



**Regional Transportation Commission  
of Southern Nevada**

# **BRT Technology Advancements session**

**5<sup>th</sup> National  
Bus Rapid Transit Conference**

**Brian Hoeft  
August 22, 2012**



# The emerging center of the multi-modal transportation system universe







CROSSWALK  
STOP  
ON RED  




**FAST**

POLS

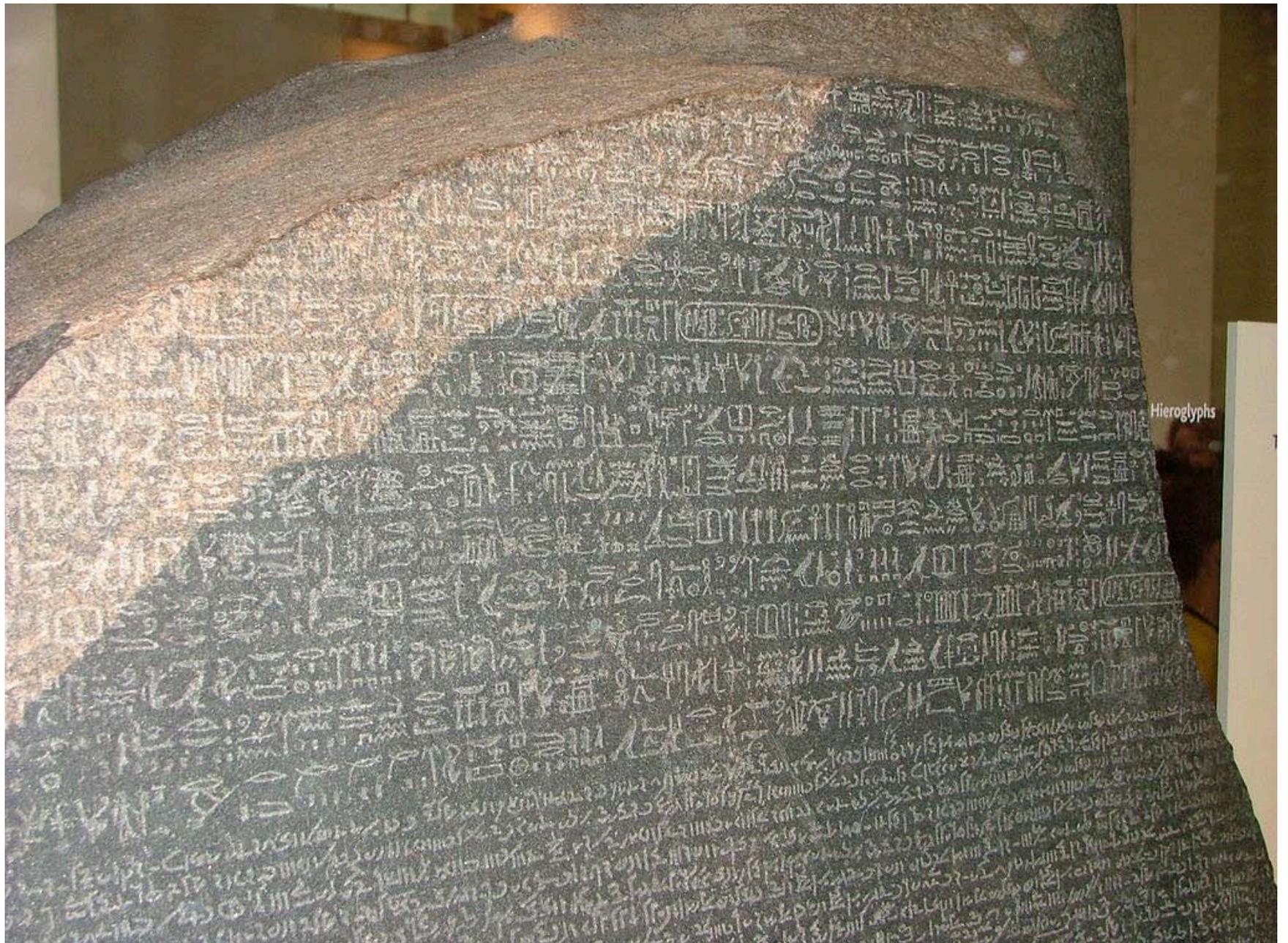


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PHILOSOPHY  
ECONOMICS



Hieroglyphs



# NTCIP™



*the National Transportation Communications for ITS Protocol ONLINE RESOURCE...*

Home: Welcome to NTCIP

## Where to Start on the NTCIP Website?

The NTCIP is a joint standardization project of AASHTO, ITE, and NEMA, with funding from the RITA ITS JPO. People new to the NTCIP should download The NTCIP Guide (NTCIP 9001). Browse to the Library >> Document Links table to find the status and availability of all the standards.

## List of Recent PDFs Available

The most recent NTCIP standards released for downloading were:

- 9001 new version v04, The Guide (July 2009 release);
- 1204 new version v03, ESS with TP (November 2009 release);
- 8005 version 01, Creating MIB Files (July 2010 release);
- 8004 version 02, SMI (August 2010 release);
- 2301 version 02, AP-STMf (September 2010 release);
- 1103 version 02, TMP (October 2010 release);
- 1201 version 03, GO (March 2011 release);
- 1213 version 02, ELMS (March 2011 release).

Visit the Library >> [Document Links table](#) to find the shopping carts.

### NTCIP Guide



Check out the NTCIP 9001 "[Guide](#)" for detailed deployment and NTCIP procurement information.

### NTCIP Forums



The NTCIP [Forums](#) provide a channel for technical folks and practitioners alike to discuss the NTCIP. Topics include Outreach, Testing, Standards and Working Groups.

### NTCIP Library



Use the Library table to find the NTCIP document number you need. The [Library Table](#) has links to the status information, drafts, and Jointly Approved standards.



# The Role of Transportation Systems Management & Operations in Supporting Livability and Sustainability

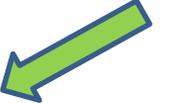
## A PRIMER



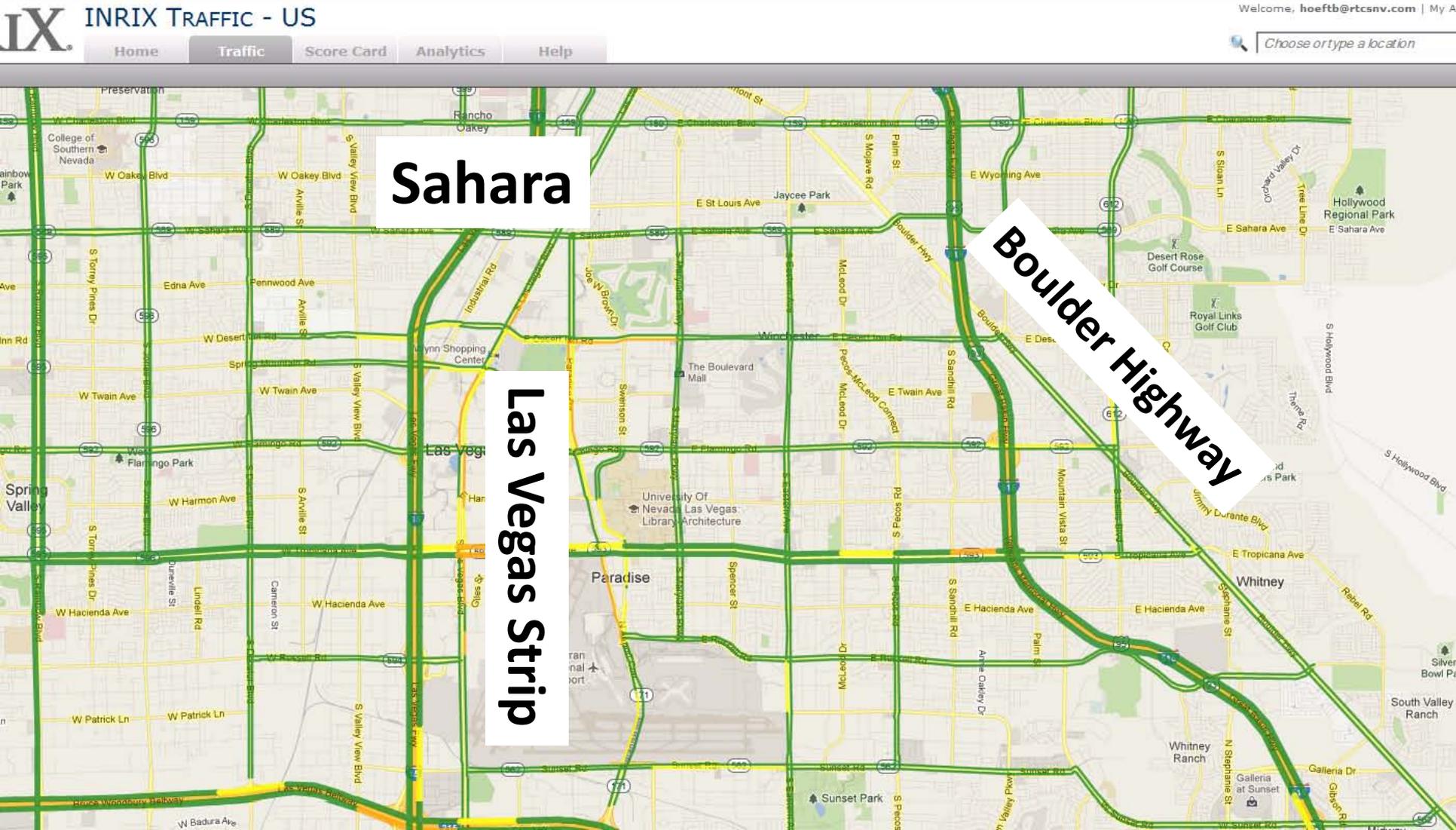
# RTC / FAST current daily activities

## WHAT IS TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS?

Transportation systems M&O refers to multimodal transportation strategies to maximize the efficiency, safety, and utility of existing and planned transportation infrastructure. M&O strategies encompass many activities, such as:

- Traffic incident management. 
- Traffic signal coordination. 
- Transit signal priority (TSP) and bus rapid transit (BRT). 
- Freight management. 
- Work zone management. 
- Special event management. 
- Road weather management. 
- Congestion pricing. 
- Managed lanes. 
- Ridesharing and demand management programs. 
- Parking management. 
- Electronic toll collection and transit smart cards.
- Traveler information systems. 

# 21<sup>st</sup> century traffic information is more than just colored lines on a map



**As of June 2012, 364 CCTVs  
including:**



**37** on LV Strip  
**27** on Sahara  
**14** on Boulder Highway



306 I-15/CHEYENNE S  
NORTH

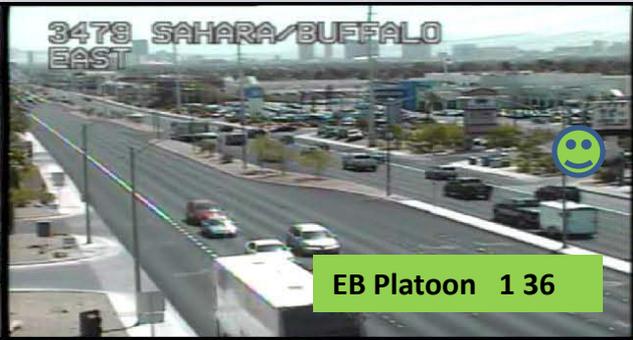
















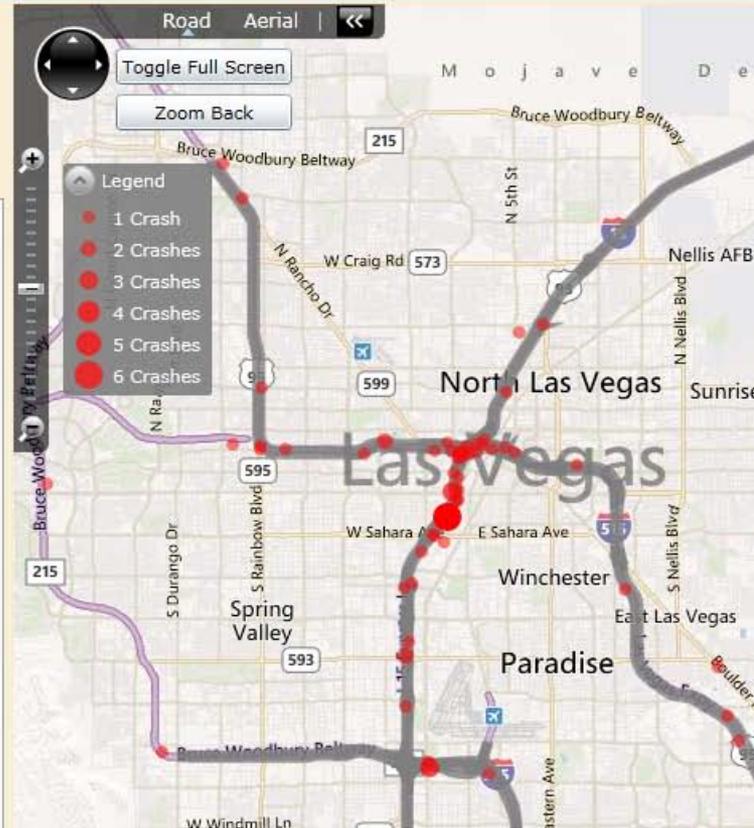
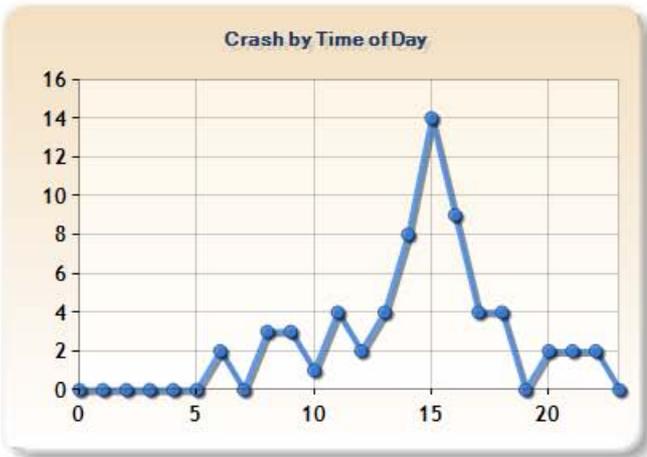
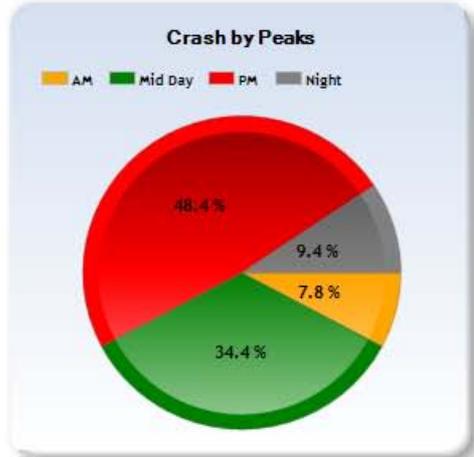
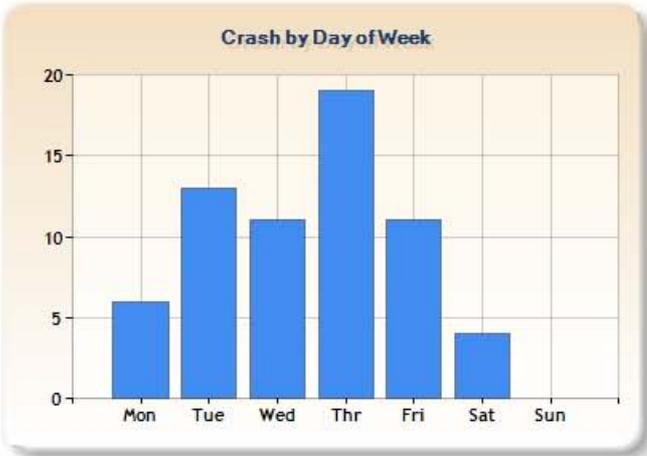
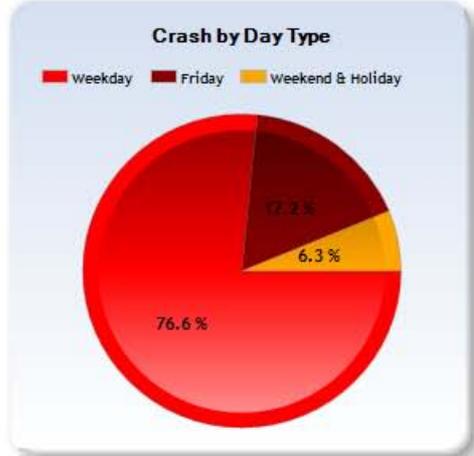
From: 5/28/2012 To: 6/11/2012 Time of Day: All 00:00 to 00:59

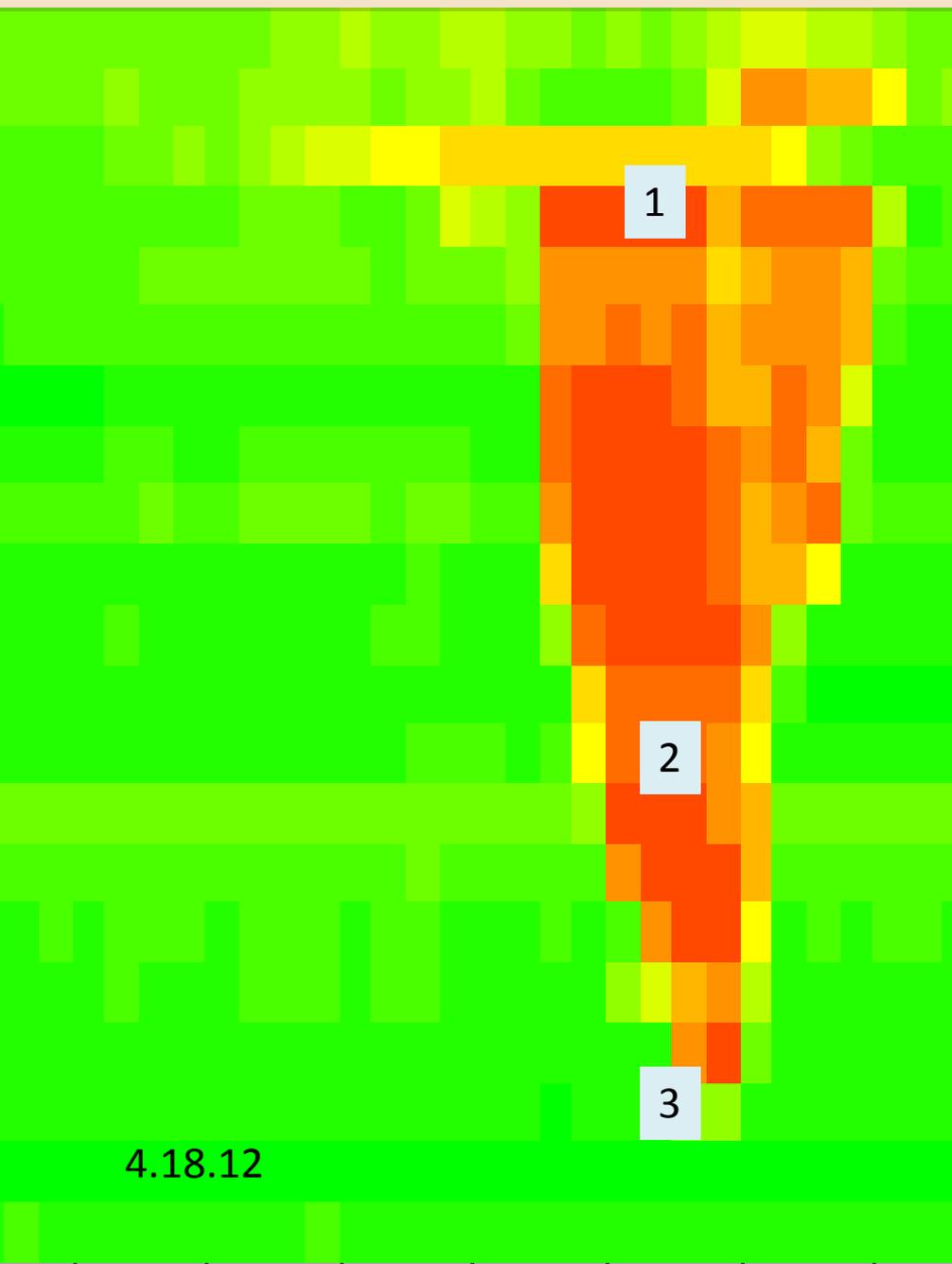
Included Days:  Mon  Tue  Wed  Thr  Fri  Sat  Sun

Corridor: All Workzone: All Lanes: All Severity: All Total Incidents: 74

Tow: All Clearance: All **Draw Plot**

Spatial Temporal Severity Clearance Data





13 14 15 16 17 18 19



# 25 percent time saving as a goal

- What are transit expectations?
- What are challenges observed by FAST?
- What is the difference?
- How can the gap be bridged?
- What have we learned from
  - Boulder Highway
  - Sahara

- Route timed with following assumptions:
  - Speed limit
  - Number of stops
  - Number of signals
  - Dedicated lane
  - Previous route times
  - Barrier free boarding
  - TSP



**Naztec**

**Operations Manual**

*For*

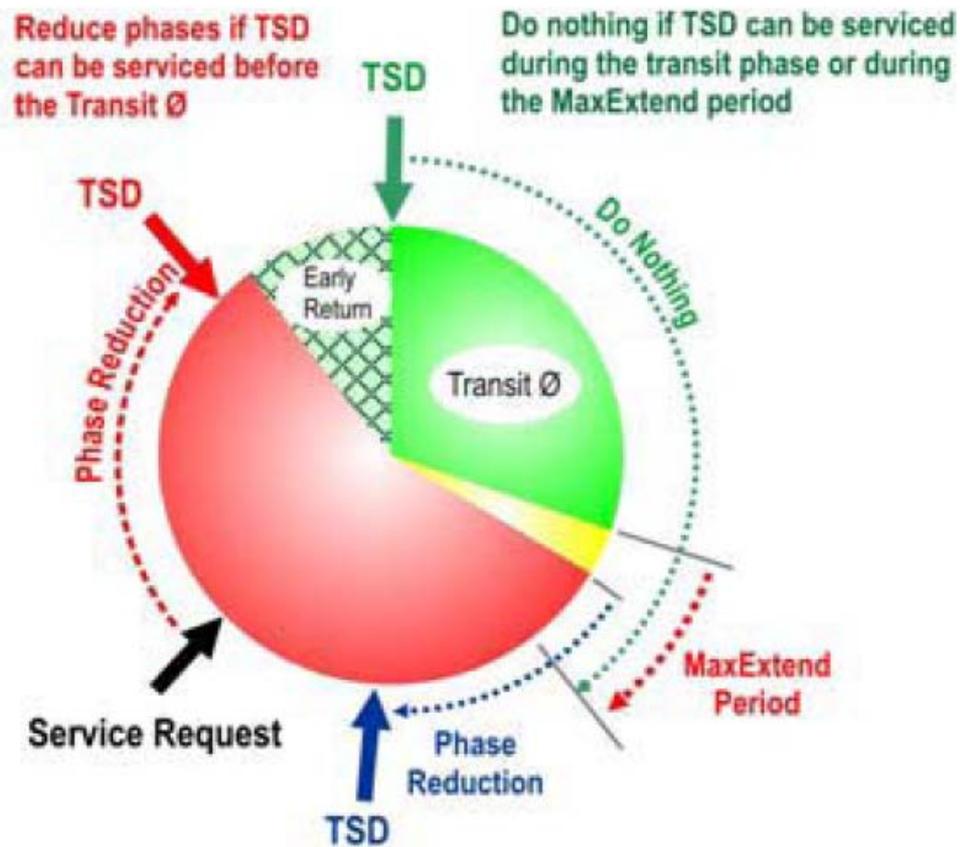
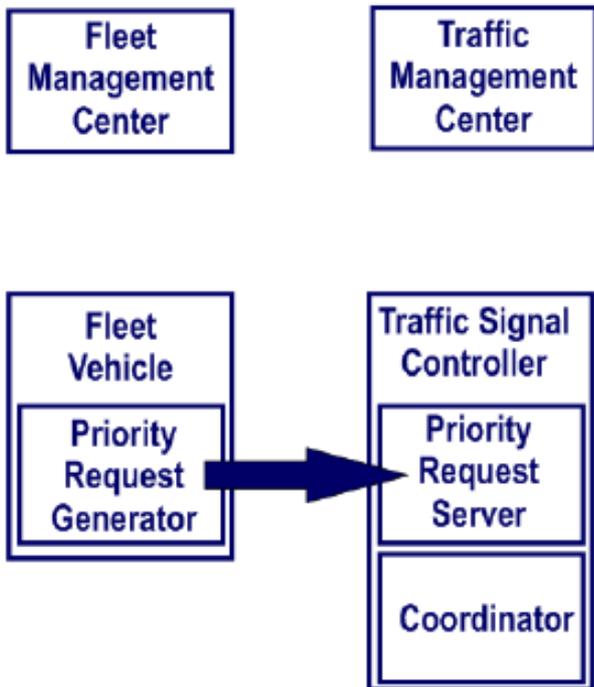
**Transit Priority**

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**Using Controllers with Version 76.x Software**

Spl-1	Ø	1	2	3	4	5	6	7	8	->
Time	25	25	25	25	25	25	25	25	25	
Coor-Ø	.	X	.	.	.	.	.	.	.	
Mode	NON	MAX	NON	NON	NON	MAX	NON	NON		
MaxReduc	5	0	5	5	5	0	5	5		
MaxExtnd	0	15	0	0	0	15	0	0		

## Signal Control Priority Strategy 4



NTCIP - Phase Reduction



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