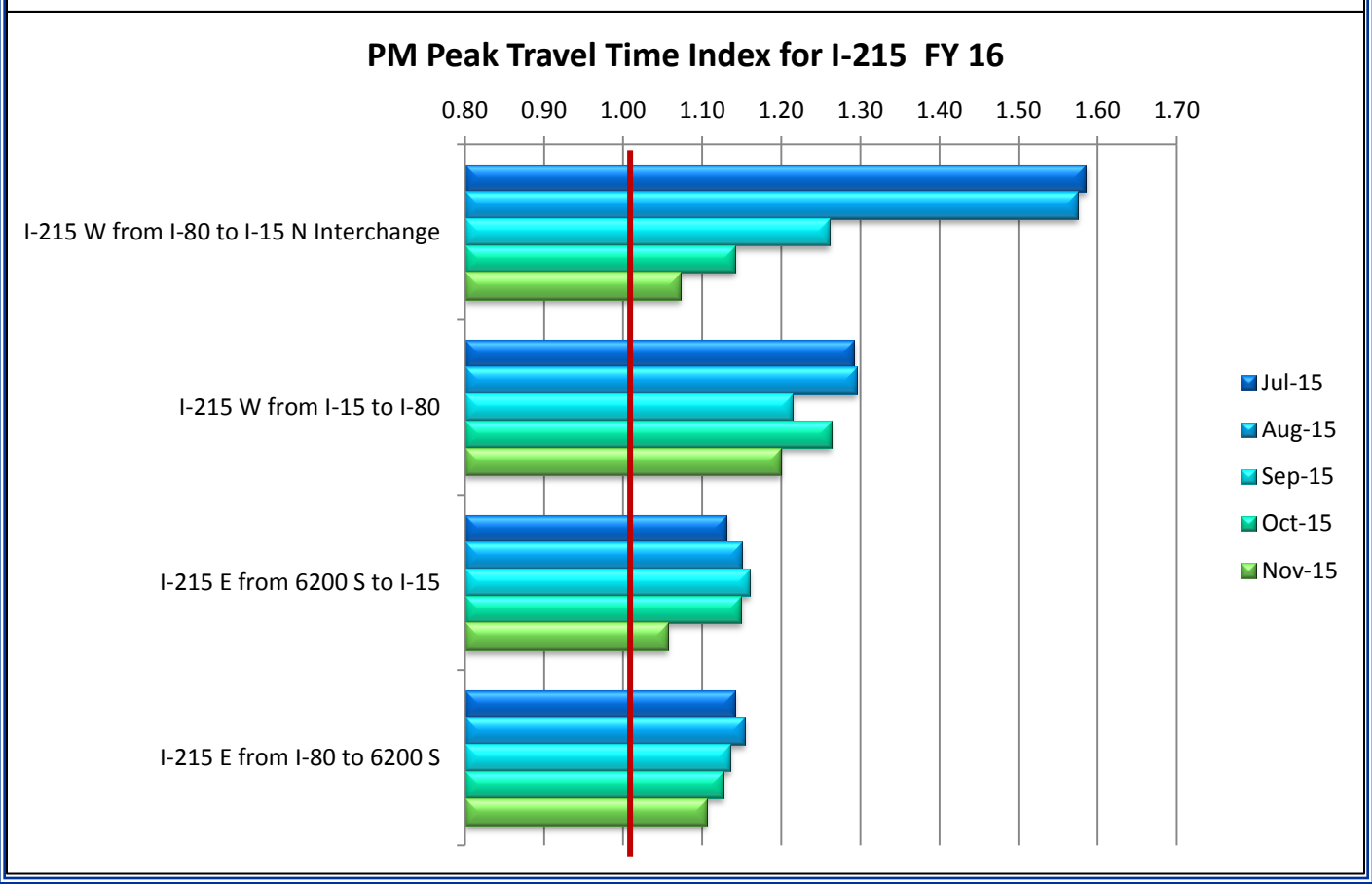

AM Peak Travel Time Index for I-15 FY 16
0.80
0.90
1.00
1.10
1.20
1.30
1.40
1.50
1.60
I-15 from 31st St Ogden to 2700 N Ogden
I-15 from Hill Field Rd to 31st St Ogden
I-15 from US-89/Legacy Interchange to Hill Field Rd
I-15 from I-215 N Int to US-89/Legacy Int
I-15 from 400 S SLC to I-215 N Interchange
I-15 from I-215 S Interchange to 400 S SLC
I-15 from Bangerter Hwy to I-215 South Interchange
I-15 from Pioneer Crossing to Bangerter Hwy
I-15 from University Ave to Pioneer Crossing
I-15 from US-6 to University Ave
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

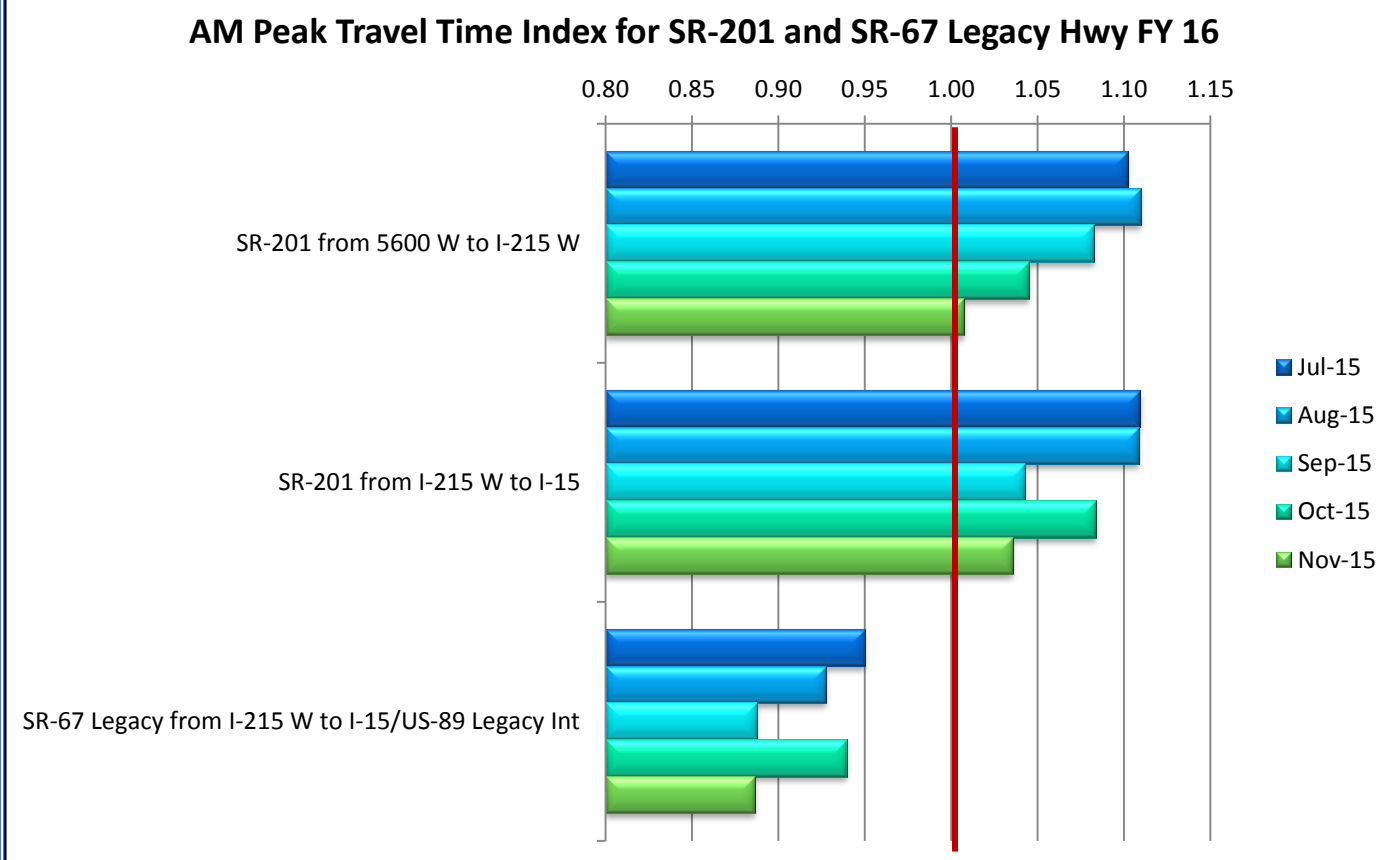

PM Peak Travel Time Index for I-15 FY 16
0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4
I-15 from 31st St Ogden to 2700 N Ogden
I-15 from Hill Field Rd to 31st St Ogden
I-15 from US-89/Legacy Interchange to Hill Field Rd
I-15 from I-215 N Int to US-89/Legacy Int
I-15 from 400 S SLC to I-215 N Interchange
I-15 from I-215 S Interchange to 400 S SLC
I-15 from Bangerter Hwy to I-215 South Interchange
I-15 from Pioneer Crossing to Bangerter Hwy
I-15 from University Ave to Pioneer Crossing
I-15 from US-6 to University Ave
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

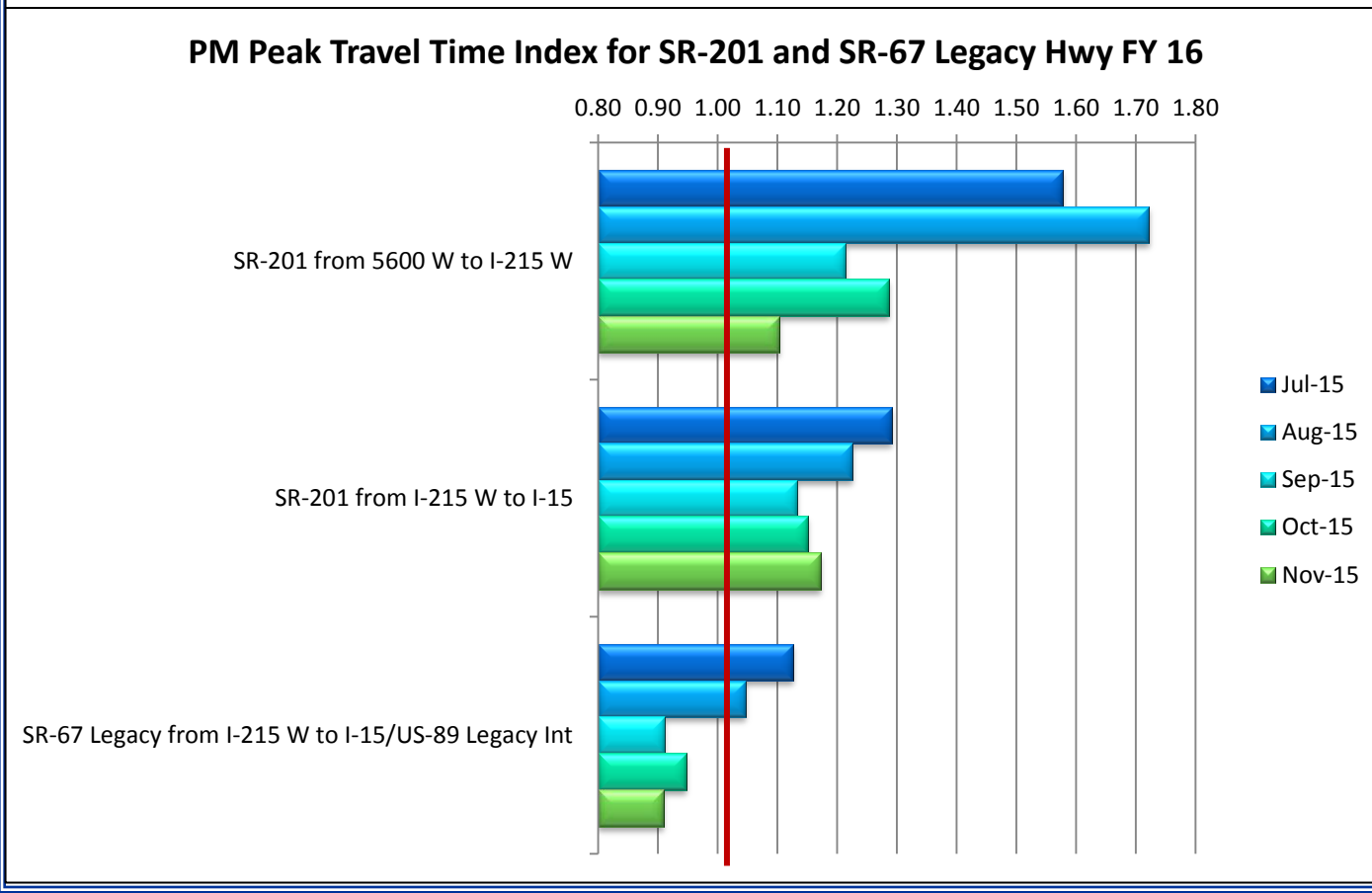

AM Peak Travel Time Index for I-80 FY 16
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
I-80 from I-215 E to US-40
I-80 from I-15 to I-215 E
I-80 from Bangerter Hwy/Airport to I-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15


PM Peak Travel Time Index for I-80 FY 16
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
1.20
1.25
1.30
I-80 from I-215 E to US-40
I-80 from I-15 to I-215 E
I-80 from Bangerter Hwy/Airport to I-15
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

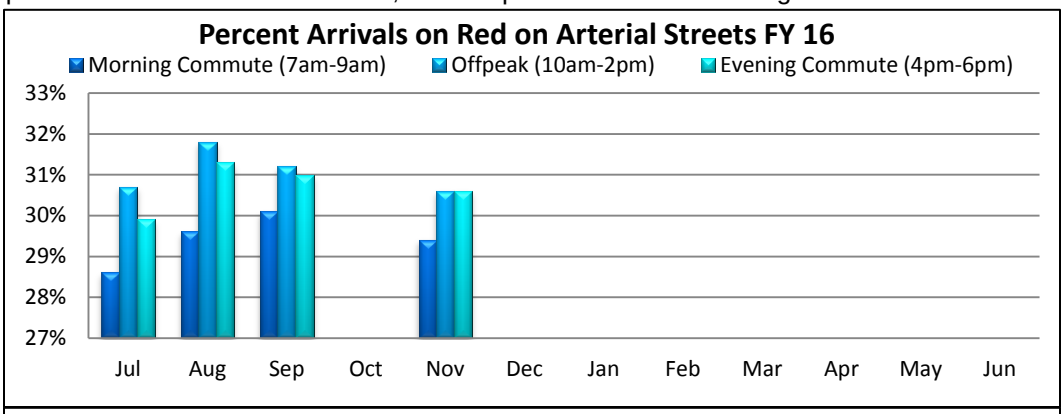

AM Peak Travel Time Index for I-215 FY 16
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
1.20
1.25
I-215 W from I-80 to I-15 N Interchange
I-215 W from I-15 to I-80
I-215 E from 6200 S to I-15
I-215 E from I-80 to 6200 S
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

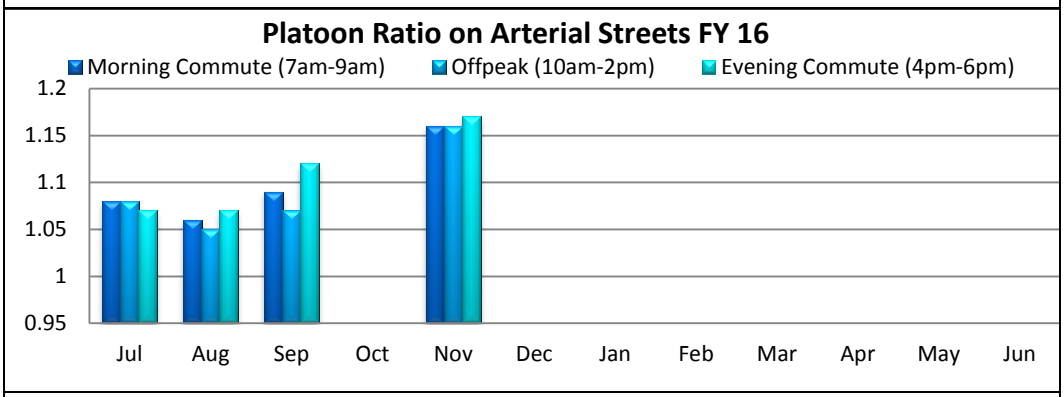

PM Peak Travel Time Index for I-215 FY 16
0.80
0.90
1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
I-215 W from I-80 to I-15 N Interchange
I-215 W from I-15 to I-80
I-215 E from 6200 S to I-15
I-215 E from I-80 to 6200 S
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

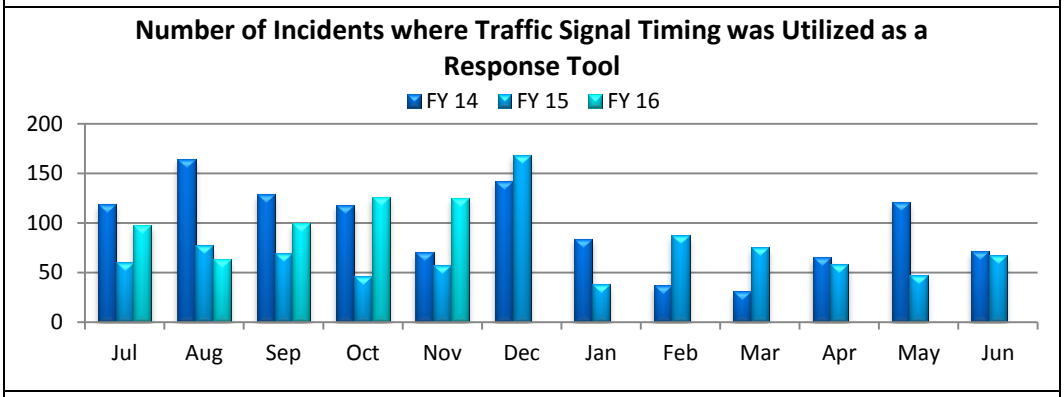

AM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 16
0.80
0.85
0.90
0.95
1.00
1.05
1.10
1.15
SR-201 from 5600 W to I-215 W
SR-201 from I-215 W to I-15
SR-67 Legacy from I-215 W to I-15/US-89 Legacy Int
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

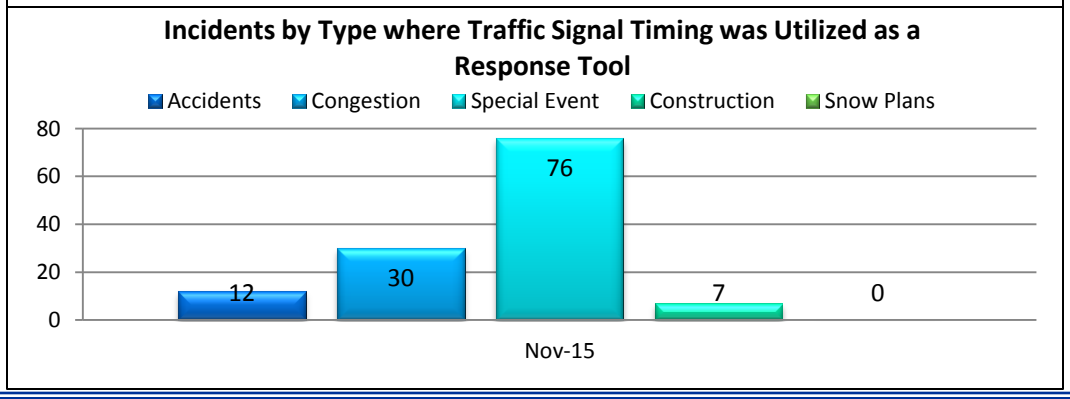

PM Peak Travel Time Index for SR-201 and SR-67 Legacy Hwy FY 16
0.80
0.90
1.00
1.10
1.20
1.30
1.40
1.50
1.60
1.70
1.80
SR-201 from 5600 W to I-215 W
SR-201 from I-215 W to I-15
SR-67 Legacy from I-215 W to I-15/US-89 Legacy Int
Jul-15
Aug-15
Sep-15
Oct-15
Nov-15

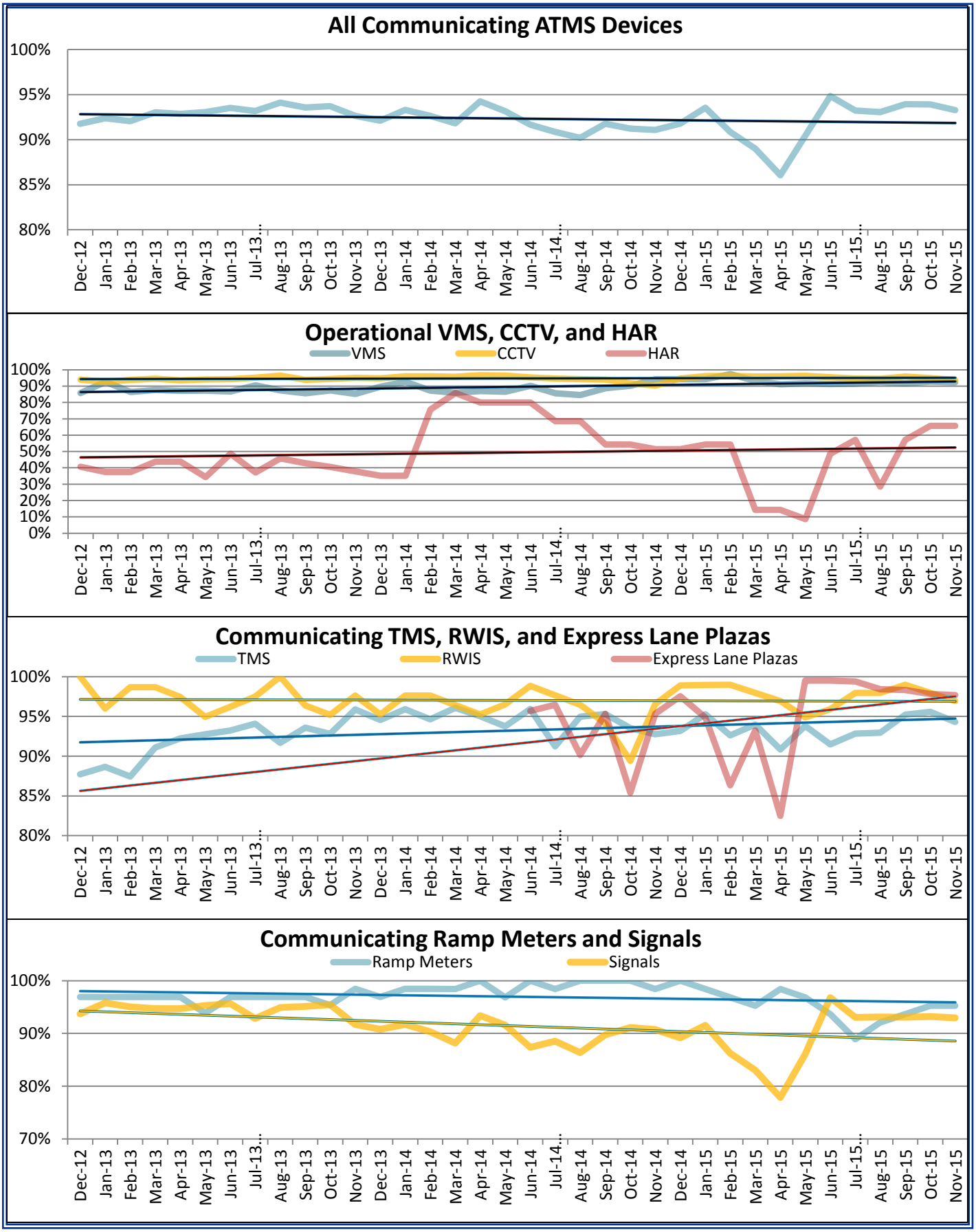
The percent arrival on red along the arterial statistics are generated automatically through the automated traffic signal performance measures, which show real-time and historical functionality at signalized intersections. The system automatically time-stamps when each vehicle arrives at the intersection and then compares the detection time-stamp if the phase was green or red. The percent arrival on red data is averaged over the 24 hours of the day and days in the month. . The lower charts shows the number of incidents where traffic signal timing was modified in order to help traffic flow around closed lanes, or to help relieve excessive congestion.



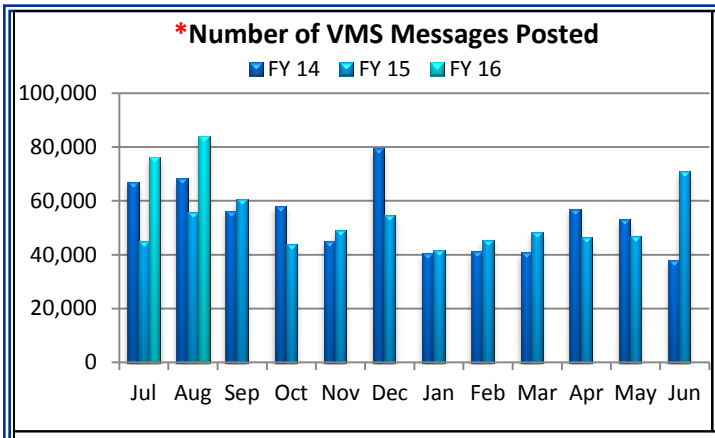


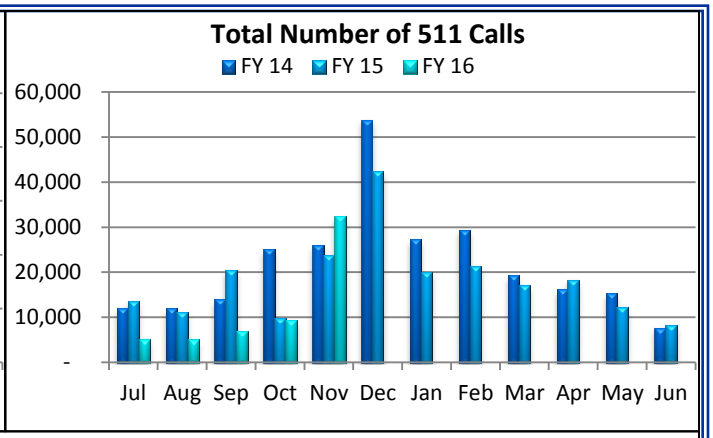


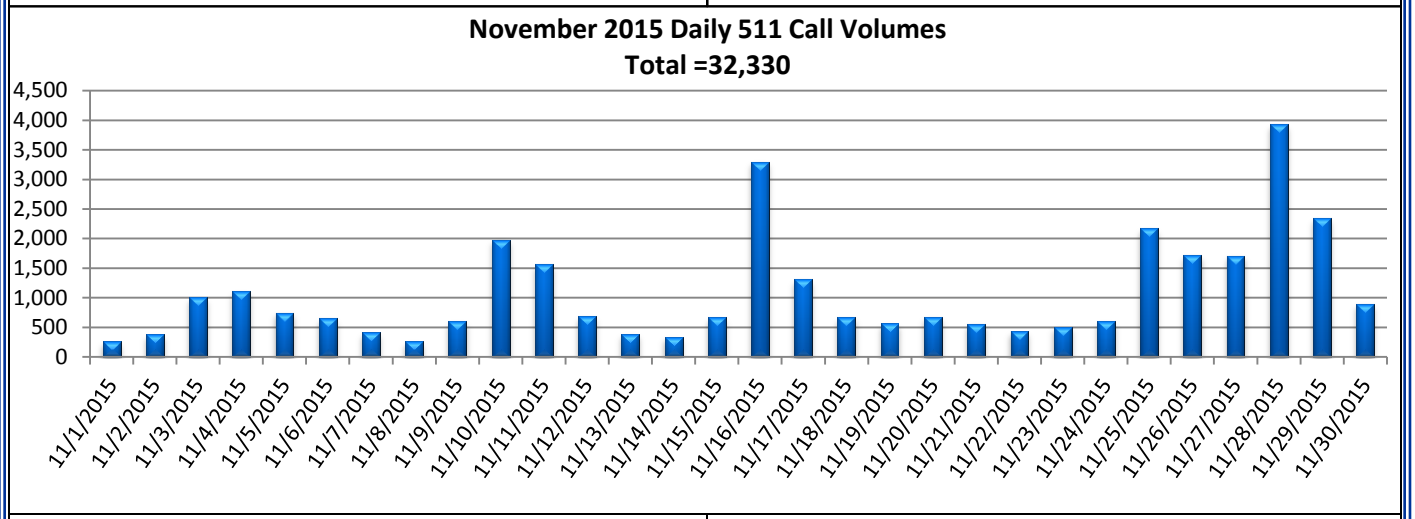


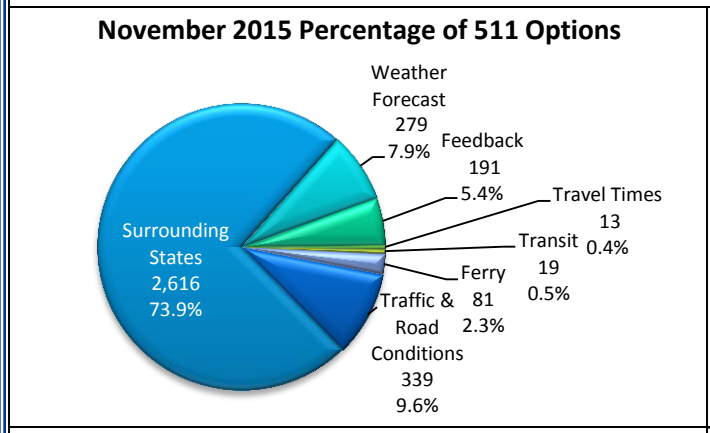

All Communicating ATMS Devices
100%
95%
90%
85%
80%
Operational VMS, CCTV, and HAR
VMS
CCTV
HAR
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Communicating TMS, RWIS, and Express Lane Plazas
TMS
RWIS
Express Lane Plazas
100%
95%
90%
85%
80%
Communicating Ramp Meters and Signals
Ramp Meters
Signals
100%
90%
80%
70%
Dec-12
Jan-13
Feb-13
Mar-13
Apr-13
May-13
Jun-13
Jul-13...
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Mar-14
Apr-14
May-14
Jun-14
Jul-14...
Aug-14
Sep-14
Oct-14
Nov-14
Dec-14
Jan-15
Feb-15
Mar-15
Apr-15
May-15
Jun-15
Jul-15...
Aug-15
Sep-15
Oct-15
Nov-15

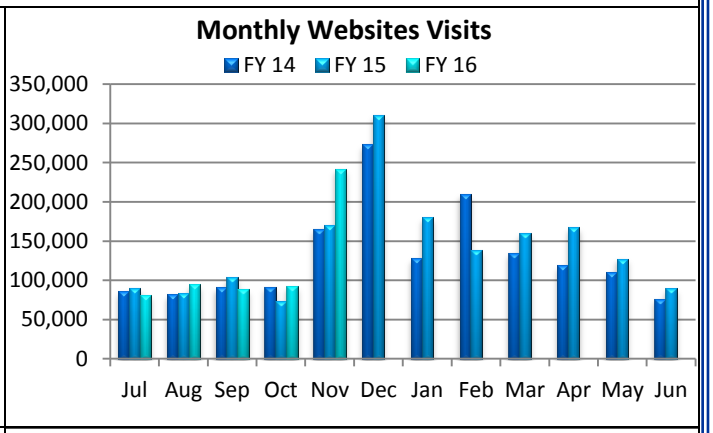
Traveler Information *Note – No VMS Data received Since August

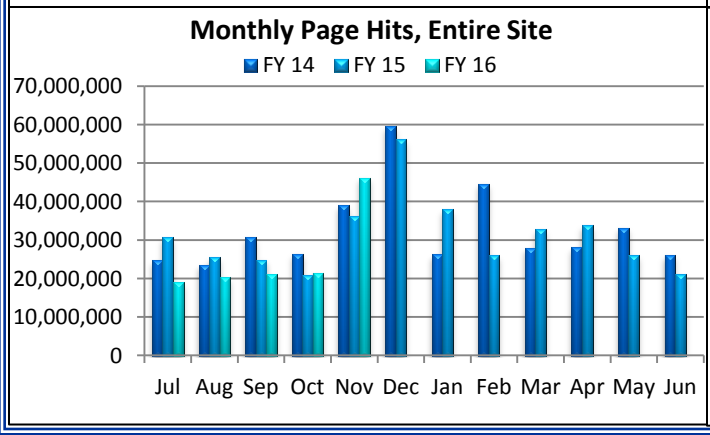


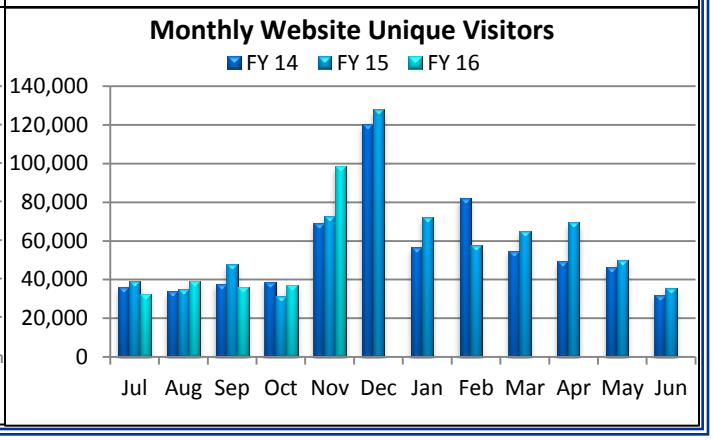


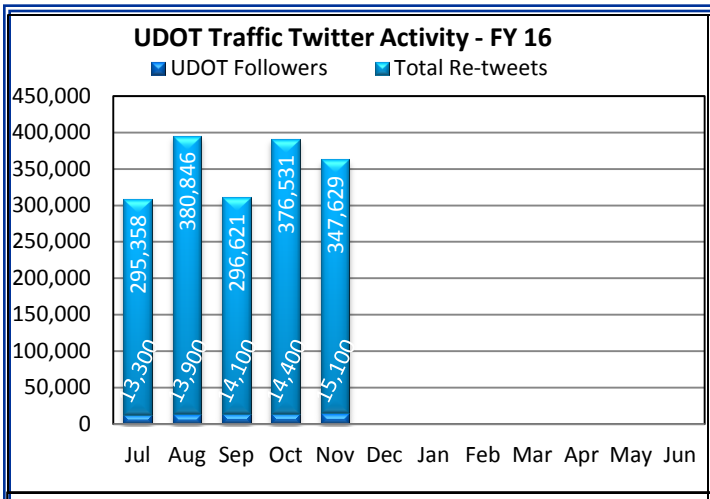


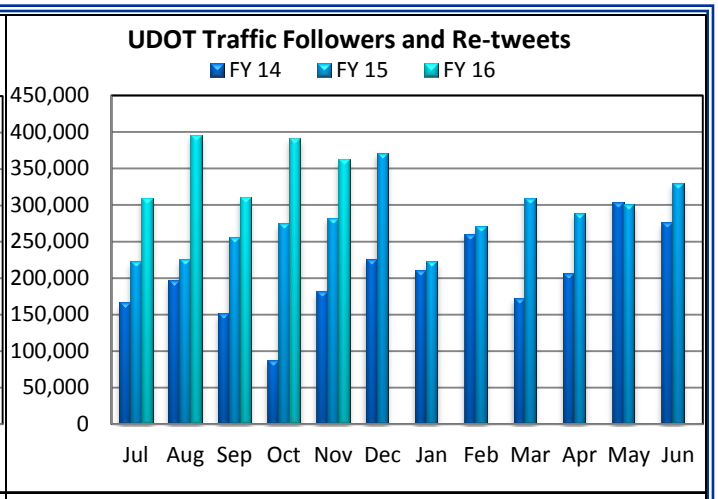


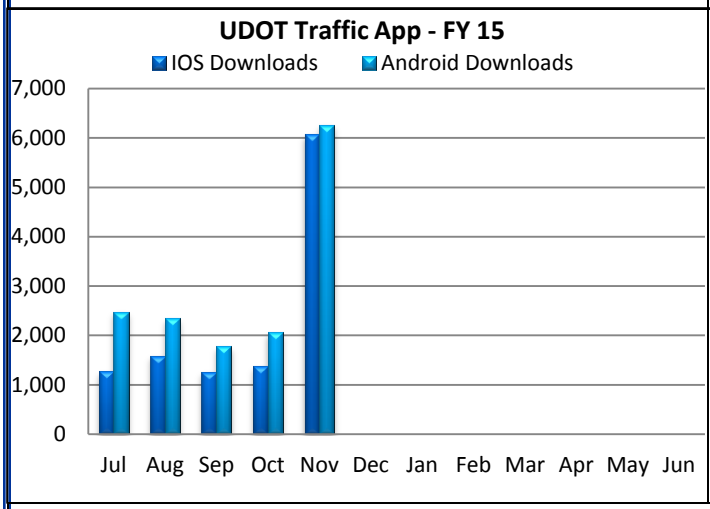







UDOT Traffic Twitter Activity - FY 16
UDOT Followers
Total Re-tweets
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
295,358
380,846
296,621
376,531
347,629
13,300
13,900
14,100
14,400
15,100
Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


UDOT Traffic Followers and Re-tweets
FY 14
FY 15
FY 16
450,000
400,000
350,000
300,000
250,000
200,000
150,000
100,000
50,000
0
Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


UDOT Traffic App - FY 15
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Android Downloads
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4,000
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2,000
1,000
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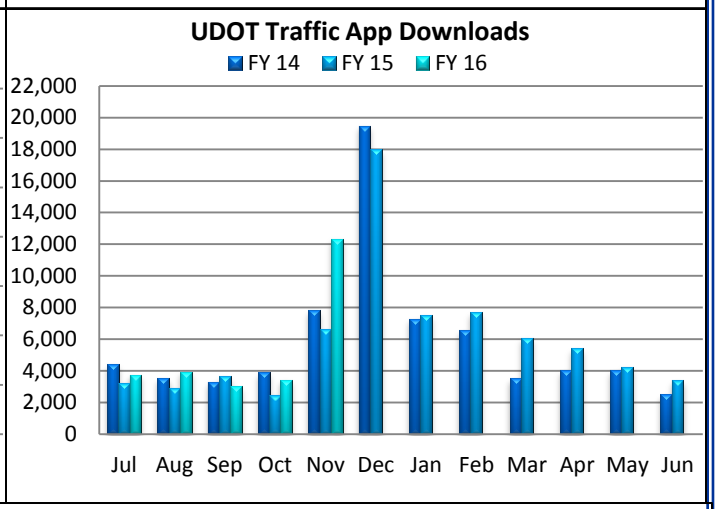
UDOT Traffic App Downloads
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FY 15
FY 16
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20,000
18,000
16,000
14,000
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6,000
4,000
2,000
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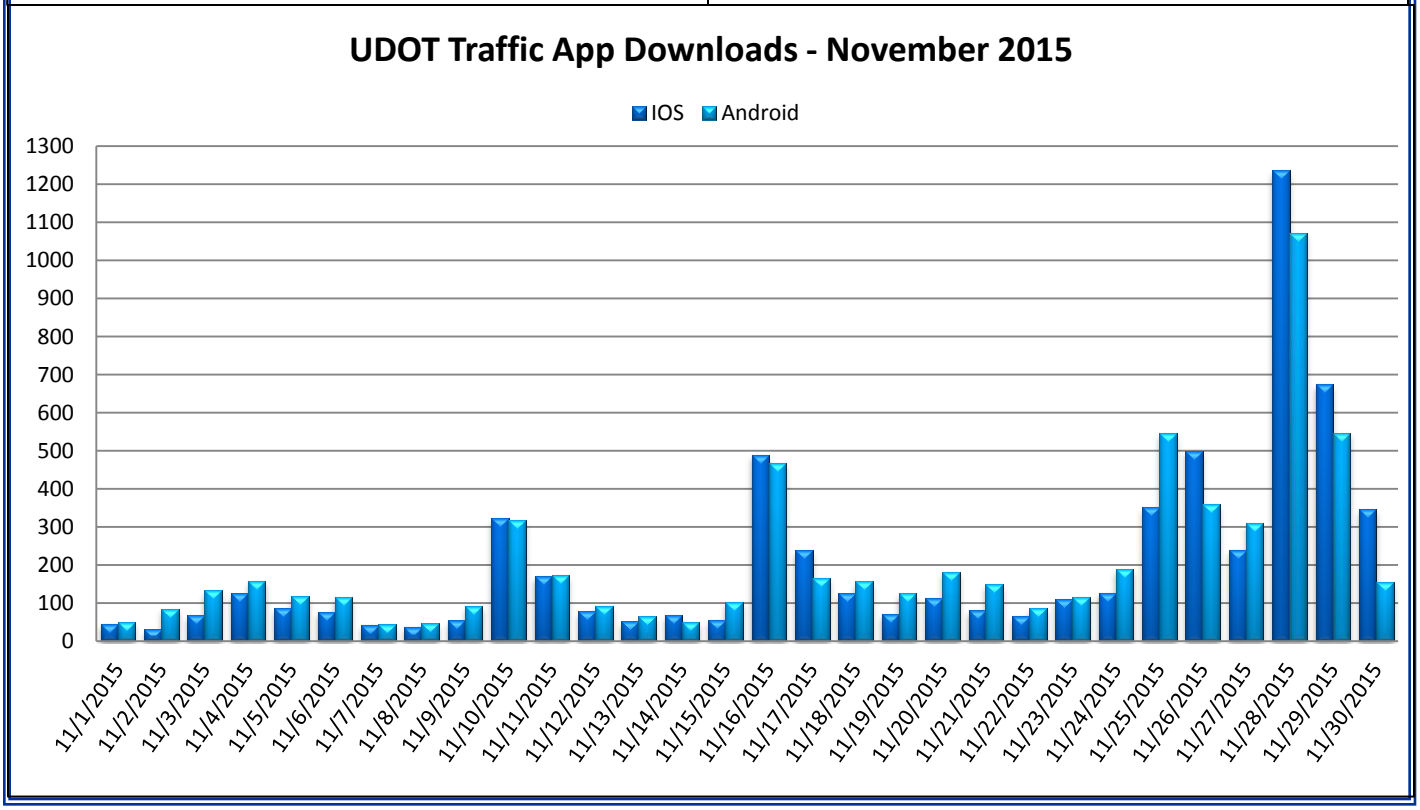
UDOT Traffic App Downloads - November 2015
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900
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700
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500
400
300
200
100
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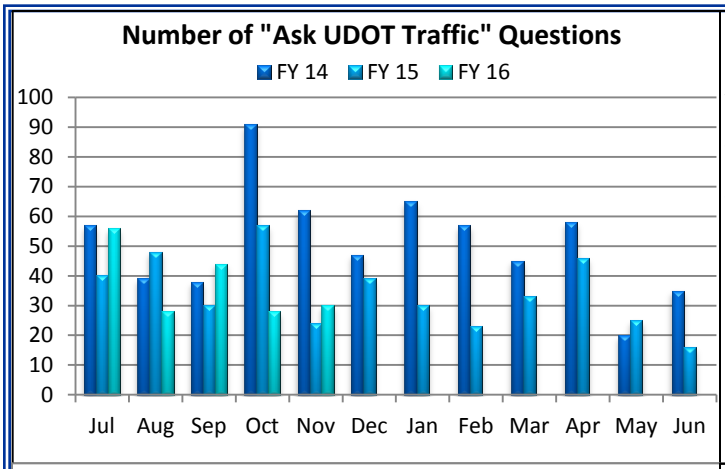
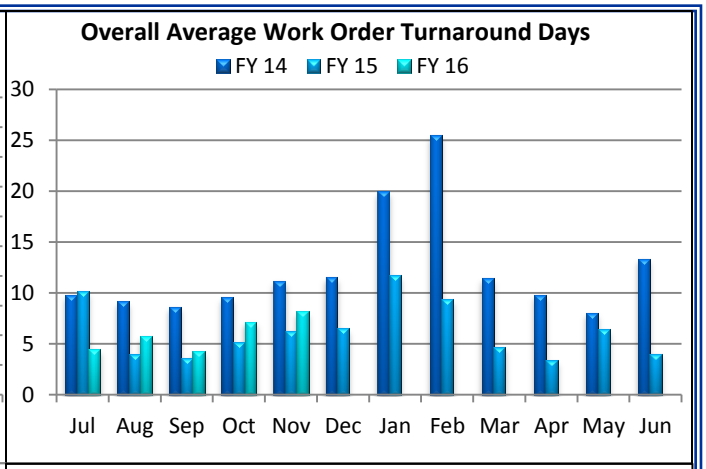
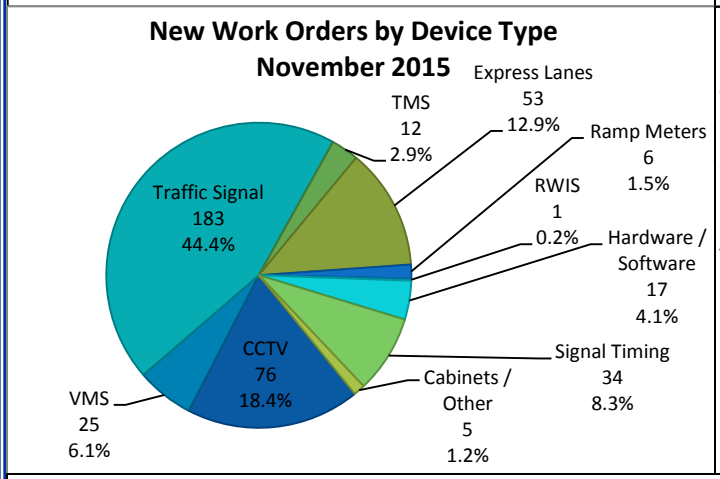
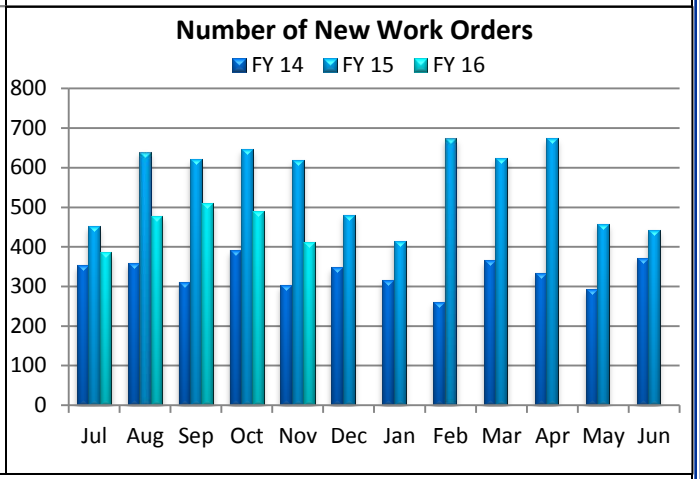
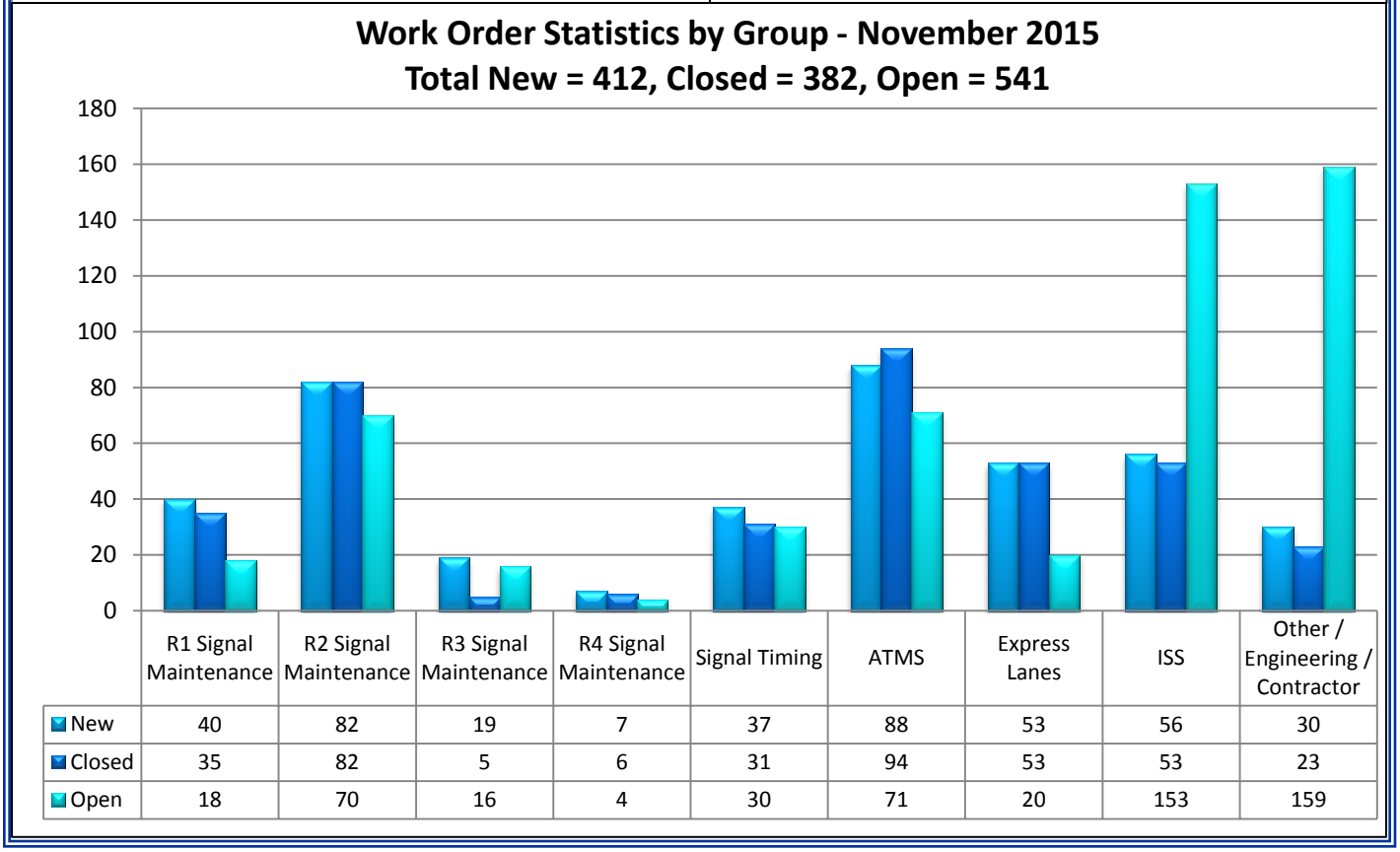










	R1 Signal Maintenance	R2 Signal Maintenance	R3 Signal Maintenance	R4 Signal Maintenance	Signal Timing	ATMS	Express Lanes	ISS	Other / Engineering / Contractor
New	40	82	19	7	37	88	53	56	30
Closed	35	82	5	6	31	94	53	53	23
Open	18	70	16	4	30	71	20	153	159

CONTROL ROOM

Operators managed 1192 incidents and handled 1064 phone calls during the month, in addition to daily tasks of posting VMS messages, emergency alerts, 511 messages, monitoring events, adjusting signal timing plans and registering work orders for ATMS maintenance. The operators posted Message Monday and other PSA messages. The season's first winter storms contributed to the number of incidents throughout the state. The Control Room supported the I-15 Point Project and several maintenance construction projects.

Control Room operators have been assigned a traveler information initiative to include better location information for specific incidents. In the past, mile posting was the main location identifier for all incidents. Now, control room operators insert familiar locations near an incident to provide a more recognizable point of reference. The goal of 80% compliance for all operators for this initiative was set in October. By November, all shifts and most operators were 80% compliant. The control room has received positive feedback for the effort, both from internal UDOT stakeholders and from the motoring public.

TRAVELER INFORMATION

Traveler information hosted a TOC tour for the Osher Group, attended the FHWA Ops Academy management training in Maryland, participated in FHWA TSM&O Benefit Cost Analysis workshop, presented at the Region 2 Snow School regarding the UDOT Citizen Reporter program, assisted UDOT central maintenance with AVL/plow project roll out, and staffed the command post at University of Utah football games.

WEATHER INFORMATION

The weather group had 700 overall UDOT weather interactions, 175 outgoing weather alerts, 27 NWS collaborations, and 43 Road Weather Alerts.

Climatology

In contrast to a very warm October, November temperatures were slightly below normal statewide, with Salt Lake International Airport being 0.2 degrees below normal. Precipitation was scattered across the state where some parts saw plentiful rain and snowfall, however, parts of central Utah, northern Utah, and southwest Utah were below normal. The airport was about one inch of precipitation below normal (averaging 1.45"; the airport registered 0.41" of precipitation and a total of 1.4" of snow).

Weather Operations

The first significant winter storm of the season occurred at the beginning of November causing gusty winds that caused truck blow-overs on I-80. Several storms impacted the state, but snowfall was minimal in the Salt Lake Valley.

Team members attended a winter seminar at the National Weather Service (NWS) on November 12th where NWS employees discussed the latest forecast techniques and information pertinent to the upcoming season.

Weather forecast assistance was given to the Peloton Truck Drafting Test on November 20th.
Also on November 20th, the team presented at a joint NWS/UDOT Private Sector Preparedness Council Meeting and some meeting attendees toured the weather operations room.

A team member presented at the Region 1 Snow School talking about forecasting and the Statewide Maintenance Forecast website.

TRAFFIC SIGNAL OPERATIONS

Region 1

Region 1 installed a new signal at SR-193/1700 East, and added left-turn phasing to the 2300 North/SR-108 and SR-30/SR-252 intersections.

Region 2

Region 2 reconstructed the 4500 South at 500 East, 4500 South at 500 West, and 5300 South at 320 West intersection signals. Continued to setup performance metrics at various intersections with newly installed radar detection. Installed also was a new upright and mast arm at 3300 South at Highland Drive after a collision with a dump truck. One more pair of Flex Lanes gantries were upgraded, leaving only two more gantries to be upgraded. The region also worked with Avenue Consultants and Salt Lake City to retime a section of 1300 East with signals owned by UDOT and by SLC.

Region 3

Region 3 activated special event timing for BYU football games, turned on a new traffic signal at I-15 SB Ramps on Lakeview Parkway. A service pedestal in Vernal that was damaged in a vehicle knockdown and was replaced. A "Do Not Block Intersection" sign on mast arms was installed at 2100 North and 2300 West in Lehi. Generator plugs on several cabinets were installed.

Region 4

Region 4 turned on a new traffic signal on State Street at Main Street in Salina; connected remote communication to two new battery backup systems in St. George and installed an additional battery at each site; installed a new pedestrian ramp and service pedestal and removed old junction boxes on Main Street at 200 South in Cedar City; installed audible pedestrian push buttons for all crosswalks at 300 West at 200 South and 300 West at Center Street in Cedar City; and updated several highway lighting luminaires throughout the region to LEDs

TRAFFIC OPERATIONS AND REPORTING

- Traffic Operations and Reporting worked on the Provo/Orem BRT project support.
- Bangerter/600 West project support.
- Wasatch Front Central Corridor Study support.
- Bangerter interchanges.
- Region 3 support.
- I-80/State EIS.
- Region 2 support.
- Ramp meter standards.
- Managed Motorways.
- US-40 shoulder repair project.
- WFRC travel demand modeling training.
- I-15 Northbound at 9000 South Weave analysis,
- Hill Field Road Mall/I-15 overcrossing.
- 9000 South I-15 interchange analysis.
- SR-9, Rockville to Zion's National Park.
- FHWA TSM&O workshop.
- Region 4 support.
- PeMS update.
- Congestion Reporting.
- Southwest Salt Lake Valley Transit Analysis.
- US-89 Corridor study.
- Bluffdale roundabout analysis.

ITS ASSET MANAGEMENT

- One portable VMS and two new signals were integrated.

Teaming

With the assistance of Craig Wright from the Lab Team, the Express Lanes Team replaced two OSI lasers, four sets of Sensys Pucks and performed PMs on eight ETC cabinets along I-15.

Field

The team upgraded radio channels 1128-A and B which included the replacement and alignment of the twelve radios in Region 1 which will be integrated into the system in December. The team also completed the integration of an Eastbound I-80 chain up sign at the mouth of Parleys Canyon and updated the associated 'as built' drawings and TIS database. During a CCTV repair visit to Region 4, the team performed another 'in progress' inspection of the recently constructed Beaver Hill Climbing Lane project's ATMS facilities. The visit resulted in another documented punch list of items which needed to be addressed before the project can be accepted. There were 87 work orders completed during the month.

Lab

There was a total of 25 devices closed, including Digi Terminal Servers, Traffic Signal Controllers, 2070 Controllers, Wireless Radio, Wavetronix Radar and CCTVs. Additionally, the team tested/burned in four spare traffic signal cabinets for Region 2 signals. The team also released two signal cabinets to Hunt Electric for the 7800 South at 900 East and 8000 South at 700 East projects. One cabinet for a High West project on SR-266 @ 500 East. The team deployed Mobile VMS in Little Cottonwood Canyon which provide avalanche warnings to the public. Because of repeated reports of communication failures, two VSL signs on I-80 were trouble shot with the problem being power outages. Seven work orders were completed for the month of November.

Express Lanes Team

The Express Lane team closed 53 work orders and continued the weekly system drive. The team also rebooted five VTMS, repaired or reconfigured eleven clusters which required the rebooting of 22 lane controllers. Two readers were reset and PMs were performed for five cabinets. The ETC system cross training for John Orvis was completed and training began for Kyle Esquibel.

Region 1

- **Ogden Area Signal Interconnect:** This has been changed to a larger scope and will be called Statewide Signal Interconnect.
- **I-15; SR126 to US-91:** All ATMS items are functional.
- **I-15; SR-30 to the Idaho State line:** This project has been designed by PineTop Engineering and is ready to advertise. This project needs major funding for ATMS. This project has been added to the STIP. There is no word yet as to funding.
- **Layton Interchange:** This project is in design.
- **Brigham DDI Interchange:** This project is under construction.
- **Weber Canyon De-Icing sign communication:** Project has been completed.
- **US-89; SR-193 to Cornia Drive:** This project is in design.
- **US-89; Antelope Drive Extension:** This project is in design.
- **10. Hill Field and Main in Layton:** This is project is in design.

Region 2

- The Salt Lake Valley Signal Interconnect project is completing connection signals to the last few locations. There are only a few remaining traffic signals on the UDOT system in Region Two that are not connected to the central signal system. The next phase of interconnect work will install fiber to connect the remaining signals.
- The traffic signal on 500 North at Columbus Street near the State Capitol was completed. This signal is significant in many ways, but this is the first to be required to have the fiber splicing done before erecting the signal pole uprights. Even though, due to changes in street patterns, a temporary signal had to be installed, the process of requiring fiber splicing to be done sooner in the work schedule.

Region 3

- **SR-92 CCTV/Hybrid VMS (12641):** Identified the need for new channel to accommodate new devices. Began process to get additional splicing done.
- **Saratoga Springs; Pony Express; SR-68 to 800 West (8581):** Delivered CCTV for install.
- **Region 3 traffic signal connections (12774):** Held planning meeting and determined that the Spanish Fork signals should be installed in PIN 13244. We will use this PIN to connect three signals in Salem.
- **US-40 CCTV/Signal connections (12805):** STRATA working with UDOT integrator in the field to install their connection electronics.
- **Vernal; US-40 @ 2100 West Signal/CCTV (13018)**: Due to unresolved ROW, NTP rescheduled for December.
- **Roosevelt; US-40 @ 2000 West Signal/CCTV (12980):** NTP given. CCTV install anticipated in December.
- **Provo Canyon RWIS/VMS (11410):** Project under construction.
- **US-189; State Park to Rock Cut passing Lanes (11415):** PS&E comment resolution.
- **Fiber connection to three Maintenance Sheds (13681):** Encountered conduit installation problems. Anticipate install completion in December.
- **Spanish Fork; SR-156; 300 South to M.P. 2 (9976):** Project being prepared for advertisement to include three CCTV's.
- **Roosevelt; US-40 @ 1500 East Signal/CCTV (13853):** In design.
- **Provo; SR-256; 800 East to Univ Ave BRT (10266):** Design ongoing.
- **US-40; Myton Bench roadway widening (11358):** Design ongoing.
- **Spanish Fork; Canyon Rd @ 2550 E Signal (10960):** Project being designed.
- **American Fork; SR-74; Main to 300 N widening (11219):** Design ongoing.
- **Provo; US-89 (300 S); 100 East to 700 East (10137):** Held PS&E.
- **Heber; US-40; 250 South & 100 North Signals (14105):** Project Kickoff.
- **Lindon; US-89 @ Center St. (12839):** Coordinated fiber drop connection from distribution cable located in the center of US-89.
- **Ut. Co. Signal Interconnect (13244):** Evaluating scope.
- **Lehi; SR-92 @ Ashton (12841):** Upgraded CCTV from temporary deployment to permanent.

Region 4

- **St. George:** We will be working on getting a scope together to connect Hurricane City to the network.
- **VMS for I-70 and US-6:** The 30 day burn in has been completed.
- **Fiber upgrade for US-6, Helper and Price Signal Integration:** We are still waiting for the private telecom to get their portion of work completed.
- **Various Small VMS locations for ICY Bridge at I-70 and Fish Springs, and Halls Crossing at Lake Powell:** Project is complete.
- **I-15; North Beaver to Manderfield:** Solar deficiencies are being mitigated with the contractor.
- **I-15; Cedar City Two VMS:** Project is completed.
- **Price, Helper fiber and Interconnect:** This project has been completed. We are still waiting for the telecom to complete their portion of work.

ITS Standards and Specifications

Narwhal Group continued work on the NEC review of all standards and specifications. The first draft of recommended revisions arrived and was reviewed with Narwhal's electrical engineers in a meeting. Specification 13554 Polymer Concrete Junction Box was reviewed in order to address the possibility of changing the description placed on pull box lids

.

A meeting was held with Jeff Williams to discuss the desired changes for the RWIS Standard Drawings and Specification for the 2017 edition.

Work on the ATMS Solar Powered Site Standards continued. HNTB was assigned to create draft general arrangement drawings. HNTB will also revise the RWIS drawings to separate the solar apparatus and place them within the new solar standard drawings.

Procurement

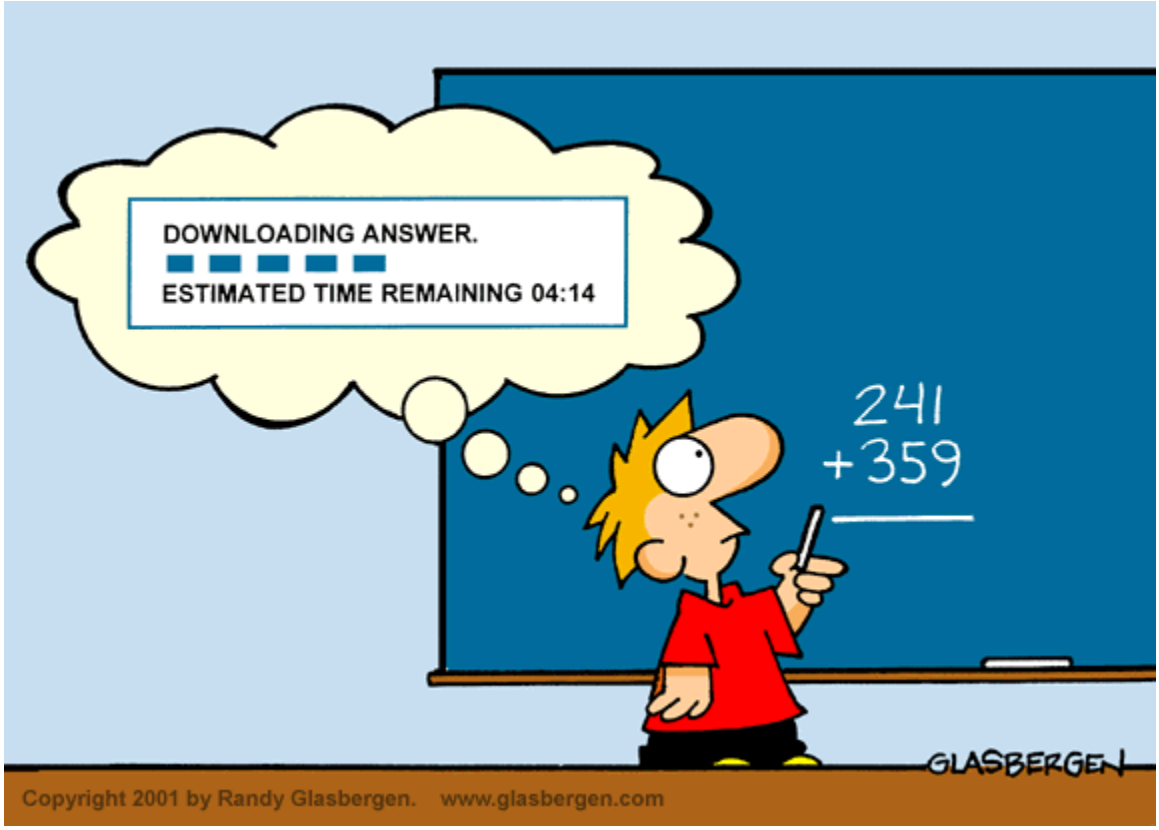
The field ITS ethernet switch contract was awarded to the previous vendor.

The contract for WANCO VMS is to be renewed. The new contract bid will be developed to purchase a portable VMS Board, plus a parts list, without the trailer.

Pinetop Engineering reviewed an existing solar power component purchase contract to see if it would be a good basis for the ATMS solar system purchase contract.

Special Projects

Work continued on the IP-CCTV development. Chuck Felice and John Amidon continued to develop the IP CCTV module in the TranSuite software.



Problem:

Find x.

$$x^2 + 5x - 6 = 0$$

Solution:

Here it is.

Acronyms

CCTV	Closed Circuit Television	DPS	Department of Public Safety
EIS	Emergency Information System	HAR	Highway Advisory Radio
I2TMS	Integrated Interagency Traffic Management System		
ITS	Intelligent Transportation System	LFOT	Local Field Operations Test
MIC	Manager in Charge	MOT	Maintenance of Traffic
RWIS	Road-Weather Information System	TAC	Technical Advisory Committee
TMD	Traffic Management Division	TMS	Traffic Monitoring Station
TOC	Traffic Operations Center	VMS	Variable Message Sign

Keeping Utah Moving