

Freeway Performance Report 2015, 2nd Quarter (15.02)



*Photo courtesy of
NDOT Facebook page*

Table of contents

1. Title page
2. Table of Contents
3. Overview
- 4 to 6: The 2015 2nd Quarter Report
7. Observations

Corridor Maps with Threshold Comparisons

8. Las Vegas Valley
9. I-15 NB, PM
10. So Beltway, 215 WB, AM & PM
11. I-515 NB, AM & PM
12. US 95 SB to I-15 SB, AM & PM
13. I-15 SB, AM & PM
14. So Beltway EB to Windmill, PM
15. So Beltway EB to I-515, PM

Performance Components

- 16 to 18 Congestion Duration Tables, PM
- 19. Congestion Duration Tables, AM
- 20 to 21 Maximum Congestion Delay, PM
- 22. Maximum Congestion Delay, AM
- 23 to 24 Days per crash
- 25 to 28 Percent change in Volume
- 29 to 32 Percent change in Speed

Appendix

- 33 to 28 Information and Tables from 2015, Quarter 1 report

Overview of Performance Process

- This version of report builds on the 2015 1st Quarter report.
- In that report, the concept of thresholds was introduced; thresholds are based on recent documented performance related to travel time, reliability, crashes, and volumes.
- Subsequent time periods (seasons) are compared to the thresholds to start the conversation on how performance is trending and to diagnose causes and identify countermeasures.
- The data can also be used to evaluate the effectiveness of strategies or other programs in place.

The 2015 2nd Quarter Report

- Corridor / Bottleneck data is available for approximately two years (between mid-April 2013 and early June 2015).
- The two most recent time seasons (Spring & Early Summer 2015) are compared with the thresholds established and comments are provided. *See page 38 for more information on seasons.*
- This is the first report to compare season performance with the corridor thresholds.
- As this information is reflected upon, we will identify next steps for evaluation and reporting.
- Future reports will build upon knowledge and understanding developed from this and earlier efforts.

The 2015 2nd Quarter Report cont.

- For now, much of the 2015.2 report references topics discussed in the 2015.1 report. That report is available on the FAST Dashboard.
- As performance reporting continues and evolves, we will reorganize the packaging of our information.
- We welcome all comments!



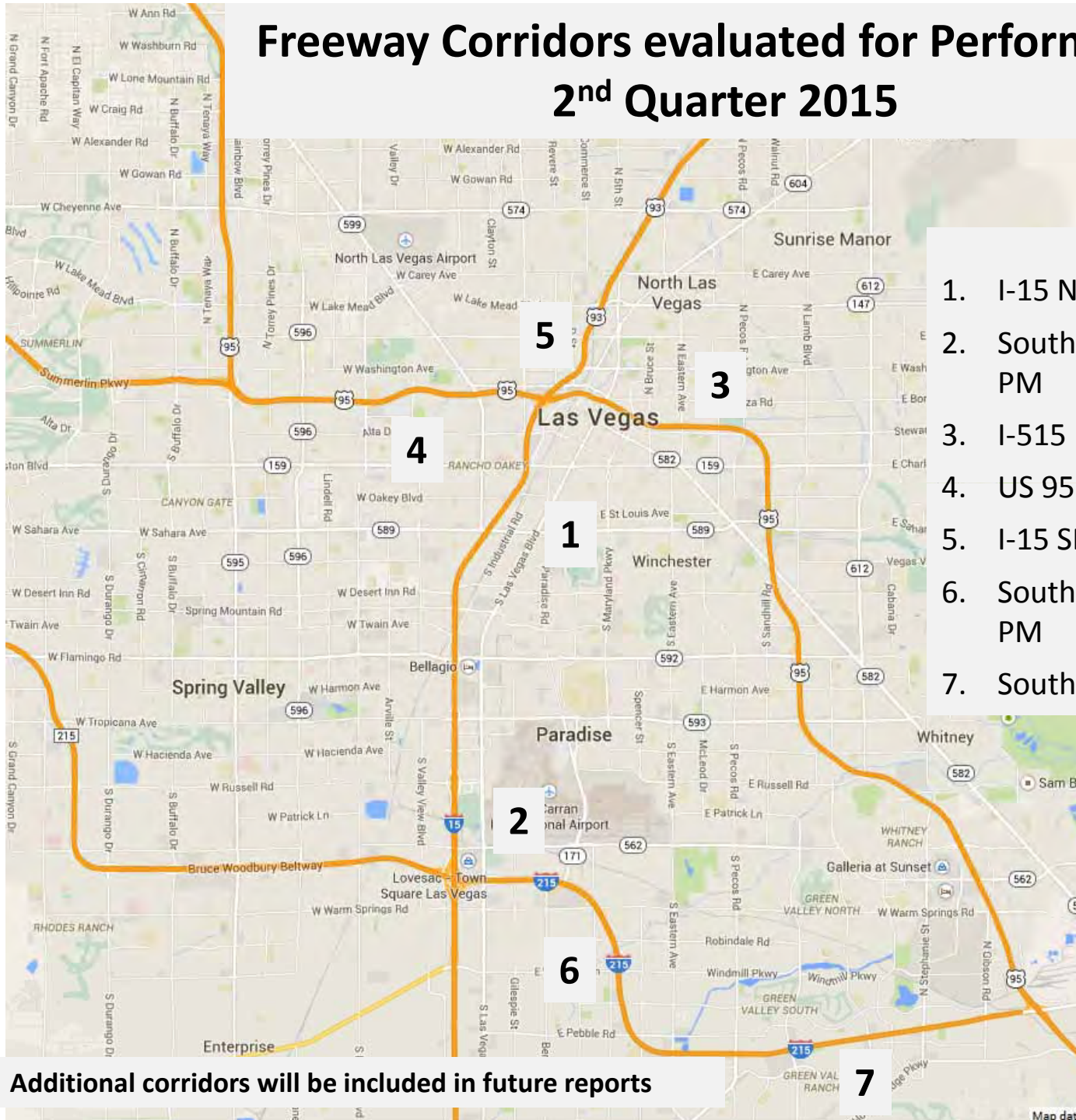
Report Sections

- Observations from threshold analysis
- Map showing all bottleneck locations evaluated in this report
- Specific bottleneck and threshold comparison of recent performance
- Tables showing congestion duration, maximum delay, average daily volumes, and average daily speeds
- Appendix: tables and information from previous report

Observations regarding ***2015 Spring and Early Summer*** performance

- Volumes continue to increase significantly throughout valley.
- When compared with performance thresholds, less congestion duration and delay occurred on I-15 NB, 95 SB to 15 SB (PM), and 15 SB to 215 at Eastern; similar or increased duration and delay occurred at other locations.
- Reliability was better or same at 15 NB, 95 SB to 15 SB (PM), 15 SB PM, and 215 EB to Eastern.
- Days per crash values were relatively unchanged.

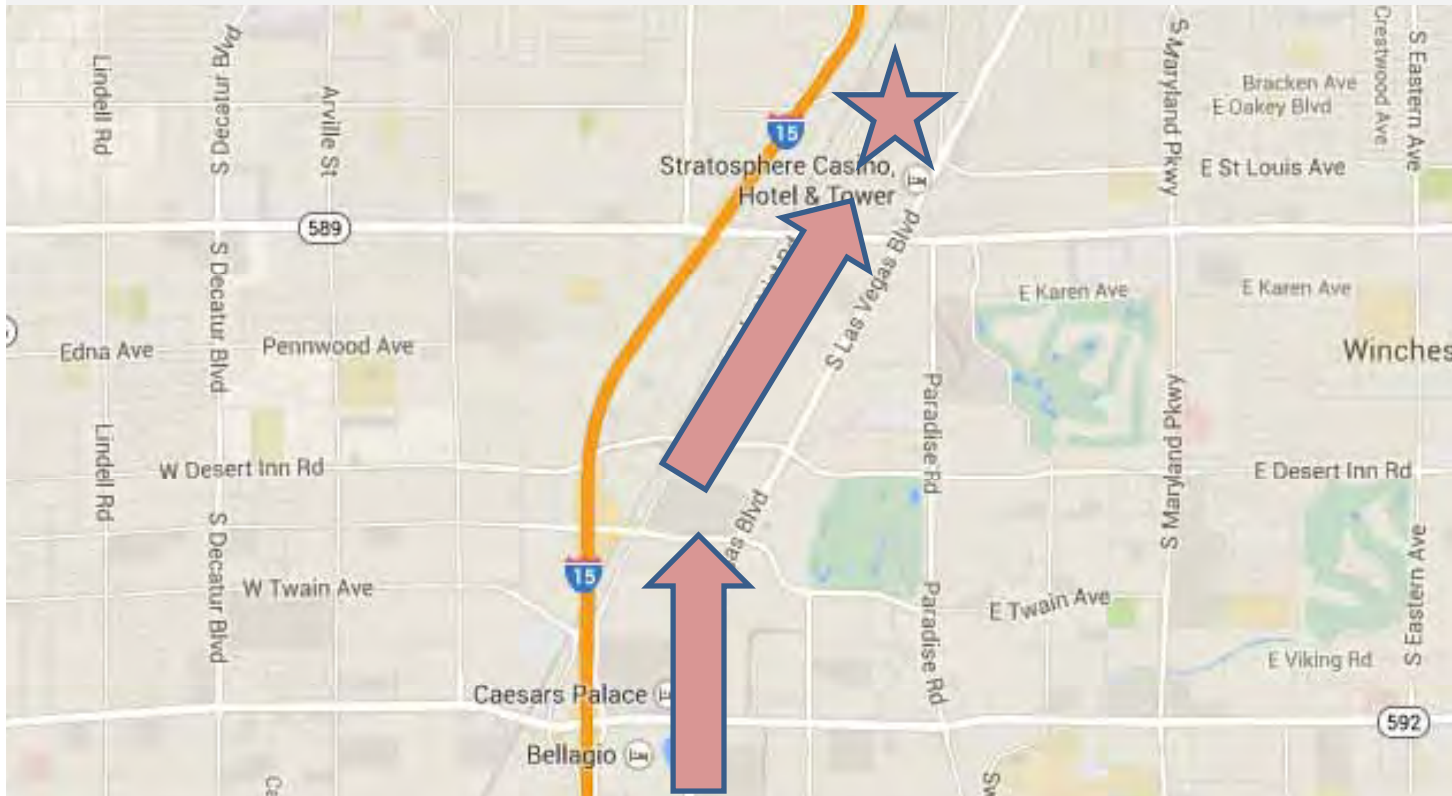
Freeway Corridors evaluated for Performance 2nd Quarter 2015



1. I-15 NB, PM
2. Southern Beltway, 215 WB, AM & PM
3. I-515 NB, AM & PM
4. US 95 SB to I-15 SB, AM & PM
5. I-15 SB, AM & PM
6. Southern Beltway EB to Windmill, PM
7. Southern Beltway EB to I-515, PM

Additional corridors will be included in future reports

Bottleneck 1: I-15 NB between Charleston & Sahara, PM



Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
15 NB	pm	na	2.5 to 3 hours	red	12	20	yellow	1.2	10	constr
2015 Spring & Early Summer			shorter	slightly less frequent	shorter	similar	more freq	similar	v+ sp-	

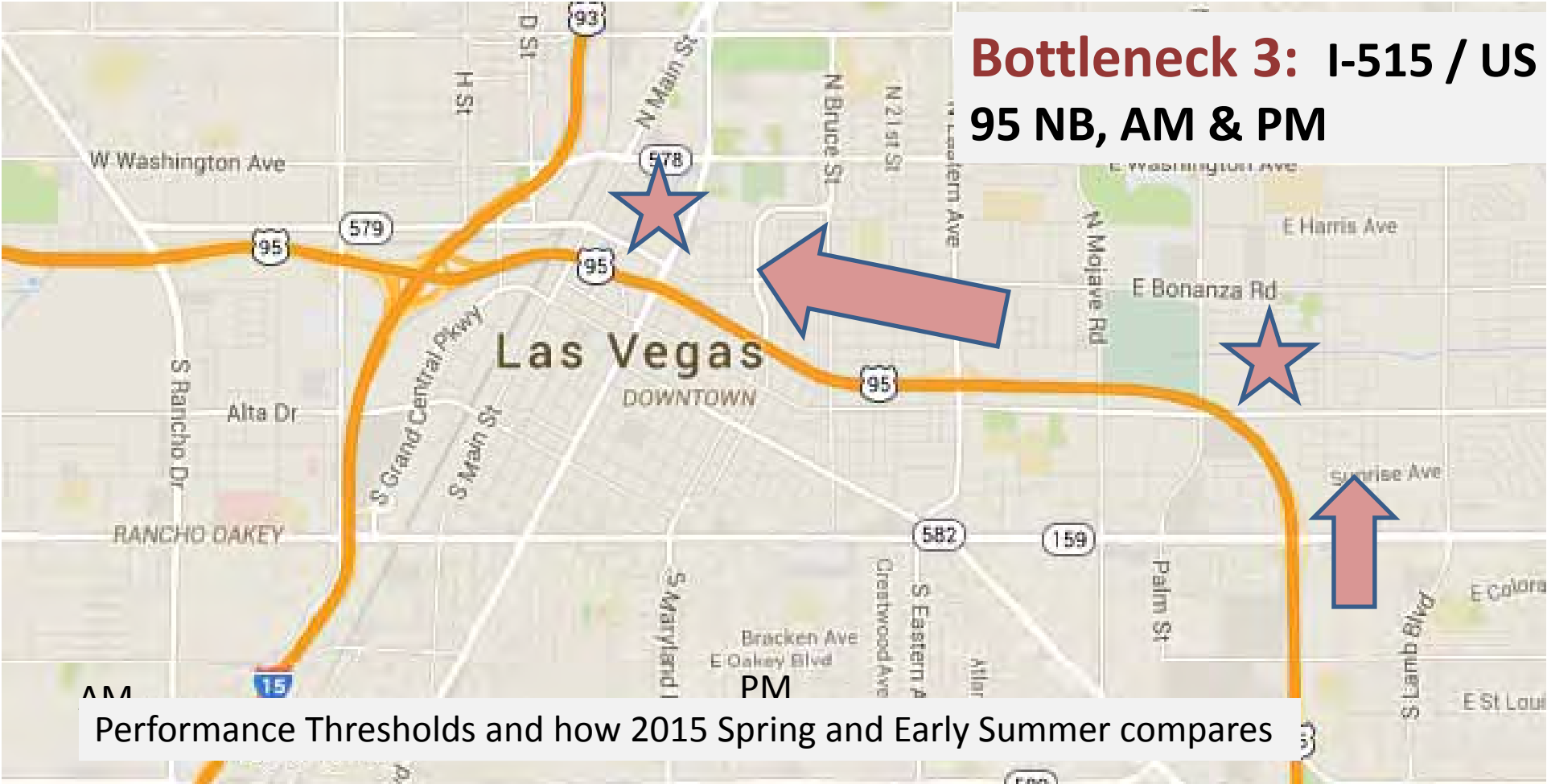
Bottleneck 2: 215 Southern Beltway WB, AM & PM



Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
215 WB	am	sch	45 mins	orange	8	16	yellow	5	30	constr
2015 Spring & Early Summer			similar	more frequent	more delay, much less reliable in spring			similar		v+ sp-
215 WB	pm	sch	lt 75 mins	red	14	20	yellow	5	30	constr
2015 Spring & Early Summer			slightly longer	less frequent	same	longer	less reliable	similar		v+ sp-

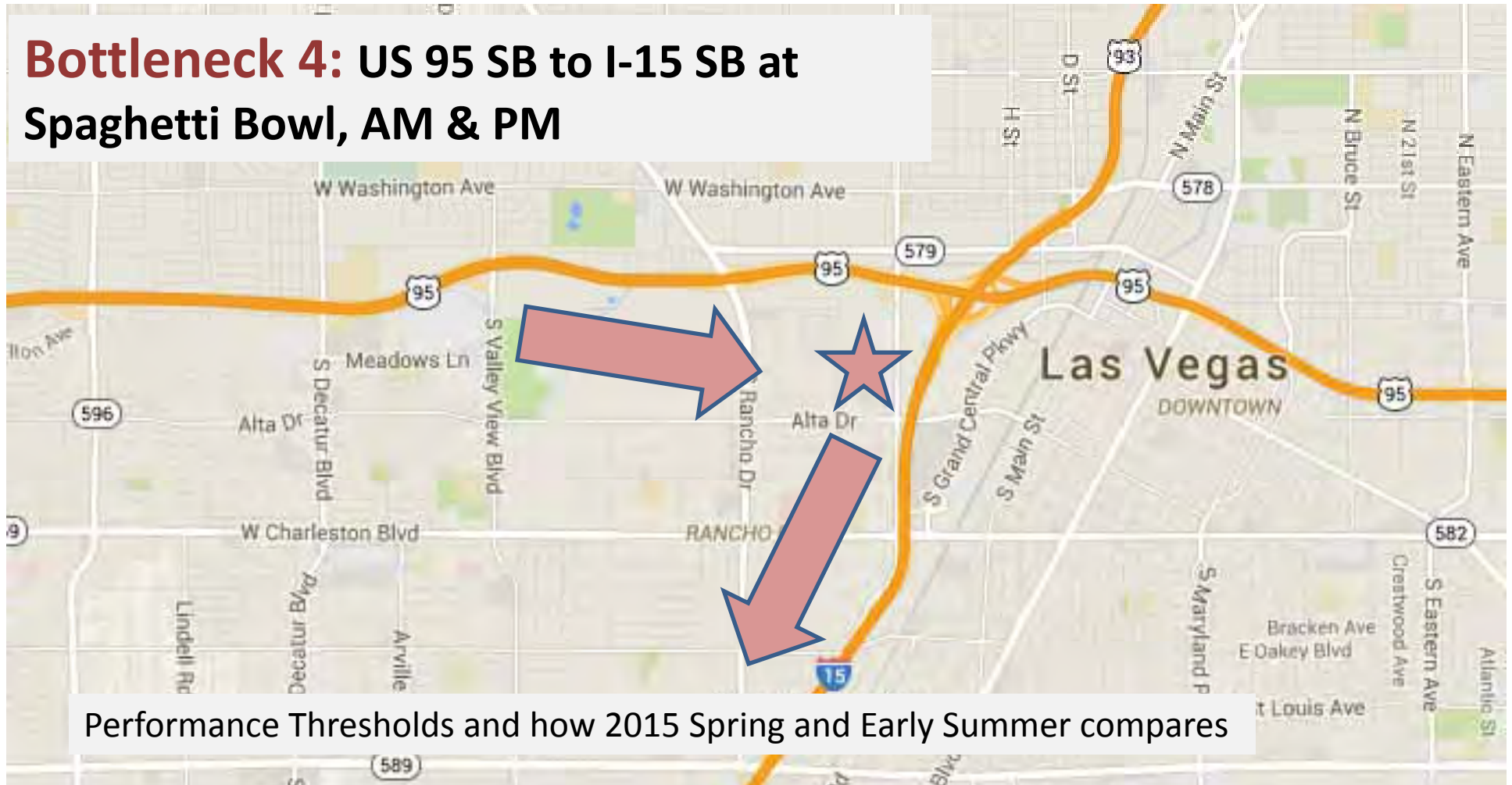
Bottleneck 3: I-515 / US 95 NB, AM & PM



Performance Thresholds and how 2015 Spring and Early Summer compares

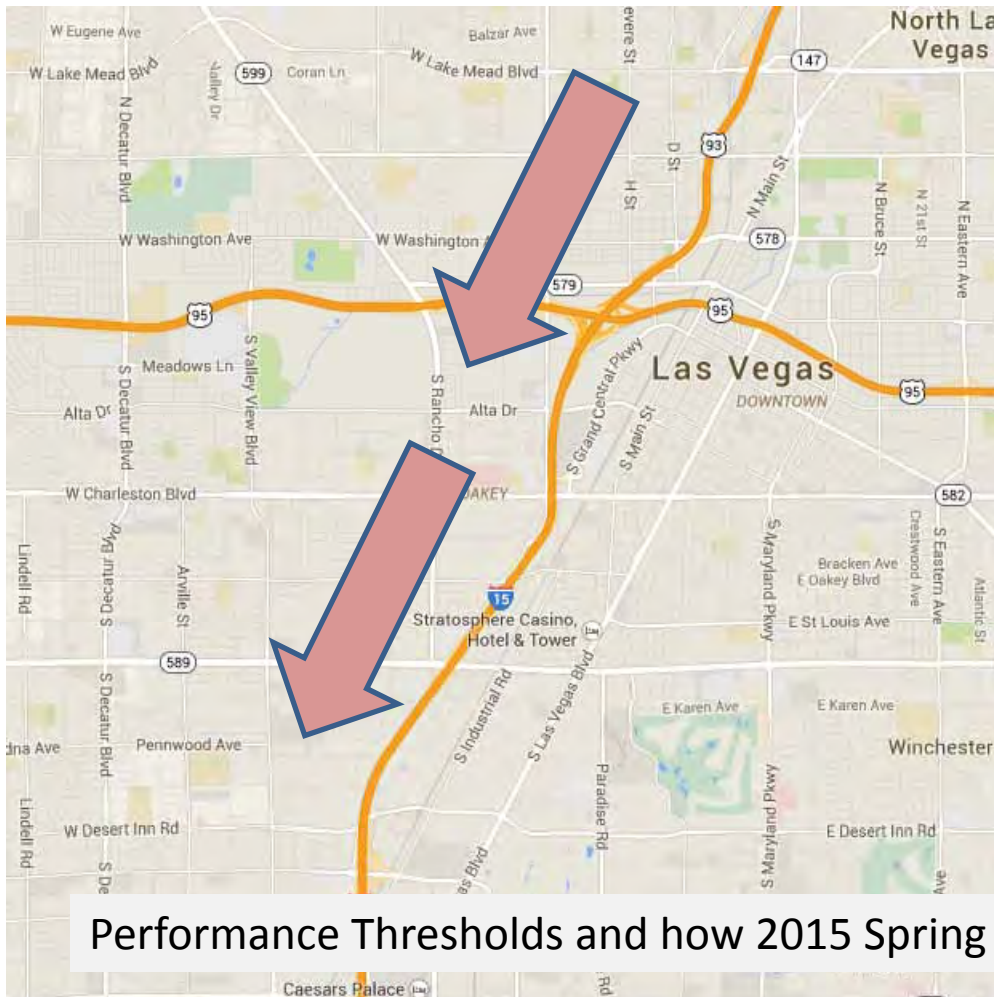
Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
515 NB	am	sch	30 to 45 mins	orange	8	14	green	3	15	v+ sp-
2015 Spring & Early Summer			similar	more frequent	same	longer, early summer	less reliable	similar		somewhat
515 NB	pm	sch	lt 100 mins	maroon	12 to 14	20	yellow	3	15	v+ sp-
2015 Spring & Early Summer			slightly longer	similar	similar	longer, spring	less reliable	similar		somewhat ¹¹

Bottleneck 4: US 95 SB to I-15 SB at Spaghetti Bowl, AM & PM



Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
95 to 15 SB	am	sch	lt 70 mins	maroon	10 to 12	16	yellow	2	20	v+ sp-
2015 Spring & Early Summer			longer	more frequent	12 mins	same	same	similar		yes
95 to 15 SB	pm	sch	lt 135 mins	red	10	14	yellow	2	20	v+ sp-
2015 Spring & Early Summer			shorter	less frequent	similar	slightly longer	same	similar		yes

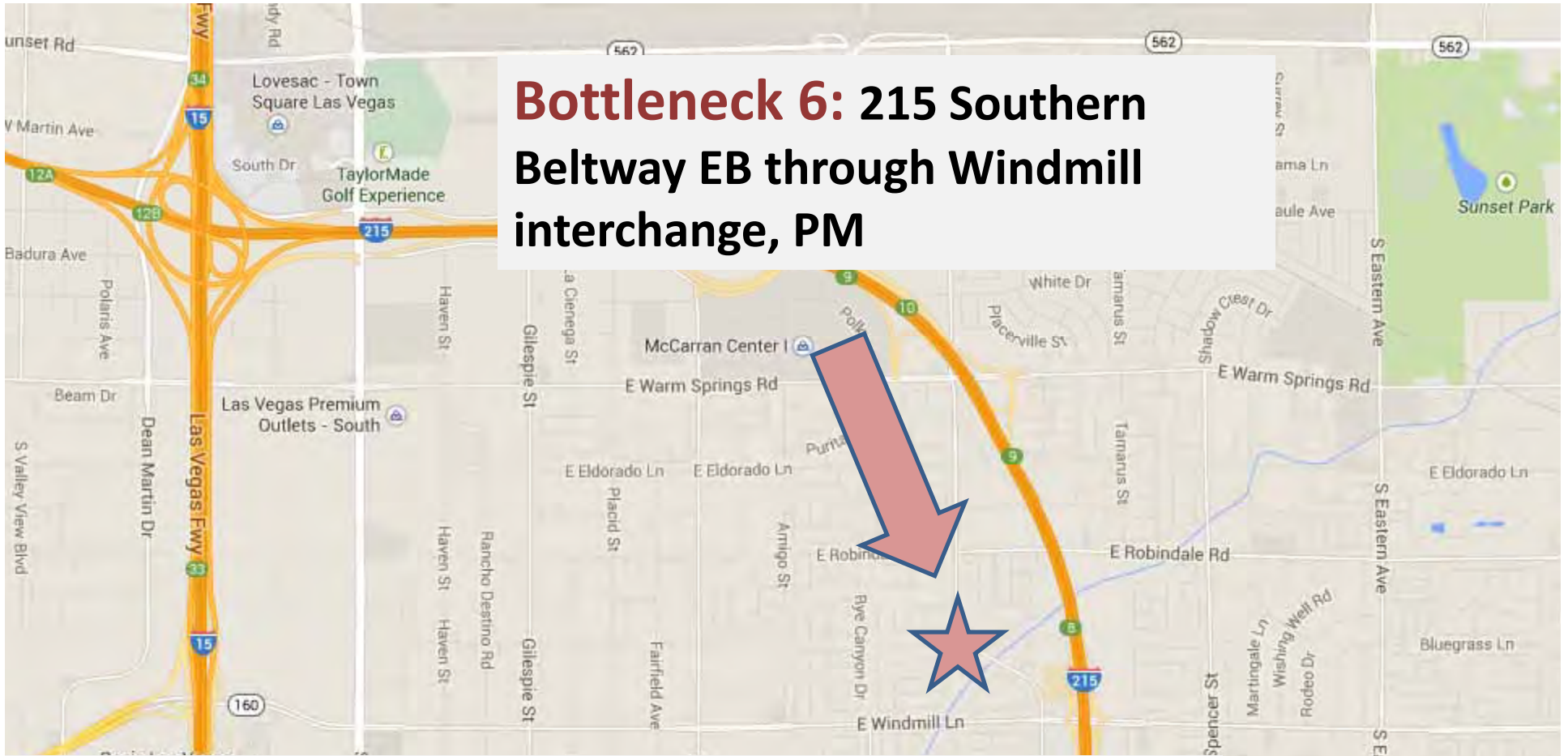


Bottleneck 5: I-15 SB, AM & PM

Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
15 SB	am	sch	lt 60 mins	maroon	10	16	yellow	1.5	8	v+ sp-
2015 Spring & Early Summer			longer	more frequent	slightly longer	longer	less reliable	more	similar	mixed, no clear pattern
15 SB	pm	sch	lt 75 mins	red	12	16	yellow	1.5	8	v+ sp-
2015 Spring & Early Summer			slightly longer	less frequent	same	same	same	more	similar	mixed, no clear pattern

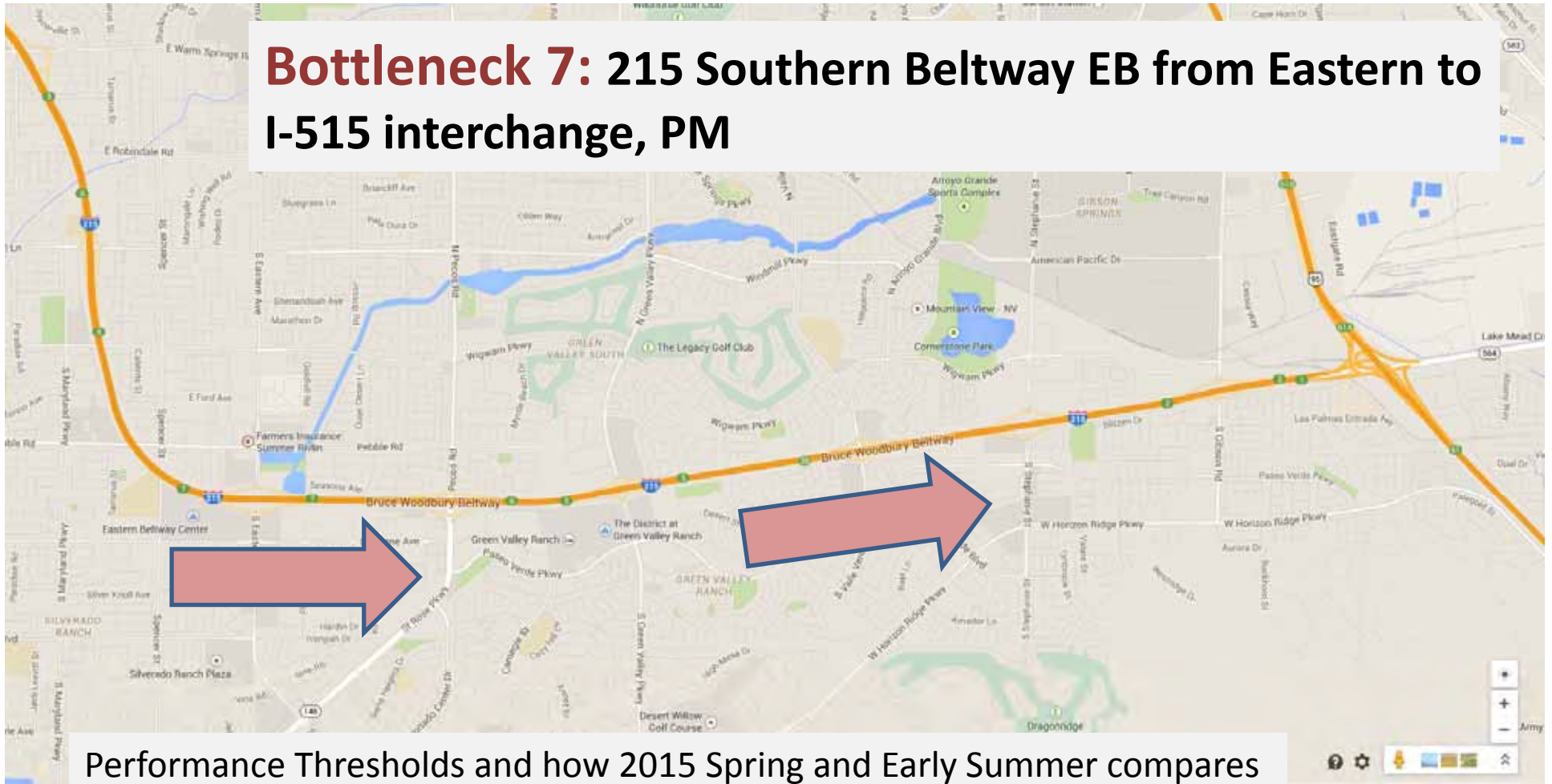
Bottleneck 6: 215 Southern Beltway EB through Windmill interchange, PM



Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
215 EB to Eastern	pm	sch	lt 60 mins	maroon	6	10	yellow	8	30	constr
2015 Spring & Early Summer			shorter	less frequent	longer	similar	same	same	more frequent	depends on location

Bottleneck 7: 215 Southern Beltway EB from Eastern to I-515 interchange, PM



Performance Thresholds and how 2015 Spring and Early Summer compares

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
215 EB to 515	pm	sch	lt 30 mins	green	6	10	green	8	30	v+ sp =
2015 Spring & Early Summer			longer	more frequent	same	longer	less reliable	better	more frequent	v+ sp =

Congestion Duration tables cont.(PM congestion)

Year	Sea	4:00 PM							5:00 PM							6:00 PM						
		25	30	35	40	45	50	55	5	10	15	20	25	30	35	40	45	50	55	5	10	15
2015	E Sum																					
2015	Spr																					
2015	B Yr																					
2014	Hol																					
2014	Fall																					
2014	Sum																					
2013	E Sum																					
2014	Spr																					
2014	B Yr																					
2013	Hol																					
2013	Fall																					
2013	Sum																					
2013	E Sum																					

215 Beltway WB

Year	Sea	2:00 PM					3:00 PM					4:00 PM					5:00 PM										
		25	30	35	40	45	5	10	15	20	25	30	35	40	45	50	55	5	10	15	20	25	30	35	40	45	50
2015	E Sum																										
2015	Spr																										
2015	B Yr																										
2014	Hol																										
2014	Fall																										
2014	Sum																										
2013	E Sum																										
2014	Spr																										
2014	B Yr																										
2013	Hol																										
2013	Fall																										
2013	Sum																										
2013	E Sum																										

US 95 SB to I-15 SB

Congestion Duration tables cont. (PM congestion)

Year	Sea	4:00 PM				5:00 PM										6:00 PM				
		45	50	55	0	5	10	15	20	25	30	35	40	45	50	55	0	5	10	
2015	E Sum																			
2015	Spr																			
2015	B Yr																			
2014	Hol																			
2014	Fall																			
2014	Sum																			
2013	E Sum																			
2014	Spr																			
2014	B Yr																			

I-15 SB to 215 at Eastern

Year	Sea	4:00 PM					5:00 PM										6:00 PM					
		25	40	45	50	55	0	5	10	15	20	25	30	35	40	45	50	55	0	5	10	
2015	E Sum																					
2015	Spr																					
2015	B Yr																					
2015	Hol																					
2014	Fall																					
2014	Sum																					
2013	E Sum																					
2014	Spr																					
2014	B Yr																					

215 EB to I-515

Year	Sea	2:00 PM			3:00 PM										4:00 PM										5:00 PM						
		45	50	55	0	5	10	15	20	25	30	35	40	45	50	55	0	5	10	15	20	25	30	0	5	10	15	20	25	30	
2015	E Sum																														
2015	Spr																														
2015	B Yr																														
2014	Hol																														
2014	Fall																														
2014	Sum																														
2013	E Sum																														
2014	Spr																														
2014	B Yr																														

I-15 SB to 215 Beltway

Congestion Duration tables (AM congestion)

Year	Sea	7:00 AM						8:00 AM						
		25	30	35	40	45	50	55	0	5	10	15	20	25
2015	Spr													
2015	E Sum													
2015	B Yr													
2014	Hol													
2014	Fall													
2014	Sum													
2014	E Sum													
2014	Spr													
2014	B Yr													
2013	Hol													
2013	Fall													
2013	Sum													
2013	E Sum													

I-515 NB

Year	Sea	7:00 AM						8:00 AM						
		30	35	40	45	50	55	0	5	10	15	20	25	30
2015	E Sum													
2015	Spr													
2015	B Yr													
2014	Hol													
2014	Fall													
2014	Sum													
2013	E Sum													
2014	Spr													
2014	B Yr													
2013	Hol													
2013	Fall													
2013	Sum													
2013	E Sum													

215 Beltway WB

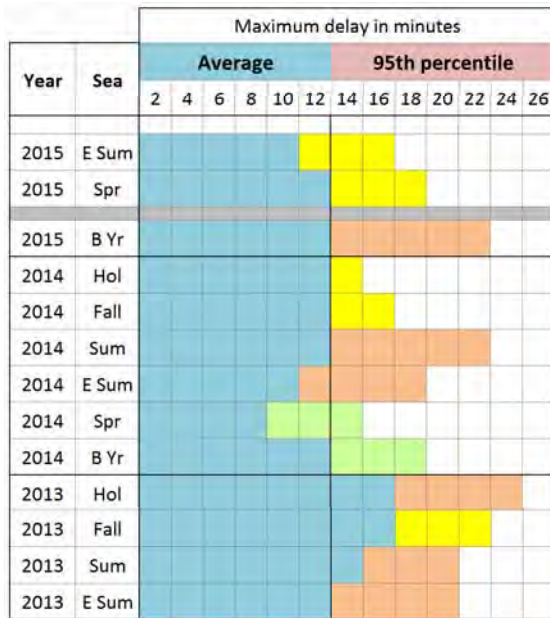
Year	Sea	7:00 AM										8:00 AM									
		5	10	15	20	25	30	35	40	45	50	5	10	15	20	25	30	35	40	45	50
2015	E Sum																				
2015	Spr																				
2015	B Yr																				
2014	Hol																				
2014	Fall																				
2014	Sum																				
2013	E Sum																				
2014	Spr																				
2014	B Yr																				
2013	Hol																				
2013	Fall																				
2013	Sum																				
2013	E Sum																				

US 95 SB to I-15 SB

Year	Sea	6:00 AM	7:00 AM										8:00 AM													
		45	50	55	0	5	10	15	20	25	30	35	40	45	50	55	0	5	10	15	20	25	30	35	40	45
2015	E Sum																									
2015	Spr																									
2015	B Yr																									
2014	Hol																									
2014	Fall																									
2014	Sum																									
2013	E Sum																									
2014	Spr																									
2014	B Yr																									

I-15 SB to 215 Beltway

Maximum Congestion Delay per event (PM Average and 95th Percentile)



I-15 NB



I-515 NB

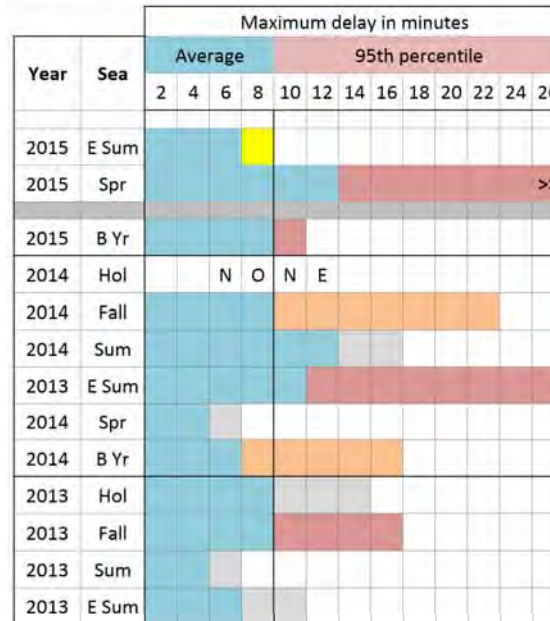


215 Beltway WB

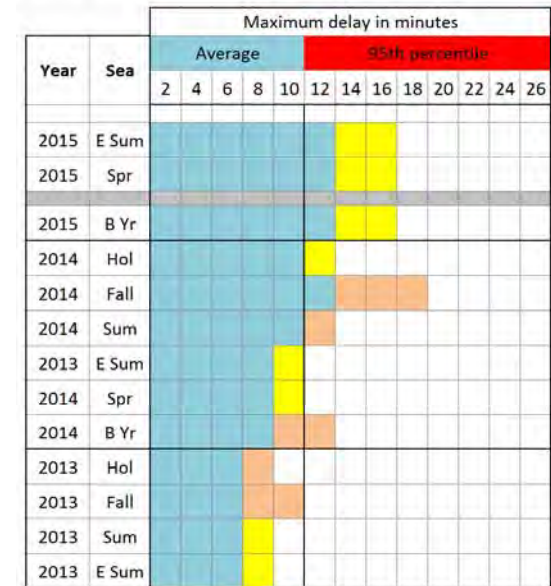
Maximum Congestion Delay per event (AM Average and 95th Percentile)



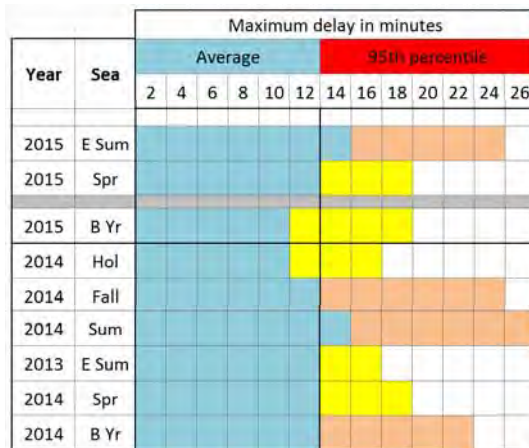
I-515 NB



215 Beltway WB



US 95 SB to I-15 SB



I-15 SB to 215 Beltway

Days per crash cont.

		days per crash, days per bad crash												
Year	Sea	Days per crash									Days per bad crash			
		lt 1	1	1.2	1.4	1.6	1.8	2	3	5	10	15	20	gt 30
2015	E Sum	[Blue]									[Red]			
2015	Spr	[Blue]									[Red]			
2015	B Yr	[Blue]									[Red]			
2014	Hol	[Blue]									[Red]			
2014	Fall	[Blue]									[Red]			
2014	Sum	[Blue]									[Red]			
2013	E Sum	[Blue]									[Red]			
2014	Spr	[Blue]									[Red]			

I-15 SB to 215 at Eastern

		days per crash, days per bad crash												
Year	Sea	Days per crash									Days per bad crash			
		lt 1	1	1.2	1.4	1.6	1.8	2	3	5	10	15	20	gt 30
2015	E Sum	[Blue]									[Red]			
2015	Spr	[Blue]									[Red]			
2015	B Yr	[Blue]									[Red]			
2014	Hol	[Blue]									[Red]			
2014	Fall	[Blue]									[Red]			
2014	Sum	[Blue]									[Red]			
2013	E Sum	[Blue]									[Red]			
2014	Spr	[Blue]									[Red]			

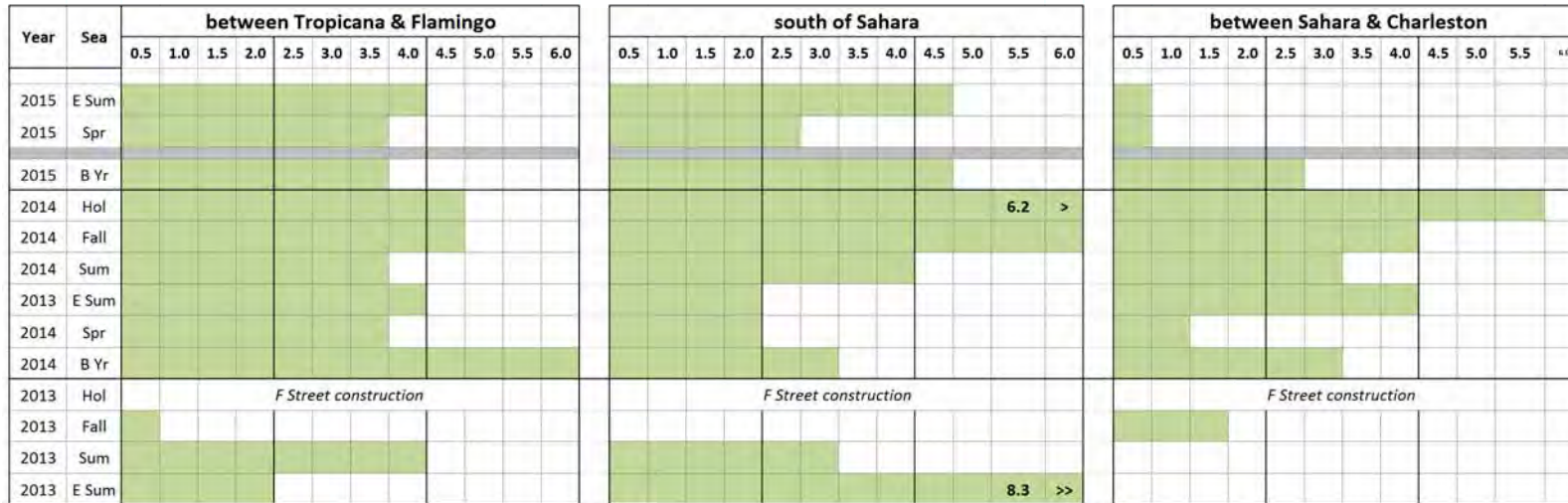
215 EB to I-515

		days per crash, days per bad crash												
Year	Sea	Days per crash									Days per bad crash			
		lt 1	1	1.2	1.4	1.6	1.8	2	3	5	10	15	20	gt 30
2015	E Sum	[Blue]									[Red]			
2015	Spr	[Blue]									[Red]			
2015	B Yr	[Blue]									[Red]			
2014	Hol	[Blue]									[Red]			
2014	Fall	[Blue]									[Red]			
2014	Sum	[Blue]									[Red]			
2013	E Sum	[Blue]									[Red]			
2014	Spr	[Blue]									[Red]			

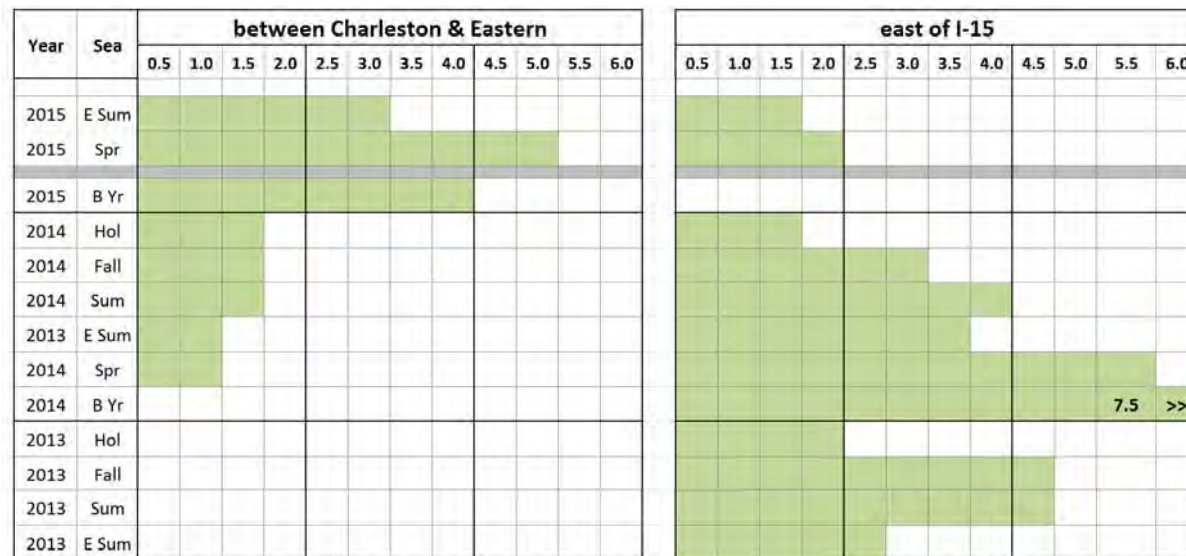
I-15 SB to 215 Beltway

Percent Change in Daily Average Volume

Compare season's value with previous year (e.g. Spr 15 vs Spr 14)



I-15 NB



I-515 NB

Percent Change in Daily Average Volume cont.

Year	Sea	east of Eastern												west of Eastern												at Decatur												
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	
2015	E Sum																																				7.1	>>
2015	Spr																																				6.5	>>
2015	B Yr																																				6.3	>>
2014	Hol																																					
2014	Fall																																				7.2	>>
2014	Sum																																					
2013	E Sum																																					
2014	Spr																																				6.5	>
2014	B Yr																																					
2013	Hol																																					

215 Beltway
WB

Year	Sea	US 95 SB at Rancho											
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
2015	E Sum												
2015	Spr												
2015	B Yr												
2014	Hol												
2014	Fall												
2014	Sum												
2013	E Sum												
2014	Spr												
2014	B Yr												
2013	Hol												
2013	Fall												
2013	Sum												
2013	E Sum												

Year	Sea	I-15 SB at Lake Mead Blvd												
		0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	
2015	E Sum												7.2	>>
2015	Spr													
2015	B Yr													
2014	Hol													
2014	Fall													
2014	Sum													
2013	E Sum													
2014	Spr													
2014	B Yr													
2013	Hol													
2013	Fall													
2013	Sum													
2013	E Sum													

US 95 SB to I-15 SB

Percent Change in Daily Average Speed

Compare season's value with previous year (e.g. Spr 15 with Spr 14)

Year	Sea	between Tropicana & Flamingo											south of Sahara											between Sahara & Charleston												
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos	lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos	lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0
2015	E Sum												<< -2.8												<< -5.1											
2015	Spr												<< -2.6																							
2015	B Yr												<< -3.6												<< -2.2											
2014	Hol											0.3																							2.9	
2014	Fall											0.5																							2.3	
2014	Sum											-0.3																							2.3	
2013	E Sum																																		3.1	
2014	Spr											0.9																							0.7	
2014	B Yr											0.8																								
2013	Hol											0.3												<< -2.3												
2013	Fall																							<< -2.4												
2013	Sum												<< -2.9																						15.0	
2013	E Sum												<< -3.4																						24.8	

I-15 NB

Year	Sea	between Charleston & Eastern										
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0
2015	E Sum											
2015	Spr											0.3
2015	B Yr											
2014	Hol											1.5
2014	Fall											
2014	Sum											
2013	E Sum											
2014	Spr	<< -2.4										
2014	B Yr											0.5
2013	Hol											
2013	Fall											
2013	Sum											
2013	E Sum											

Year	Sea	east of I-15										
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0
2015	E Sum											
2015	Spr											
2015	B Yr											
2014	Hol											0.2
2014	Fall											
2014	Sum											
2013	E Sum											
2014	Spr											
2014	B Yr											
2013	Hol											
2013	Fall											
2013	Sum											
2013	E Sum											

I-515 NB

Percent Change in Daily Average Speed cont.

Year	Sea	east of Eastern											
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos
2015	E Sum												0.6
2015	Spr												0.4
2015	B Yr												0.2
2014	Hol												0.3
2014	Fall												0.4
2014	Sum												0.8
2013	E Sum												0.6
2014	Spr												0.9
2014	B Yr												0.8
2013	Hol												
2013	Fall												
2013	Sum												
2013	E Sum												

Year	Sea	west of Eastern											
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos
2015	E Sum												0.3
2015	Spr												0.4
2015	B Yr												0.2
2014	Hol												2.3
2014	Fall												1.3
2014	Sum												2.1
2013	E Sum												2.1
2014	Spr												2.2
2014	B Yr												2.2
2013	Hol												
2013	Fall												
2013	Sum												
2013	E Sum												

Year	Sea	at Decatur											
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos
2015	E Sum												
2015	Spr												
2015	B Yr												
2014	Hol												
2014	Fall												
2014	Sum												
2013	E Sum												
2014	Spr												
2014	B Yr												
2013	Hol												
2013	Fall												
2013	Sum												
2013	E Sum												0.1

215 Beltway
WB

Year	Sea	US 95 SB at Rancho											
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos
2015	E Sum												
2015	Spr												
2015	B Yr												
2014	Hol												
2014	Fall												
2014	Sum												0.1
2013	E Sum												0.6
2014	Spr												
2014	B Yr												
2013	Hol												0.3
2013	Fall												
2013	Sum												
2013	E Sum												

Year	Sea	I-15 SB at Lake Mead Blvd											
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0	pos
2015	E Sum												1.8
2015	Spr												1.4
2015	B Yr												2.6
2014	Hol												3.4
2014	Fall												1.1
2014	Sum												
2013	E Sum	<<	-3.2										
2014	Spr	<<	-4.0										
2014	B Yr	<<	-4.2										
2013	Hol	<<	-4.0										
2013	Fall	<<	-4.0										
2013	Sum	<<	-2.1										
2013	E Sum												

US 95 SB to
I-15 SB

Percent Change in Daily Average Speed cont.

Year	Sea	between Durango & Buffalo											pos		
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0			
2015	E Sum														
2015	Spr														0.3
2015	B Yr	cc	-2.2												0.4
2014	Hol														1.6
2014	Fall														5.0
2014	Sum	cc	-2.0												10.8
2013	E Sum														8.9
2014	Spr														10.2
2014	B Yr														9.0
2013	Hol														7.5
2013	Fall														4.8
2013	Sum														1.5
2013	E Sum														4.1
2013	E Sum														3.0

I-15 SB to 215 at Eastern

Year	Sea	east of Eastern											pos		
		lt-2	-1.8	-1.6	-1.4	-1.2	-1.0	-0.8	-0.6	-0.4	-0.2	0.0			
2015	E Sum														0.5
2015	Spr														
2015	B Yr														0.3
2014	Hol														1.1
2014	Fall														1.1
2014	Sum														0.9
2013	E Sum														0.9
2014	Spr														0.5
2014	B Yr														0.5

215 EB to I-515

Appendix

Information on performance data from previous report

- Coloring: on duration charts, the redder the color, the more days per week that recurring congestion occurs. Red means all weekdays and some weekend days.
- On delay charts, the average max delay is colored blue. The 95 percentile value's color becomes redder as the congestion becomes less reliable.
- Percent change in volume & speed charts: How does a season's values compare with the same season in the previous year?

Performance Thresholds

(goal setting, targets)

- The concept of the corridor performance threshold is introduced in the 15.01 report and the initial thresholds are established.
- Thresholds are used to address questions such as
 - Does corridor performance exceed, negatively, a threshold?
 - If so, why? What can be done to address?

Performance Thresholds (cont)

Establishment and use

- Each corridor's delay, congestion duration, crash rate and other data sets dating back to mid-2013 were reviewed.
- This review provided a sense of seasonal performance ranges of freeway corridors and bottlenecks.
- With this understanding, upper performance boundaries for the parameters were created. These are the performance thresholds
- How performance compares to these thresholds will be evaluated in future reports, and opportunities for projects, programs, and other activities to address performance will be introduced.

Performance Threshold details

- **Corridor, AM-PM, School-Summer:** temporal and spatial information.
- **Duration and Duration color:** on average, how long does the congestion event last? The color corresponds to percentage of days that have a congestion event. More events means a redder color.
- **Max delay fields:** each congestion event will have a maximum delay over and above the free-flow travel time. The average and 95th percentile delay are shown.
- **Crashes:** how many days elapse between crashes and very bad crashes. Very bad crashes are not cleared from travel lanes in time to meet the 30 or 60 minute criteria.
- **Volume-Speed relationship:** the change in average daily volume and speed are compared over time. Does volume increase while speed decreases, or is there some other relationship? In some corridors, this cannot be determined because of construction during the previous season.

Temporal / Spatial description			How long does a congestion event last? How frequent are congestion events?		Maximum Delay (minutes)			Days per crash		How do changes in volume & speed relate?
Corridor	AM / PM	School in or out	duration	duration color	Average	95th percentile	95th color	crash	very bad crash	
15 NB	pm	na	2.5 to 3 hours	red	12	20	yellow	1.2	10	constr
515 NB	am	sch	30 to 45 mins	orange	8	14	green	3	15	v+ sp-
	am	summer	30 mins	green	8	14	green			
	pm	sch	lt 100 mins	maroon	12 to 14	20	yellow			
	pm	summer	lt 45 mins	green	8	12	green			
215 WB	am	sch	45 mins	orange	8	16	yellow	5	30	constr
	am	summer	30 mins	green	8	14	green			
	pm	sch	lt 75 mins	red	14	20	yellow			
	pm	summer	lt 60 mins	maroon	10	14	green			
95 to 15 SB	am	sch	lt 70 mins	maroon	10 to 12	16	yellow	2	20	v+ sp-
	am	summer	lt 70 mins	orange	10	12	green			
	pm	sch	lt 135 mins	red	10	14	yellow			
	pm	summer	lt 100 mins	red	8	12	yellow			
15 SB	am	sch	lt 60 mins	maroon	10	16	yellow	1.5	8	v+ sp-
	am	summer	lt 45 mins	orange	10	14	yellow			
	pm	sch	lt 75 mins	red	12	16	yellow			
	pm	summer	lt 75 mins	red	12	16	yellow			
215 EB to Eastern	pm	sch	lt 60 mins	maroon	6	10	yellow	8	30	constr
	pm	summer	lt 30 mins	orange	4	8	green			
215 EB to 515	pm	sch	lt 30 mins	green	6	10	green	8	30	v+ sp =
	pm	summer	lt 30 mins	green	4	8	green			

Seasons: Based on review of several years of traffic volumes and patterns from ITS data, FAST recommends the performance analysis be grouped temporally as shown below. There are six seasons per year; details on the most recent seasons are shown.

Season	Description	Most recent season dates		Days	Comment
		Begin	End		
Beginning of year	First day of CCSD school following holiday break through a Friday in mid-March	Monday, 01.05.15	Friday, 03.13.15	68	Traffic volumes and patterns pick up following holiday break and resemble Fall patterns
Holiday	Monday before Thanksgiving to day before CCSD school begins	Monday, 11.24.14	Sunday, 01.04.15	42	Although school is still in session during part of this season, traffic volumes and patterns begin to transition out of the fall travel mode. The three lowest volume travel days of the year occur during this season: Thanksgiving, Christmas, and New Year's Day. Traffic volumes to and from California are very high on several days during this season.
Fall	First day of CCSD school following summer vacation to Sunday before Thanksgiving	Monday, 08.25.14	Sunday, 11.23.14	91	By mid-September traffic volumes and patterns typically are built up to represent what will occur until the holidays. There is a distinct change from patterns and volumes experienced during the Summer season.
Summer	Final weekend of CCSD high school graduations through Sunday before the new school year begins	Saturday, 06.07.14	Sunday, 08.24.14	79	Recurring congestion and traffic volumes on the urbanized Las Vegas freeways are slightly reduced during the summer. There is an increase in travel between Las Vegas & California and towards Boulder City and Arizona.
Early Summer	A Monday in mid-April through the last weekend of CCSD school activity and graduation ceremonies	Monday, 04.21.14	Friday, 06.06.14	47	Patterns and volumes are typically similar to Fall and Beginning of Year
Spring	A Saturday in mid-March through a Sunday in mid-April	Saturday, 03.15.14	Sunday 04.20.14	37	Due to Spring Break, great weather, Easter, March Madness, conventions, and other events and activities, there is a noticeable increase in traffic volumes between mid-March and Mid-April. For the urbanized freeway corridors, the highest daily average traffic volumes of the year typically occur during this season; they are noticeably higher than the adjacent Beginning of Year and Early Summer seasons and, therefore, earn their own season. Most Sundays experience high volumes and long delays between Las Vegas and Southern California.