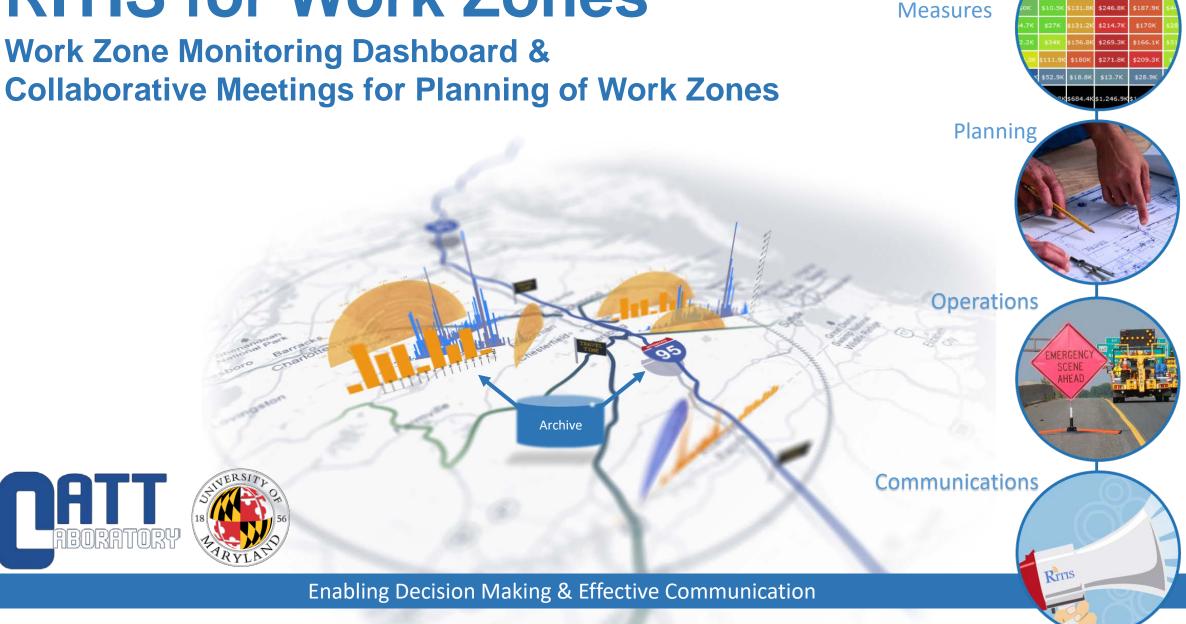
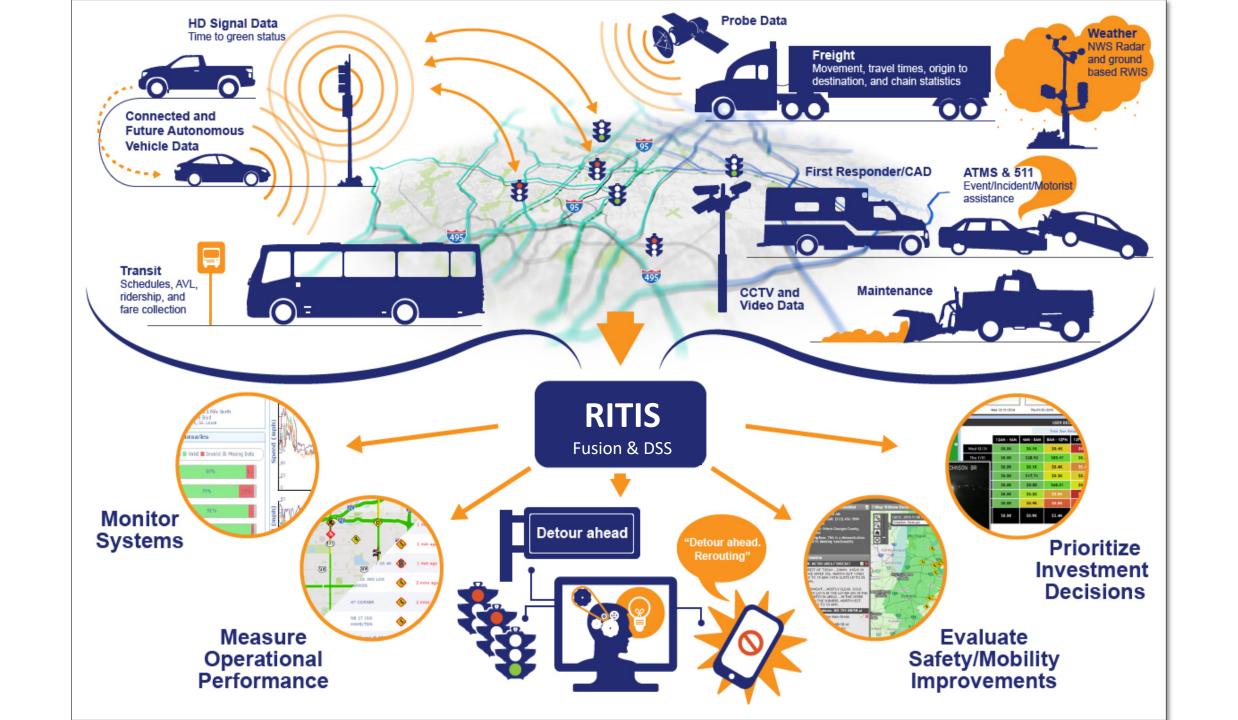
RITIS for Work Zones

Work Zone Monitoring Dashboard &



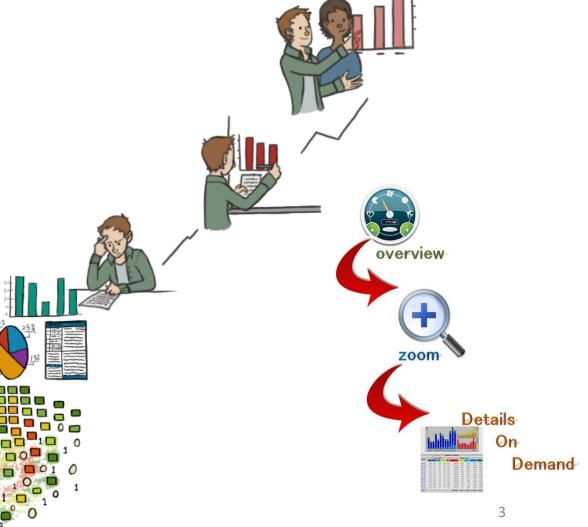
Performance

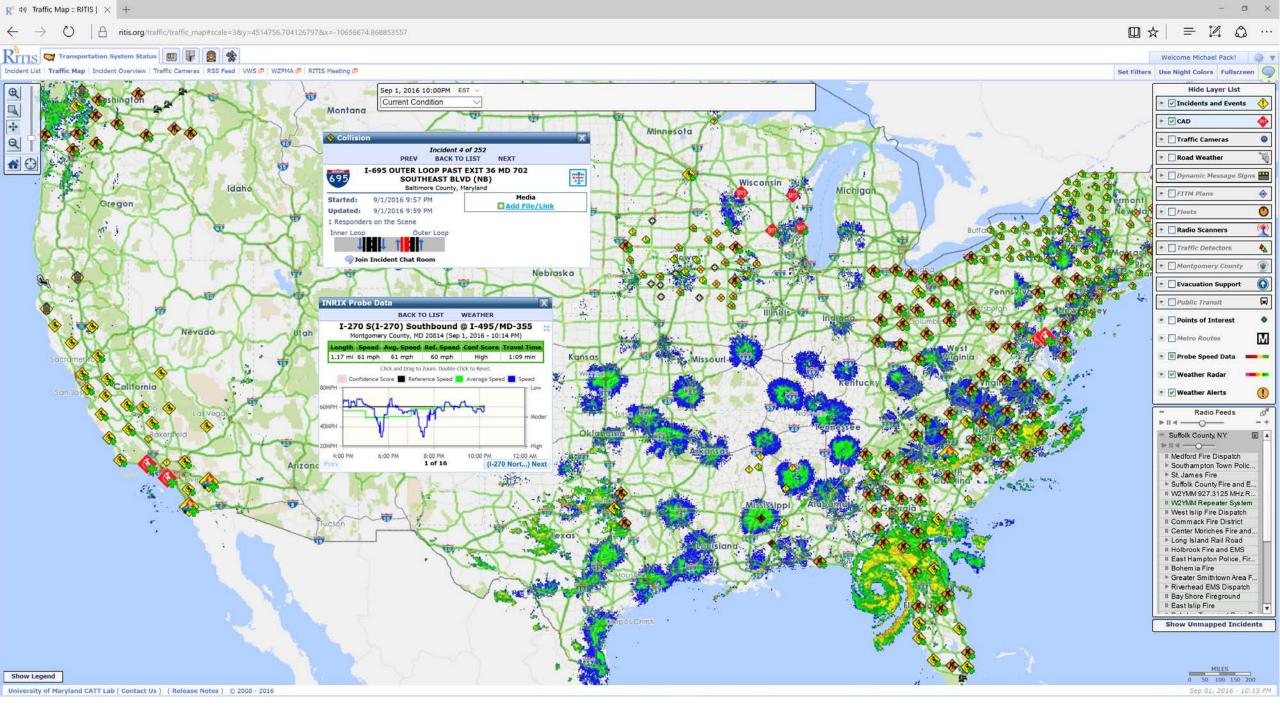


Our Goal with RITIS is to:

- Provide tools to make data
 - easily accessible,
 - usable,
 - Understandable, and
 - allowing for insights discovery

To domain experts or the general public

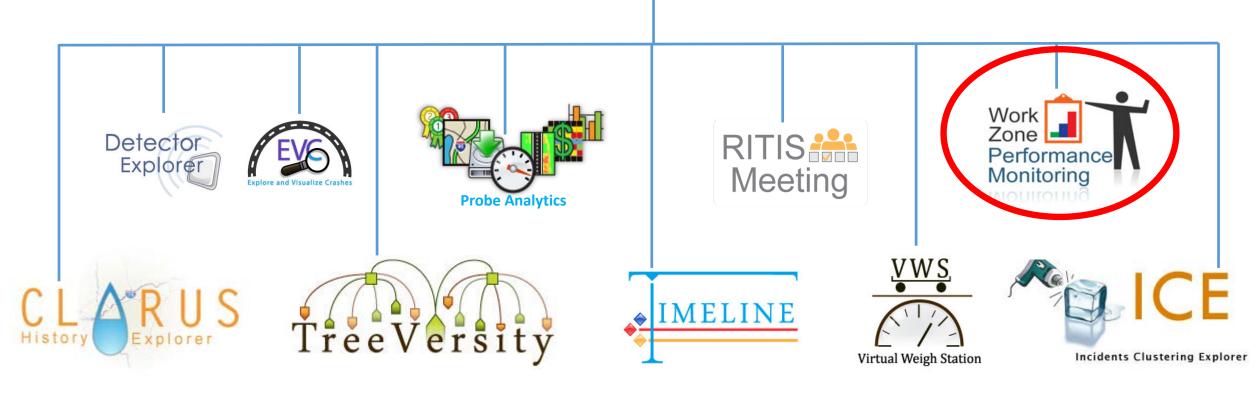




Context









Improving Work Zone Safety and Mobility



Background



Motivation

Compliance with Final Rule on Work Zone Safety and Mobility

Funding

In 2013 MD SHA and FHWA funded a project to develop a real time performance monitoring tool for work zones using INRIX probe vehicle data and event data.







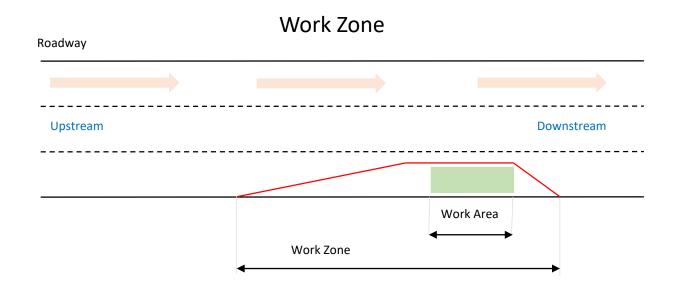


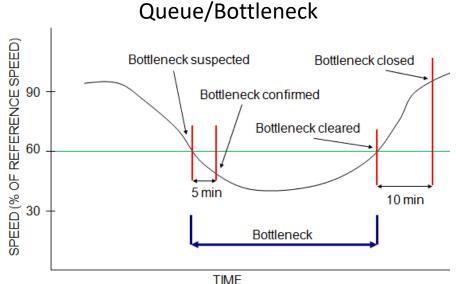


Data Sources and Key Definitions



- Active work zone information provided by SHA CHART system in real-time.
- Probe vehicle speed information from INRIX.





User Delay Cost (UDC)

	12AM - 4AM	4AM - 8AM	8AM - 12PM	12PM - 4PM	4PM - 8PM	8PM - 12AM	Daily Totals
Tue 5/06/2014	\$3.08	\$108.81	\$7,128.14	\$27.44	\$65.90	\$18.84	\$7,352.21
Wed 5/07/2014	\$4.96	\$109.18	\$8,340.98	\$1,363.86	\$69.40	\$22.46	\$9,910.84
Thu 5/08/2014	\$14.66	\$25.33	\$3,590.53	\$3,622.06	\$110.97	\$80.95	\$7,444.50
Fri 5/09/2014	\$3.96	\$19.39	\$617.81	\$16.48	\$2,440.87	\$6.42	\$3,104.93
Sat 5/10/2014	\$4.07	\$0.49	\$0.00	\$36.27	\$12.90	\$54.81	\$108.54
Sun 5/11/2014	\$4.41	\$10.43	\$0.00	\$4,314.89	\$0.00	\$6.63	\$4,336.36
Mon 5/12/2014	\$2.58	\$201.15	\$8,183.06	\$3,144.59	\$349.59	\$27.50	\$11,908.47
Hourty Totals	537.72	5474.78	527,860.52	\$12,525.59	\$3,049.63	\$217.61	Grand Total: \$44,165.85
					Weekend	Lowest	Highest No Data

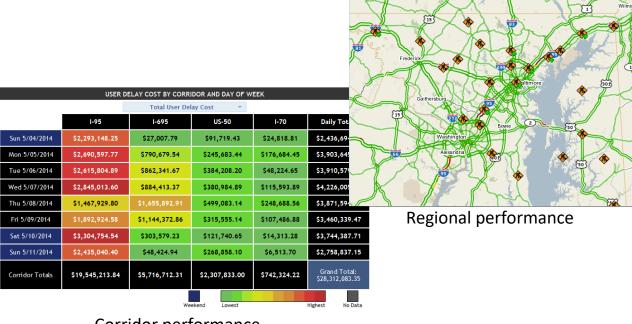
Calculated using:

- ADT (AADT with adjustment factor)
- Passenger/commercial vehicle percentages
- Speed reduction factor
- Delay

Audience and Goals



- Audience: Project Engineers and Managers
- Goals:
 - Real time performance
 - Alerts when thresholds exceeded
 - Potential actions based on identified performance
- Audience: Public Relations
- Goals:
 - Real time and historical performance
 - Responding to complaints and inquiries
- Audience: Planners and Decision Makers
- Goals:
 - Closure costs
 - Review of previous performance



Corridor performance



Individual work zone performance

Work Zone Dashboard

CURRENT WORKZONES IN MARYLAND



LENGTH (MI)

LANE STATUS

US-50

\$229,861.28

\$301,406.33

\$474,634.47

\$107,675.0.

,927.57

\$258,710.91

\$212,687.02

\$1,867,770.87

I-70

\$48,652.15

\$77,104.65

\$107,010.25

6,721.

\$83,203.90

\$640,749.82

\$184

Daily Totals

\$3,583,478.94

\$2,669,066.33

\$3,493,788.29

\$3,660,917.46

\$2,677,692.82

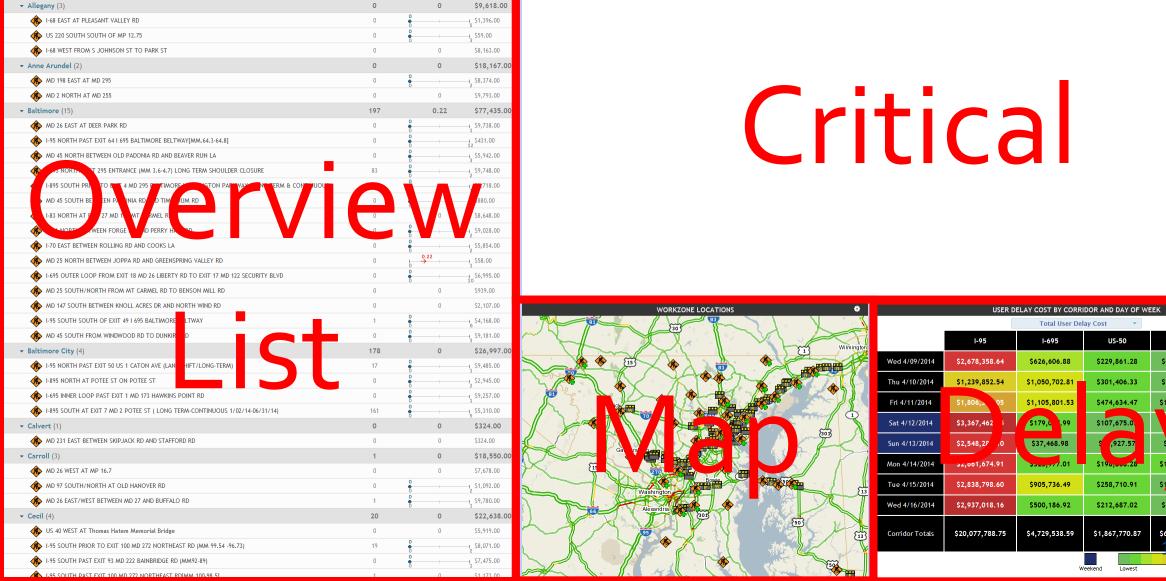
\$3,369,250.33

\$4,128,557.87

\$3,733,096.00

Workzone Dashboard

REGION/EVENT → Maryland (76)



QUEUE LENGTH (MI)

OF NEARBY INCIDENTS

USER DELAY COST (\$)

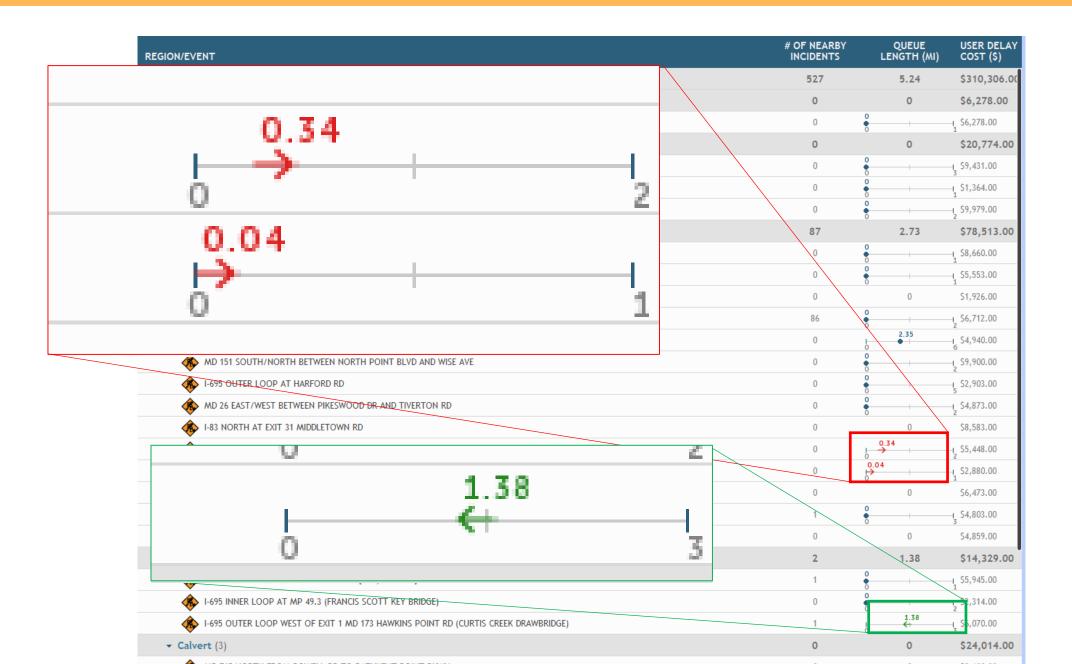
\$374,858.0

SEVERITY/EVENT

TOP CRITICAL WORKZONES

Overview List



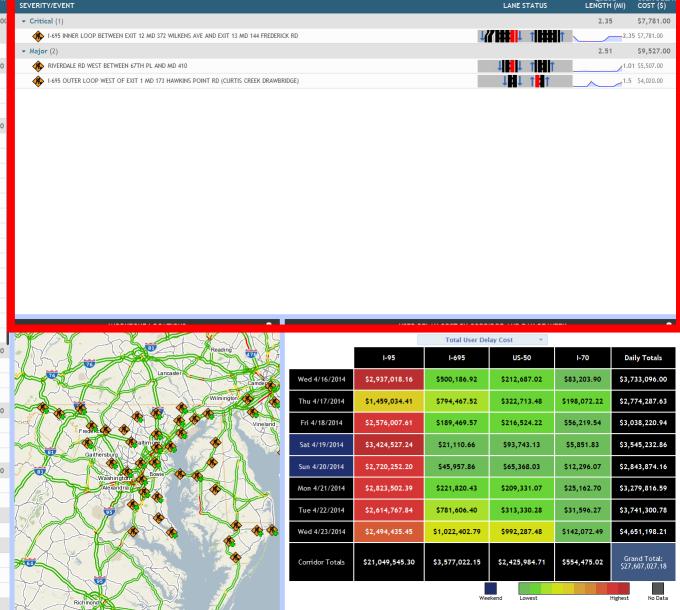


Work Zone Dashboard



W	or	ΚZ	one	D	asi	hb	oar	

RECIDITE CENT STORE STO	Workzone Dashboard				
MANGRIGHT MODESTE LEVERT LE	CURRENT WORKZONES IN MARYLAND				Г
- Allegany (1) - Anne Arundel (3) - Anne Arundel (3) - Anne Arundel (3) - O DE SOUTH RETYREN MONAT RO AND ROCKES LA - NO DE SOUTH RETYREN MONAT RO AND ROCKES LA - NO TO DE SOUTH RETYREN MONAT RO AND ROCKES LA - NO 10 NORTH FROM LED'S TO MD GAB - NO 10 NORTH FROM LED'S TO MD GAB - Baltimore (14) - Baltimore (14) - Baltimore (15) - NO 128 SOUTH-ARON ME LYCHE PRET ARE AND HANCVER PINE - CLOP ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOCH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN ARE AND HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN BOAN HANC AND HATE OWA APE - LOGH ROCKE BLUTO NORTH BETYREN BOAN HANC AND HATE OWA APE - LOGH ROCKE BLUTO NORTH BETYREN BOAN HANCVER PINE - LOGH ROCKE BLUTO NORTH BETYREN BUTTEN AND HATE OWA APE - LOGH ROCKE BLUTO NORTH BETYREN BUTTEN BUT	REGION/EVENT	# OF NEARBY INCIDENTS	QUEUE LENGTH (MI)	USER DELAY COST (\$)	SE
	▼ Maryland (55)	527	5.24	\$310,306.00	-
A Anne Armodel (1) A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA A DI 19 SOUTH RETWEEN MUNICAY SD AND ROGERS LA Baltimore (14) Baltimore (14) B 2, 73 578,513,00 B 2,	▼ Allegany (1)	0		\$6,278.00	
MO 170 SOUTH RETWEEN MOWNT RO AND ROGGES LA → 177 SOUTH RETWEEN MEW CUT BE TO BERGETTIEW CR → 178 SOUTH FROM 146 ST OM 648 ■ 178 SOUTH FROM 146 ST OM 648	1-68 EAST AT NEW GEORGES CREEK RD	0	0	⊣ \$6,278.00	-
MO 170 SOUTH REFORM PORT OF BERGHYTHYD RR ■ 15, 15,164.00 ■ 15, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 15,164.00 ■ 16, 16, 164.00 ■ 16, 16, 164.00 ■ 16, 16, 164.00 ■ 16, 164	▼ Anne Arundel (3)	0	0	\$20,774.00	
197 SOUTH FROM NEW CUT RO TO BERGHYWEV RE	MD 170 SOUTH BETWEEN MIDWAY RD AND ROGERS LA	0	0	⊣ \$9,431.00	
■ Baltimore (14) 87 2.73 \$78,813.00 ★ MO 128 SOUTH-HORTH BETWEEN HORT AVE AND HANDVER PIRE 0 \$1,846.00 ★ LOCH RAVIDE BLVD NORTH BETWEEN JOAN AVE AND WHITE OAK AVE 0 \$5,553.00 ★ H-999 RINER LOOP FOUTE LOOP BETWEEN COVE RD AND HORTH POINT BLVD 0 0 \$1,726.00 ★ H-999 RINER LOOP BETWEEN LOOP THE BETWEEN COVE RD AND HORTH POINT BLVD 0 0 \$1,726.00 ★ H-999 RINER LOOP BETWEEN LOTH 12 MD 327 WILKERS AVE AND EXIT 13 MD 144 FREERBOK RD 0 \$2,57.00.00 ★ H-999 OUTER LOOP AT HEAVER HORTH POINT BLVD AND WEE AVE 0 \$2,57.00.00 ★ H-999 OUTER LOOP AT HARPSON RD 0 \$2,57.00.00 ★ H-99 OUTER LOOP AT HARPSON RD 0 \$3,983.00 ★ MO 150 SUST AT PERBROCKE BLVD 0 \$3,983.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 \$3,983.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 \$3,983.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 \$3,983.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 \$3,480.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 \$3,480.00 ★ MO 150 WEST AT PERBROCKE BLVD 0 </td <td>1-97 SOUTH FROM NEW CUT RD TO BRIGHTVIEW DR</td> <td>0</td> <td>0</td> <td>⊣ \$1,364.00</td> <td></td>	1-97 SOUTH FROM NEW CUT RD TO BRIGHTVIEW DR	0	0	⊣ \$1,364.00	
MO 122 SOUTH/NORTH BETWEEN PIRST AVE AND HANDVER PIRE LOCH RAVEN BLY DORTH ETERMEN COVER DAN AVE AND WRITE CAN AVE LOCH RAVEN BLY DORTH ETERMEN COVER DAN AVE AND WRITE CAN AVE LOCH RAVEN BLY DORTH ETERMEN COVER DAN AND RATH DAN DETERMENT DAY 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-878 NORTH PAST 2'85 BITRANCE WAS 3-4-71, CLONG TERM SHOULDER CLOSURE 1-879 NORTH LOOP BLY THAPFORD DOT 1-10 MIND 1-14 FREEBECK RD 1-879 CUITE LOOP BLY THAPFORD DOT 1-10 MIND WISE AVE 1-879 NORTH BLY THE PRESENCE OF BLY DAY 10 MIND WISE AVE 1-879 NORTH BLY THE PRESENCE OF BLY DAY 10 MIND WISE AVE 1-879 NORTH BLY THE PRESENCE OF BLY DAY 10 MIND WISE AVE 1-879 NORTH BLY THE PRESENCE DAY 10 MIND WISE AVE 1-879 NORTH BLY THE PRESENCE DAY 10 MIND WISE AVE 10 MIND WISE AVE 10 MIND WISE AT	MD 10 NORTH FROM I-695 TO MD 648	0	0		
NO T28 SOUTH/HORTH ETEWEN JOAN ANE AND WHITE GAK APE 0 1,55,40,000 LOCH RAVER BLVD DIGITH ETWEND JOAN ANE AND WHITE GAK APE 0 1,55,53,00 1 1495 NINER LOOP DIGITH ELDOR ETWEND LOVE FO AND NORTH POINT BLVD 0 0 5,726,00 1 1495 NINER LOOP DETWEND ROTH BOY BUT TA DO TAY WILLENG AYE AND DUT 13 MD 144 FREDERICK RD 0 1,654,000 1 1495 NINER LOOP BETWEND NORTH POINT BLVD AND WISE AYE 0 1,579,000,00 1 1495 OUTER LOOP AT HARPFOR RD 0 1,579,000,00 1 1495 OUTER LOOP AT HARPFOR RD RD 0 1,549,000,00 1 1495 OUTER LOOP AT HARPFOR RD RD 0 1,548,000 1 1495 OUTER LOOP AT HARPFOR RD RD 0 1,548,70,00 1 141 NORTH AT EXIT 31 MIDILLETOWN RD 0 0 5,583,00 1 141 NORTH AT EXIT 31 MIDILLETOWN RD 0 0 5,583,00 1 140 NORTH AT PERMENDER BETWEEN MARTITERED RD AND KERNAND RR 0 0 5,583,00 1 140 NORTH AT PERMENDER BETWEEN MARTITERED RD AND KERNAND RR 0 0 5,473,00 1 140 NORTH AT PERMENDER BETWEEN MARTITERED RD AND KERNAND RD 0 0 5,473,00 1 140 NORTH AT PERMENDER BET	▼ Baltimore (14)	87	2.73	\$78,513.00	
1-495 INRER LOOP FOUTER LOOP SETWEEN COVE RD AND NORTH POINT BLVD 1-495 INRER LOOP SETWEEN DETT 25 ENTRANCE (MIA, 34-47) LONG TERM SPIOULER CLOSURE 1-495 INRER LOOP SETWEEN DETT 12 MD 372 WILKERS AVE AND EDT 13 MD 144 FREEERICK RD 1-495 OUTER LOOP AT HARFORD RD 1-495 OUTER AT PORTION RD 1-495 OUTER BETWEEN PHENSONOOD RE AND THYRITON RD 1-495 OUTER BETWEEN HILLTOP RD AND RETINAN DR 1-495 OUTER BETWEEN HILLTOP RD AND RETINAN DR 1-495 OUTER BETWEEN PROCHAB RD AND THYRITOR RD 1-495 OUTER BETWEEN PROCHAB RD AND THYRITOR RD 1-495 OUTER LOOP WEST OF PHILLTOP RD AND RETINAND RD 1-495 OUTER LOOP WEST OF EDIT 14 MORAVAR REMMA, 13-51-3.3] 1-495 INRER LOOP AT DIT 13 4 MD 7 PHILABELPHIA RD 1-495 OUTER LOOP WEST OF EDIT 1 M MORAVAR REMMA, 13-51-3.3] 1-495 OUTER LOOP WEST OF EDIT 1 M MORAVAR REMMA, 13-51-3.3] 1-495 INRER LOOP AT DIT 73 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 INRER LOOP AT THE PAST FROM THE PROCHAB RD AND PATILLED POINT PIWY 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 HAWKINS POINT RD (CURTIS CREEK DRAWRRIDGE) 1-495 OUTER LOOP WEST OF EDIT 1 M TO 3 H	MD 128 SOUTH/NORTH BETWEEN FIRST AVE AND HANOVER PIKE	0	0	⊣ \$8,660.00	
1-895 NORTH PAST 295 ENTRANCE (MM 3.6-4.7) LONG TERM SHOULDER CLOSURE 56,712.00 1-895 NORTH PAST 295 ENTRANCE (MM 3.6-4.7) LONG TERM SHOULDER CLOSURE 56,712.00 1-895 NORTH STOWN FROM STAND FROM TO 1.00 1-15,710.00	LOCH RAVEN BLVD NORTH BETWEEN JOAN AVE AND WHITE OAK AVE	0	0	\$5,553.00	
1-495 INNER LOOP BETWEEN NORTH POINT BLVD AND WISE AVE	1-695 INNER LOOP/OUTER LOOP BETWEEN COVE RD AND NORTH POINT BLVD	0	0	\$1,926.00	
1495 OUTER LOOP AT PARFORD RD 55,940.00 55,940.00 1495 OUTER LOOP AT HARFORD RD 55,940.00 54,873.00 1495 OUTER LOOP AT HARFORD RD 55,940.00 54,873.00 1495 OUTER LOOP AT HARFORD RD 55,840.00 54,873.00 1495 OUTER LOOP AT HARFORD RD 55,840.00 54,873.00 1495 OUTER LOOP AT EAST 31 MIDICALTOWN RD 0 54,873.00 1495 OUTER LOOP AT EAST 31 MIDICALTOWN RD 0 54,873.00 1495 OUTER BETWEEN PRICE BUYD 0 54,473.00 1495 OUTER BETWEEN WHITEHALD RD AND KEENAN DR 55,440.00 1495 OUTER BETWEEN HILLTOR RD AND KEENAN DR 55,440.00 1495 OUTER WHITEHALD RD AND KEENAN DR 54,473.00 1495 OUTER WHITEHALD RD AND KEENAN DR 55,480.00 1495 OUTER WHITEHALD RD AND KEENAN DR 55,480.00 1495 OUTER WHITEHALD RD AND KEENAN DR 55,480.00 1495 OUTER LOOP AT EXIT 34 MD 7 PHILADELPHIA RD 54,859.00 1495 OUTER LOOP AT EXIT 34 MD 7 PHILADELPHIA RD 55,460.00 1495 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 55,460.00 1495 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 55,460.00 1495 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 55,400.00 1495 MD 755 NORTH BETWEEN DOWELL RD TO PATUXENT POINT PKWY 0 0 54,400.00 1495 MD 755 NORTH BETWEEN BOND ST AND 1-70 55,400.00 1495 MD 755 NORTH BETWEEN BOND ST AND 1-70 55,400.00 1495 MD 755 NORTH BETWEEN BOND ST AND 1-70 55,400.00 1495 MD 755 NORTH BETWEEN BOND ST AND 1-70 55,430.00 1495 MD 755 NORTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 1495 MD 755 NORTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 1495 MD 150 NORTH PAST ANGLESERGER RD 0 0 54,280.00 1495 MD 150 NORTH PAST ANGLESERGER RD 0 0 54,280.00 1495 MD 150 NORTH PAST ANGLESERGER RD 0 0 54,280.00 1495 MD 150 NORTH PAST ANGLESERGER RD 0 0 54,280.00 1495 MD 150 NORTH PAST ANGLESERGER RD 0 0 54,	1-895 NORTH PAST 295 ENTRANCE (MM 3.6-4.7) LONG TERM SHOULDER CLOSURE	86	0	⊣ ₂ \$6,712.00	
♣ 1-95 OUTER LOOP AT HARFORD RD 0 \$2,200,00 ♠ MD 26 EAST/WEST BETWEEN PIKESWOOD DR AND TIVERTON RD 0 \$3,838,00 ♠ MB 150 WEST AT PEMBROOKE BLVD 0 \$3,838,00 ♠ MD 150 WEST AT PEMBROOKE BLVD 0 \$4,838,00 ♠ MD 122 EAST/WEST BETWEEN WHITEHAAD DAND KERNAN DR 0 \$2,880,00 ♠ MD 372 WEST BETWEEN HILLTOP RD AND ROLLING RD 0 0 \$4,450,00 ♠ MD 45 SOUTH BETWEEN PADONIA RD AND TIMONIUM RD 1 \$4,600,00 ♣ H-95 INNER LOOP AT EXIT 34 MD 7 PHILADELPHIA RD 0 0 \$4,859,00 ✔ Baltimore City (3) 2 1,38 \$14,329,00 ♠ 1-895 SOUTH BAST EXIT 14 MORAVIA RD(MM, 1,1.5-13.3] 1 \$5,54,80.0 ♠ 1-895 SOUTH BAST EXIT 14 MORAVIA RD(MM, 1,1.5-13.3) 1 \$5,54,80.0 ♠ 1-895 SOUTH BAST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 \$5,400.0 ♠ 1-895 SOUTH BAST OF SERT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 \$5,607.00 ♠ MD 259 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$24,014.00 ♠ MD 279 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$5,75.00 ♠ MD 279 NORTH BETWEEN BOND ST AND 1-	I-695 INNER LOOP BETWEEN EXIT 12 MD 372 WILKENS AVE AND EXIT 13 MD 144 FREDERICK RD	0	2.35	-i_ \$4,940.00	
MD 26 EAST/WEST BETWEEN PIKESWOOD DR AND TIVERTON RD 183 NORTH AT EXIT 31 MIDDLETOWN RD 0 58,583.00 MD 150 WEST AT PEMBROOKE BLVD MD 122 EAST/WEST BETWEEN WHITEHAD RD AND KERNAN DR MD 122 EAST/WEST BETWEEN WHITEHAD RD AND KERNAN DR MD 122 EAST/WEST BETWEEN HILLTOP RD AND ROLLING RD 0 0 56,473.00 MD 45 SOUTH BETWEEN PADONIA RD AND TIMONIUM RD 1 0 0 54,855.00 **Baltimore City (3) **I +95 SOUTH PAST EXIT 14 MORAVIA RD[MM,13,5-13,3] 1 0 0 54,014.00 **I +95 SOUTH PAST EXIT 14 MORAVIA RD[MM,13,5-13,3] 1 0 0 52,314.00 **I +95 SOUTH PAST EXIT 14 MORAVIA RD[MM,13,5-13,3] **I +95 SOUTH PAST EXIT 14 MORAVIA RD[MM,13,5-13,3] **M 149 S NORTH POPE TOF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) **M 150 CURTER LOOP AT EXIT 34M D 7 PATUXENT POINT PKWY **M 150 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY **M 150 NORTH PROM DOWELL RD AND PATUXENT POINT PKWY **M 160 NORTH PROM DOWELL RD AND PATUXENT POINT PKWY **M 160 NORTH PROM DOWELL RD AND PATUXENT POINT PKWY **M 160 NORTH PROT EXIT 109 MD 279 EXITON NEWARK RD[MM,106,4-105.9] **M 160 NORTH PAST EXIT 109 MD 279 EXITON NEWARK RD[MM,106,4-105.9] **J 55 SOUTH PAST EXIT 109 MD 279 EXITON NEWARK RD[MM,106,4-105.9] **J 55 SOUTH PAST ANGLEBERGER RD **U 515 NORTH PAST ANGLEBERGER RD **O	MD 151 SOUTH/NORTH BETWEEN NORTH POINT BLVD AND WISE AVE	0	0	-1 \$9,900.00	
MD 26 EAST/MEST BETWEEN PIKES/WOOD OR AND THERTON RD ↑ R8 NORTH AT EXIT 31 MIDDLETOWN RD ↑ R8 NORTH AT EXIT 34 MIDDLETOWN RD ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD AND KERNAN DR ↑ R8 NO 122 EAST/MEST BETWEEN WHITHEAD RD ↑ L8 SOUTH BETWEEN PADONIA RD AND KERNAN DR ↑ L8 SOUTH BETWEEN PADONIA RD AND KERNAN DR ↑ L8 SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 14 MORAVIA RD(MM, 13.5-13.3) ↑ L8 S S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ Calvert (3) ↑ L8 S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ Cecil (1) ↑ L8 S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK RD(MM, 166.4-105.9) ↑ S S SOUTH PAST EXIT 169 MD 279 ELKTON NEWARK R	1-695 OUTER LOOP AT HARFORD RD	0	0	_i_ \$2,903.00	
	MD 26 EAST/WEST BETWEEN PIKESWOOD DR AND TIVERTON RD	0	0	-1 ₂ \$4,873.00	
		0	0	\$8,583.00	
	MD 150 WEST AT PEMBROOKE BLVD	0	0.34	⊣ ₃ \$5,448.00	
	ž	0	0.04	_i_ \$2,880.00	
	MD 372 WEST BETWEEN HILLTOP RD AND ROLLING RD	0		\$6,473.00	
▶ Baltimore City (3) 2 1.38 \$14,329.00 ♠ 1-895 SOUTH PAST EXIT 14 MORAVIA RD[MM,13.5-13.3] 1 € 1,55,445.00 ♠ 1-695 INNER LOOP AT MP 49.3 (FRANCIS SCOTT KEY BRIDGE) 0 € 1,22,314.00 ♠ 1-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 1,38 1,329.00 ✔ Calvert (3) 0 0 \$2,314.00 ♠ MD 765 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$8,400.00 ♠ MD 231 EAST AT SKIPJACK RD 0 0 \$9,039.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$1,2274.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 \$1,2274.00 ♠ MD 140 WEST EAST OF DEDE RD \$3,3308.00 \$4,533,308.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 \$6,600 \$7,433.00 ♠ PS SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$3,430.00 ♠ Prederick (3) 0 0 \$4,280.00	I	1	0	_i_ \$4,803.00	
▶ Baltimore City (3) 2 1.38 \$14,329.00 ♠ 1-895 SOUTH PAST EXIT 14 MORAVIA RD[MM,13.5-13.3] 1 \$5,945.00 ♠ 1-695 INNER LOOP AT MP 49.3 (FRANCIS SCOTT KEY BRIDGE) 0 \$1,38 \$5,070.00 ♠ 1-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 \$1,38 \$5,070.00 ✔ Calvert (3) 0 0 \$24,014.00 \$6,070.00 ♠ MD 765 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$8,400.00 ♠ MD 231 EAST AT SKIPJACK RD 0 0 \$5,903.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$5,903.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$5,3308.00 ♠ MD 140 WEST EAST OF DEDE RD \$5,3308.00 \$5,59,66.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 \$5,966.00 \$6,000 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$6,7433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$6,4280.00 ♠ I-95 SOUTH PAST ANGLEBERGER RD 0 \$6,4280.00	1-695 INNER LOOP AT EXIT 34 MD 7 PHILADELPHIA RD	0	0	\$4,859.00	>
♣ 1-695 INNER LOOP AT MP 49.3 (FRANCIS SCOTT KEY BRIDGE) 0 1 52,314.00 ♠ 1-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 1 3.38	· ·	2	1.38	\$14,329.00	de
♣ 1-695 INNER LOOP AT MP 49.3 (FRANCIS SCOTT KEY BRIDGE) 0 1 52,314.00 ♠ 1-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE) 1 1 3.38	№ 1-895 SOUTH PAST EXIT 14 MORAVIA RD[MM,13.5-13.3]	1	0	⊣_ \$5,945.00	\/
Calvert (3) 0 0 \$24,014.00 ♠ MD 765 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$8,400.00 ♠ MD 231 EAST AT SKIPJACK RD 0 0 \$9,039.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$6,575.00 ▼ Carroll (2) 0 0 \$12,274.00 ♠ MD 140 WEST EAST OF DEDE RD 0 \$3,308.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 0 \$5,966.00 ▼ Cecil (1) 0 0 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 \$7,433.00 ♠ I-95 SOUTH PAST ANGLEBERGER RD 0 0 \$4,280.00	1-695 INNER LOOP AT MP 49.3 (FRANCIS SCOTT KEY BRIDGE)	0	0	⊥ \$2,314.00	*
Calvert (3) 0 0 \$24,014.00 ♠ MD 765 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$8,400.00 ♠ MD 231 EAST AT SKIPJACK RD 0 0 \$9,039.00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$6,575.00 ▼ Carroll (2) 0 0 \$12,274.00 ♠ MD 140 WEST EAST OF DEDE RD 0 \$8,966.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 0 \$8,966.00 ▼ Cecil (1) 0 0 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$8,450.00 ♠ US 15 NORTH PAST ANGLEBERGER RD 0 \$4,280.00	№ 1-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE)	1	1.38	\$6,070.00	//
№ MD 765 NORTH FROM DOWELL RD TO PATUXENT POINT PKWY 0 0 \$8,400.00 № MD 231 EAST AT SKIPJACK RD 0 0 \$9,039.00 № MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$6,575.00 ▼ Carroll (2) 0 0 \$12,274.00 № MD 140 WEST EAST OF DEDE RD 0 \$3,308.00 № MD 27 NORTH BETWEEN BOND ST AND I-70 0 \$8,966.00 ▼ Cecil (1) 0 0 \$7,433.00 № I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$7,433.00 ▼ Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 \$4,280.00	·	0	0	,	~
♠ MD 231 EAST AT SKIPJACK RD 0 0 59,039,00 ♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 56,575.00 ✔ Carroll (2) 0 0 \$12,274.00 ♠ MD 140 WEST EAST OF DEDE RD 0 \$3,308.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 0 \$1,58,966.00 ✔ Cecil (1) 0 0 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 57,433.00 ✔ Frederick (3) 0 0 \$8,450.00 ♠ US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00		0	0		-30
♠ MD 765 NORTH BETWEEN DOWELL RD AND PATUXENT POINT PKWY 0 0 \$56,575.00 ▼ Carroll (2) 0 0 \$12,274.00 ♠ MD 140 WEST EAST OF DEDE RD 0 0 1,533,308.00 ♠ MD 27 NORTH BETWEEN BOND ST AND I-70 0 \$1,533.00 ▼ Cecil (1) 0 0 \$7,433.00 ♠ I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$3,430.00 ▼ Frederick (3) 0 0 \$8,450.00 ♠ US 15 NORTH PAST ANGLEBERGER RD 0 54,280.00	•	0	0	\$9,039.00	1
Carroll (2) 0 0 \$12,274.00 № MD 140 WEST EAST OF DEDE RD 0 1 53,308.00 № MD 27 NORTH BETWEEN BOND ST AND I-70 0 1 58,966.00 Cecil (1) 0 0 \$7,433.00 № I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 \$7,433.00 Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 54,280.00	•	0	0	\$6,575.00	~
№ MD 140 WEST EAST OF DEDE RD 0 1 53,308.00 № MD 27 NORTH BETWEEN BOND ST AND I-70 0 2 58,966.00 Cecil (1) 0 0 \$7,433.00 № I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 0 54,280.00	·	0	0	\$12,274.00	~~
№ MD 27 NORTH BETWEEN BOND ST AND I-70 0 0 1,58,966.00 Cecil (1) 0 0 \$7,433.00 № I-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 Prederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00		0	0		
Cecil (1) 0 0 \$7,433.00 № 1-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00	X	0	0	3	1
№ 1-95 SOUTH PAST EXIT 109 MD 279 ELKTON NEWARK RD[MM.106.4-105.9] 0 0 57,433.00 Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00	•	0			7
▼ Frederick (3) 0 0 \$8,450.00 № US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00		0	0		W
♦ US 15 NORTH PAST ANGLEBERGER RD 0 0 \$4,280.00	· ·				1
▼					-d
35,17666	•	0			7
♠ US 15 NORTH AT MT ZION RD 0 0 \$980.00 ■ 1 1 1 1 1 1 1 1 1 1 1 1	•				7
▼ Garrett (1) 1 0 \$5,685.00	· ·				2



TOP CRITICAL WORKZONES

Critical Work Zones



TOP CRITICAL WORKZONES		
SEVERITY/EVENT	QUE LANE STATUS LENGT	EUE USER DELAY 'H (MI) COST (\$)
▼ Critical (1)	2.:	\$7,781.00
I-695 INNER LOOP BETWEEN EXIT 12 MD 372 WILKENS AVE AND EXIT 13 MD 144 FREDERICK RD		2.35 \$7,781.00
▼ Major (2)	2.:	\$9,527.00
RIVERDALE RD WEST BETWEEN 67TH PL AND MD 410	1	1.01 \$5,507.00
I-695 OUTER LOOP WEST OF EXIT 1 MD 173 HAWKINS POINT RD (CURTIS CREEK DRAWBRIDGE)	↑ # ↑ ↑ # ↑	1.5 \$4,020.00

Critical Work Zone Parameters

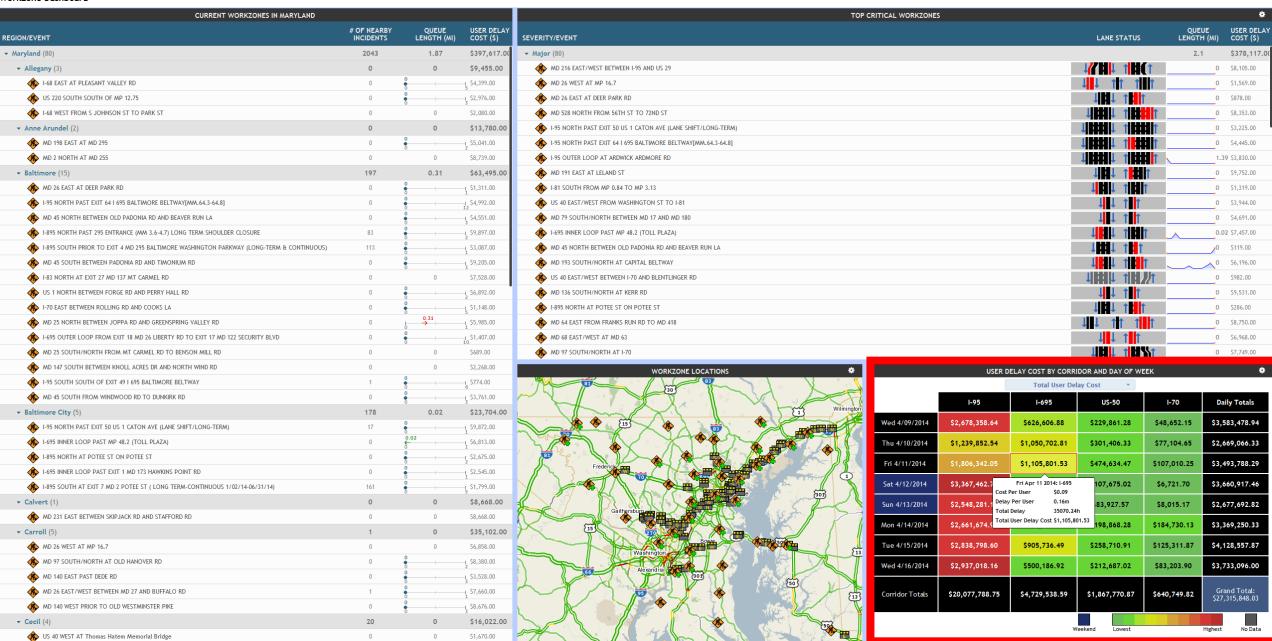


TOP CRITICAL	. WORKZONES	
EVERITY/EVENT		TOP CRITICAL RANGE
▼ Major (80)	0	5 10 15 20
MD 216 EAST/WEST BETWEEN I-95 AND US 29	0 miles	5 miles
♠ MD 26 WEST AT MP 16.7	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 \$3,450.00
MD 26 EAST AT DEER PARK RD	1 141 ↑ ↓	0 \$3,907.00
MD 528 NORTH FROM 56TH ST TO 72ND ST	↓ ## ↓ ↑	0 \$9,925.00
I-95 NORTH PAST EXIT 50 US 1 CATON AVE (LANE SHIFT/LONG-TERM)	1 1111 ↑ 1	0 \$6,555.00
I-95 NORTH PAST EXIT 64 I 695 BALTIMORE BELTWAY[MM.64.3-64.8]	1 1111 1	0 \$9,027.0
I-95 OUTER LOOP AT ARDWICK ARDMORE RD	1 1111 ↑ 1	1.28 \$8,780.0
MD 191 EAST AT LELAND ST	₩ 1	0 \$9,742.0
I-81 SOUTH FROM MP 0.84 TO MP 3.13	↑	0 \$3,318.0
US 40 EAST/WEST FROM WASHINGTON ST TO I-81	↑ ↑ ↑	0 \$9,515.0
MD 79 SOUTH/NORTH BETWEEN MD 17 AND MD 180	↑ ↑	0 \$3,772.0
1-695 INNER LOOP PAST MP 48.2 (TOLL PLAZA)	↑ <mark> </mark> ↑ ↓	0.02 \$6,082.0
MD 45 NORTH BETWEEN OLD PADONIA RD AND BEAVER RUN LA	↑ ↑	0 \$2,558.0
MD 193 SOUTH/NORTH AT CAPITAL BELTWAY	↑ <mark> </mark> ↓	0 \$4,539.0
US 40 EAST/WEST BETWEEN I-70 AND BLENTLINGER RD	1 	0 \$3,138.0
MD 136 SOUTH/NORTH AT KERR RD	↑ ↑ ↑	0 \$9,216.0
1-895 NORTH AT POTEE ST ON POTEE ST	↑ 14 ↑ ↑	0 \$3,103.0
MD 64 EAST FROM FRANKS RUN RD TO MD 418	↑ ↑ ↑ ↑	0 \$1,843.0
MD 68 EAST/WEST AT MD 63	↑ <mark>1</mark> ↑ ↓	0 \$5,726.0
♠ MD 97 SOUTH/NORTH AT I-70	1 111 11 1	0 \$4,761.00

Work Zone Dashboard

Work Zone Performance Monitoring

Workzone Dashboard



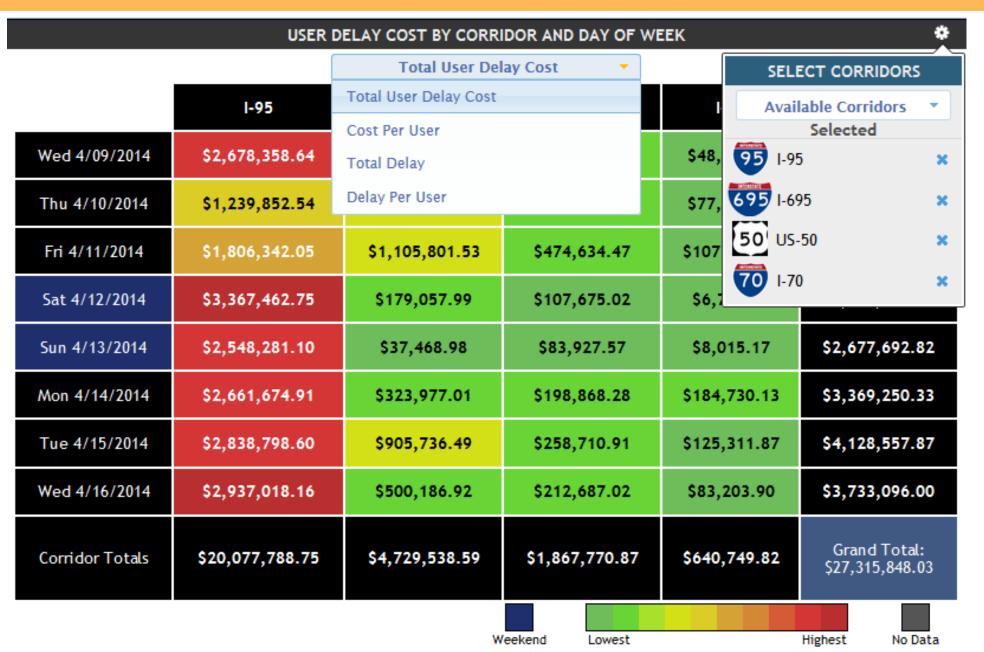
User Delay Cost Information



USER DELAY COST BY CORRIDOR AND DAY OF WEEK						
		Total User Del	lay Cost 🔻			
	1-95	1-695	US-50	I-70	Daily Totals	
Wed 4/09/2014	\$2,678,358.64	\$626,606.88	\$229,861.28	\$48,652.15	\$3,583,478.94	
Thu 4/10/2014	\$1,239,852.54	\$1,050,702.81	\$301,406.33	\$77,104.65	\$2,669,066.33	
Fri 4/11/2014	\$1,806,342.05	\$1,105,801.53	\$474,634.47	\$107,010.25	\$3,493,788.29	
Sat 4/12/2014	\$3,367,462.7 Cost F	Fri Apr 11 2014: I-695 Per User \$0.09	107,675.02	\$6,721.70	\$3,660,917.46	
Sun 4/13/2014	\$2,548,281.1 Delay	Per User 0.16m Delay 35070.24	83,927.57	\$8,015.17	\$2,677,692.82	
Mon 4/14/2014	\$2,661,674.9 Total	User Delay Cost \$1,105,8	198,868.28	\$184,730.13	\$3,369,250.33	
Tue 4/15/2014	\$2,838,798.60	\$905,736.49	\$258,710.91	\$125,311.87	\$4,128,557.87	
Wed 4/16/2014	\$2,937,018.16	\$500,186.92	\$212,687.02	\$83,203.90	\$3,733,096.00	
Corridor Totals	\$20,077,788.75	\$4,729,538.59	\$1,867,770.87	\$640,749.82	Grand Total: \$27,315,848.03	
		W	/eekend Lowest		Highest No Data	

UDC Options and Corridor Selection

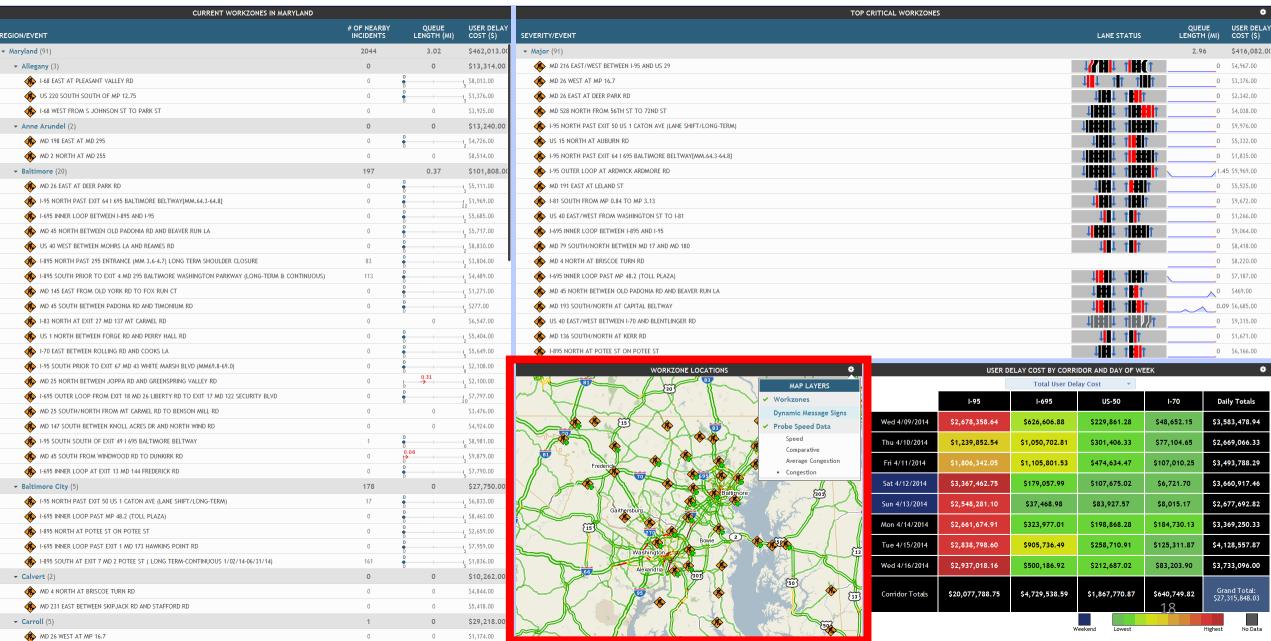




Work Zone Dashboard

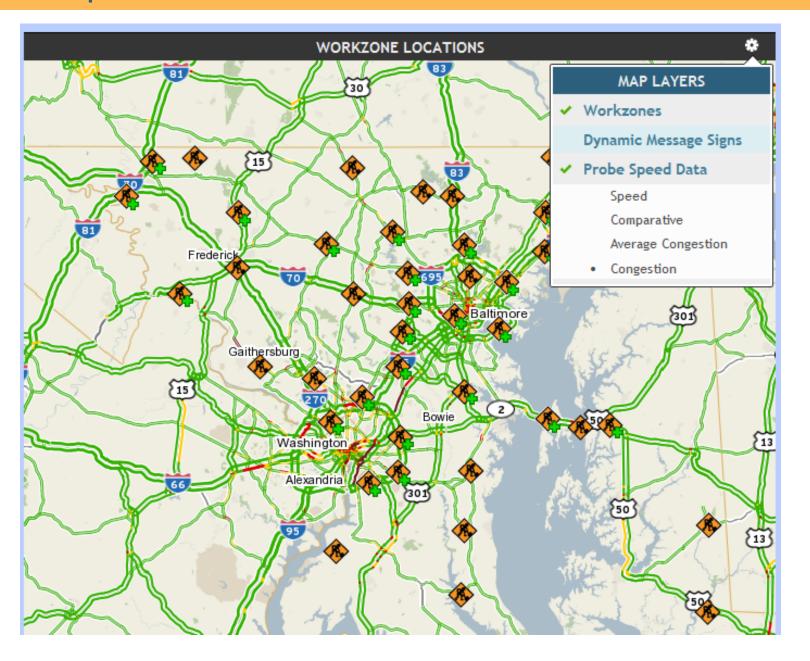
Work Zone Performance Monitoring

Workzone Dashboard



Map Layers and Options





Individual Work Zone Profile

4 MPH (7%)

-1 MPH (-2%) -2 MPH (-3%)



Grand Total: \$88,718.06

Planned Closure @ I-695 INNER LOOP BETWEEN EXIT 12 MD 372 WILKENS AVE AND EXIT 13 MD 144 FREDERICK RD Started: Thu, Apr 24, 2014 at 09:24:56 AM Filter Results Data Type... Measured Speeds **Oueue Length** Comparison to Historical Average +5 MPH (8%) Pertormance +8 MPH (14%) 0 MPH (0%) roject Information Configure Alerts 3 mins 0 secs Thu 04/17/2014 Fri 04/18/2014 Sat 04/19/2014 Sun 04/20/2014 Mon 04/21/2014 Tue 04/22/2014 Wed 04/23/2014 -38 MPH (-67%) WORK ZONE LOCATION 12AM - 4AM 12PM - 4PM 4AM - 8AM 8AM - 12PM 4PM - 8PM 8PM - 12AM **Daily Totals** -42 MPH (+72%) Thu 4/17/2014 \$11.52 \$183.00 \$9,306.97 \$16,405.23 \$2,958.90 \$67.58 \$28,933.20 Fri 4/18/2014 \$6.17 \$29.46 \$82.00 \$127.06 \$50.00 \$516.04 -46 MPH (-77%) Sat 4/19/2014 \$27.17 \$46.01 \$123.66 \$24.6 \$26.78 \$115.80 Sun 4/20/2014 \$39.81 \$18.42 Mon 4/21/2014 \$2.46 \$899.54 \$131.35 \$1,973.63 2 MPH (43% -3 MPH (45%) -1 MPH (-2%) \$25.38 \$264.46 \$1,819.65 \$2,675.70 \$189.00 \$13,745.58 Tue 4/22/2014 Wed 4/23/2014 \$477.24 \$12,525.82 \$43,310.14 \$20.52 \$13,993.07 \$16,213.27 \$80.23

\$1,035,22

\$24,525,89

\$39,522.78

\$22,918.53

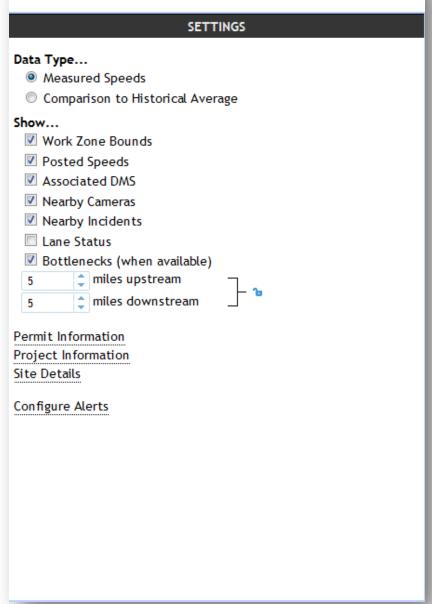
Hourly Totals

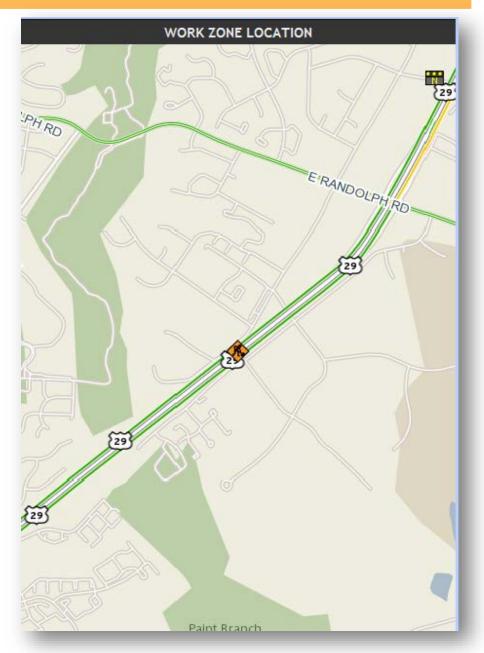
\$133.04

Settings and Map



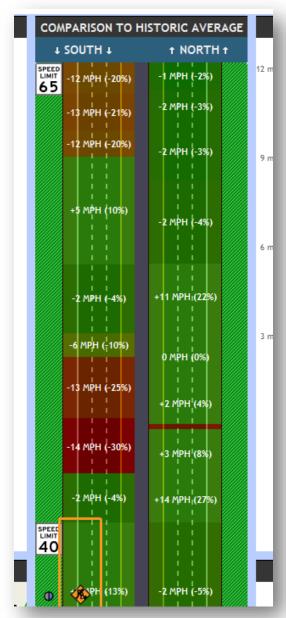
Planned Closure @ US 29 SOUTH AT INDUSTRIAL PKW



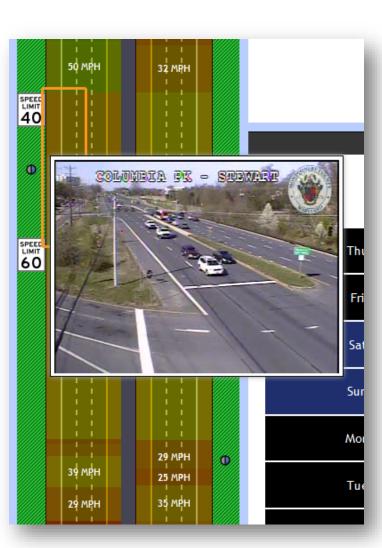


Lane Profile

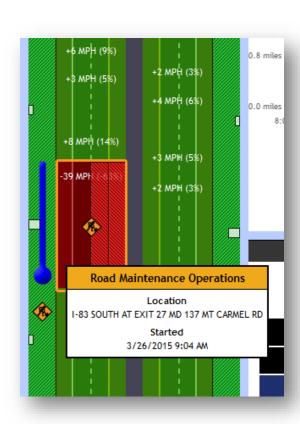




Segment Speeds



Live CCTV & DMS

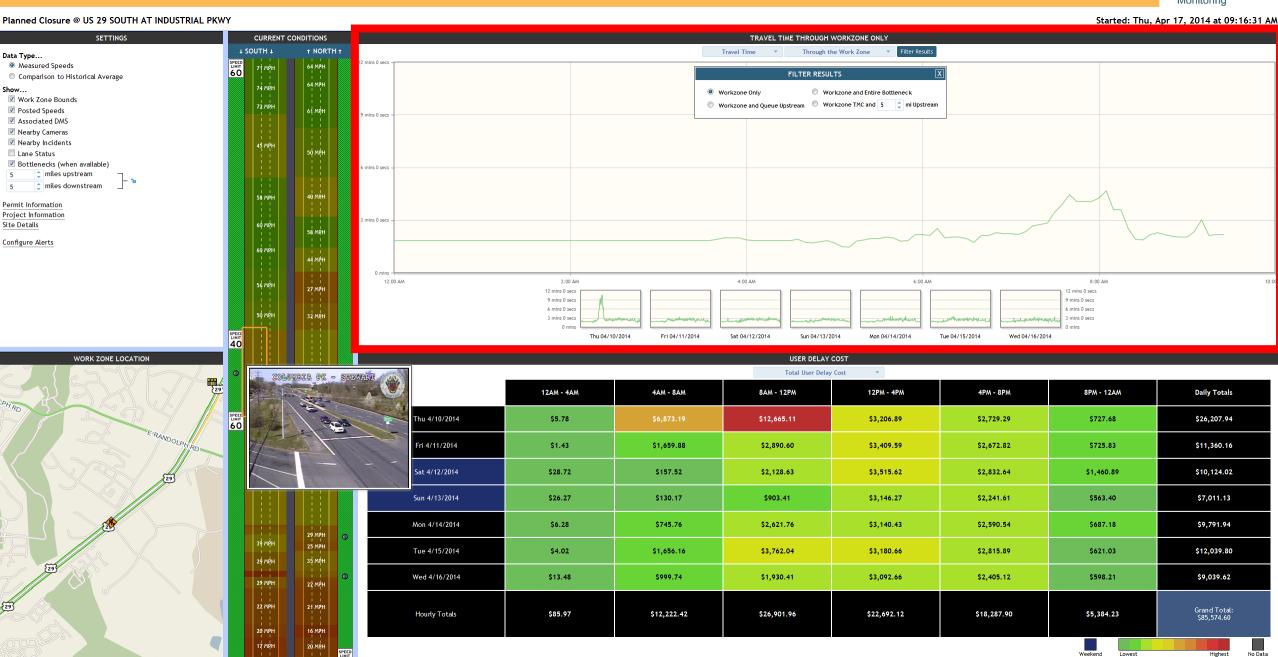


Bottlenecks & Nearby Events

Individual Work Zone Profile

18 MPH





Performance Charts





Performance Charts



Started: Thu, Apr 17, 2014 at 09:16:31 AM



Adjusting Parameters





Filtering Results





Individual Work Zone UDC



			Total User Del	ay Cost 🔻			
	12AM - 4AM	4AM - 8AM	8AM - 12PM	12PM - 4PM	4PM - 8PM	8PM - 12AM	Daily Totals
Thu 4/17/2014	\$11.52	\$183.00	\$9,306.97	\$16,405.23	\$2,958.90	\$67.58	\$28,933.20
Fri 4/18/2014	\$6.17	\$29.46	\$82.00	\$221.35	\$127.06	\$50.00	\$516.04
Sat 4/19/2014	\$27.17	\$7.65	\$3.12	\$22.42	\$17.28	\$46.01	\$123.66
Sun 4/20/2014	\$39.81	\$24.66	\$0.00	\$6.13	\$26.78	\$18.42	\$115.80
Mon 4/21/2014	\$2.46	\$48.75	\$788.33	\$103.20	\$899.54	\$131.35	\$1,973.63
Tue 4/22/2014	\$25.38	\$264.46	\$1,819.65	\$8,771.39	\$2,675.70	\$189.00	\$13,745.58
Wed 4/23/2014	\$20.52	\$477.24	\$12,525.82	\$13,993.07	\$16,213.27	\$80.23	\$43,310.14
Hourly Totals	\$133.04	\$1,035.22	\$24,525.89	\$39,522.78	\$22,918.53	\$582.59	Grand Total: \$88,718.06
						Weekend Lowest	Highest No Data

I don't have time to watch the Dashboard all day long!

Can't you just tell me where the problems are?

Work Zone Alerts



CREATE AN ALERT FOR THIS WORK ZONE X
Fill out each section to set up an alert for this work zone.
1. Alert me if
An accident happens near this work zone.
There is a bottleneck that's head or queue includes this work zone. Speeds in the work zone fall below or exceed a certain range.
2. Alert me by
Send me an email Send me a text message
3. Alert me when
Time zone
US/Eastern ▼
Time period
Select days of week
Sun Mon Tue Wed Thu Fri Sat
Select hours of day
12 AM 6 AM 12 PM 6 PM 12 AM
6:00 AM 5:00 PM
♣ Add time period
Create alert

Work Zone Alerts



CREATE AN ALERT FOR THIS WORK ZONE
Fill out each section to set up an alert for this work zone.
1. Alert me if
 ✓ An accident happens near this work zone. Within 1.5
When speeds fall below 35 pph
When speeds rise above 65 pmph
Alert me when speed is out of range for longer than 5 minute(s)
Alert me when speed returns within range for longer than 5 minute(s)
2. Alert me by
 ✓ Send me an email Alert will be sent to your account email: ivanovn@umd.edu ✓ Send me a text message Enter your phone number 3014053626 Verizon Wireless ▼ Verify
3. Alert me when
Time zone
US/Eastern ▼
Time period
1. Sun Mon Tue Wed Thu Fri Set Hours of day: 6:00 AM to 5:00 PM
Salast days of wook
Create alert

Next Steps

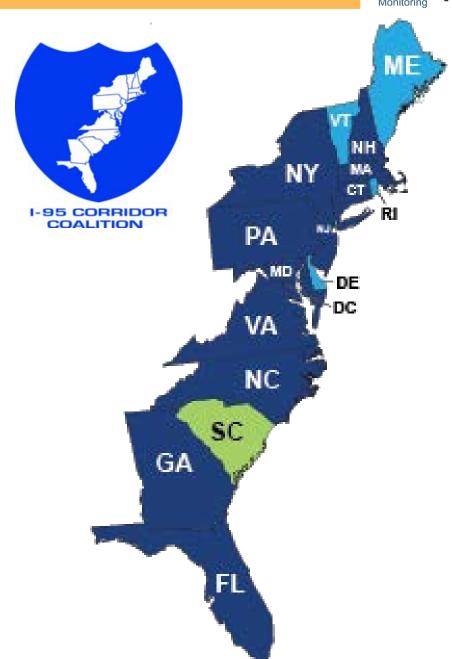


I-95 Corridor Coalition Expansion

- I-95 CC awarded \$300,000 to deploy to as many agencies as possible.
- Backend re-architecture for scalability across 17 states.
- Data collection to support the application.

Improvements

- Increased spatial granularity of probe vehicle data.
- Multiple probe vehicle data providers.



Planning & Collaborating

The RITIS Meeting tool is being used by construction managers, operations, and others to help plan (on a weekly basis) which work zones are expected to occur, how that might impact traffic, and facilitate a dialogue about how to best manage traffic and safety.

What is RITIS Meeting?



It's a virtual meeting platform

- Anytime/anywhere
- PC or mobile device, such as iPad[®] (participants only)

It's situational awareness

- Weather (radar, alerts, road surface condition)
- Events/Incidents (construction, crashes, etc.)
- Probe speed data/DMS messages

It's collaborative decision-making

- Leverage multiple layers of data
- Share documents
- Discuss ideas & recommendations
- Conduct attendee polling

It's multi-faceted

- Multi-agency/multi-user
- Plan, respond to, follow-up on
- Extreme weather, special events, incident management

It's fast and easy

- Simple set-up of meetings, creating agendas
- One-click e-links to send to attendees
- Intuitive & user-friendly
- Instant follow-up email with an automatically generated meeting log (MOR)

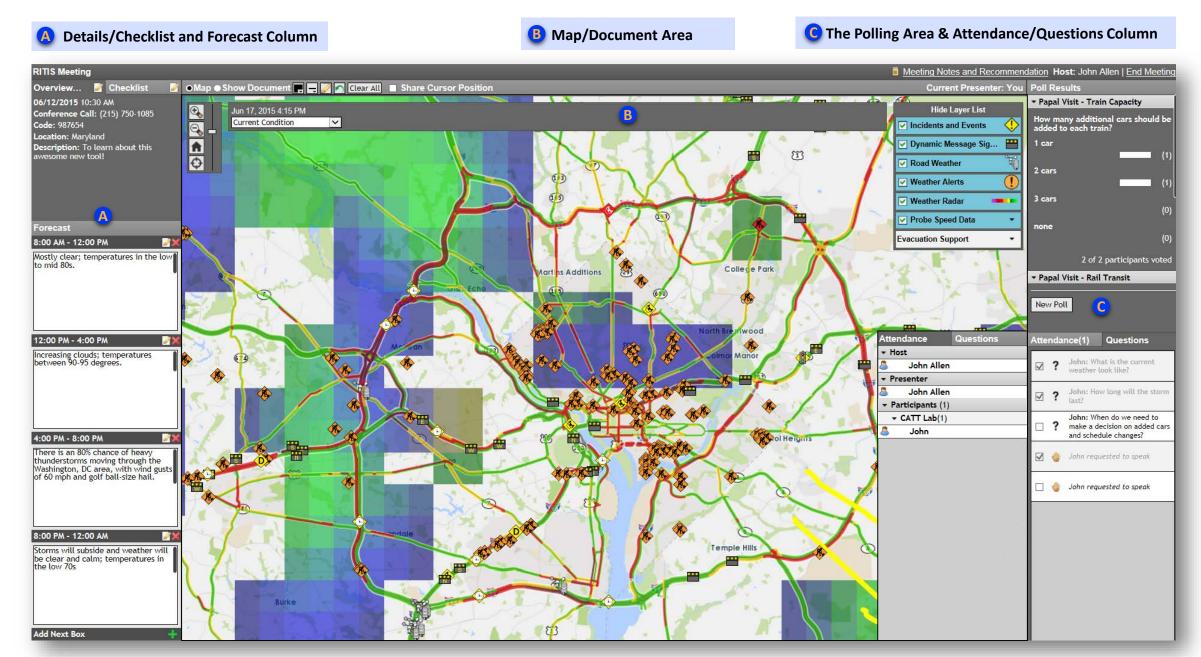






The "Meeting in Progress" Screen

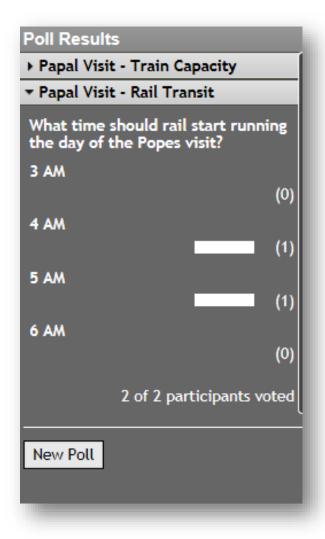




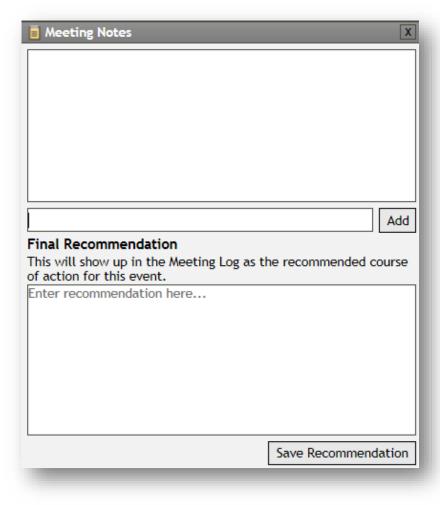
Ways to Communicate



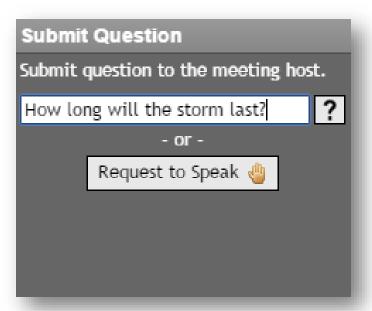
Take a Poll:



Enter Notes:

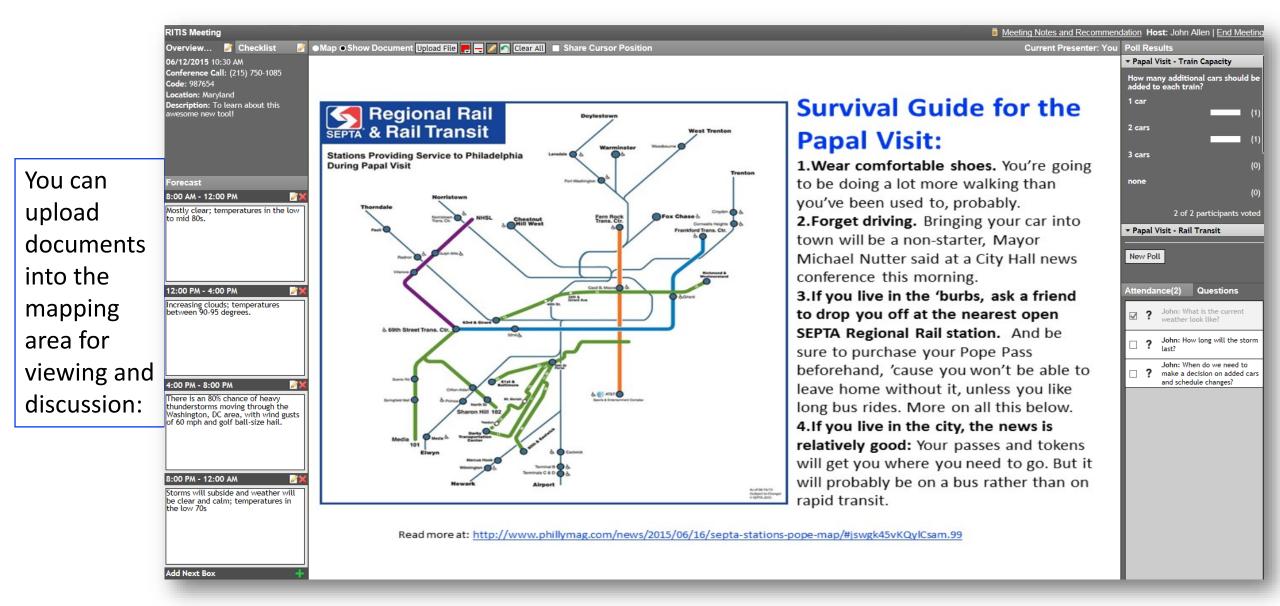


Submit a Question:



The Map/Document Area – Show Document





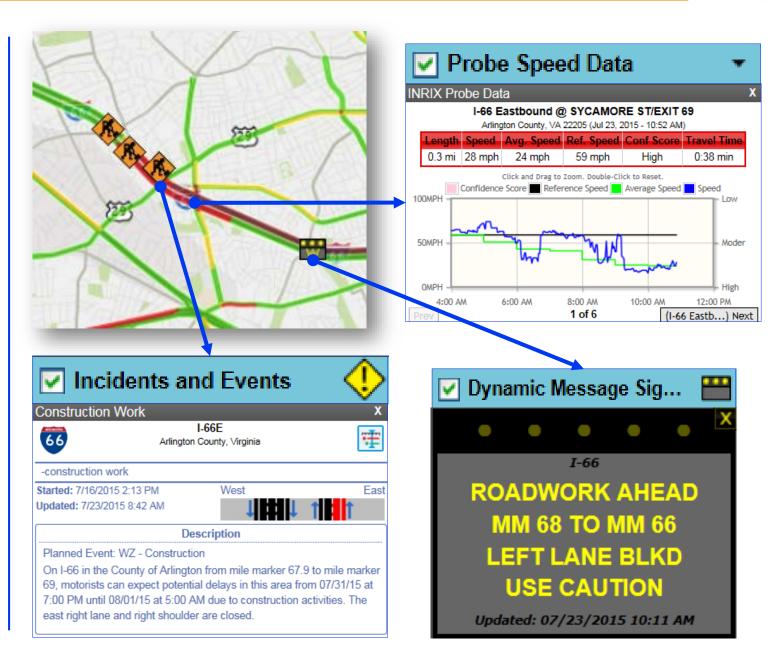
The Map/Document Area - <u>Traffic-related Data</u>



Click on the checkboxes in the Layer List to activate or deactivate Incidents and Events, DMS & Probe Speed Data:



Then click on a map icon to bring up more information...



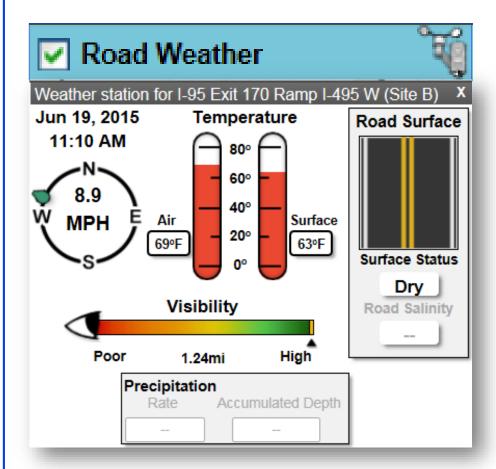
The Map/Document Area - Weather-related Data

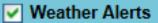


Click on the checkboxes in the Layer List to activate or deactivate Road Weather, Weather Alerts and Weather Radar:



Then click on a map icon to bring up more information...







Weather Alert for Prince Georges

Severe Weather Statement issued June 18 at 6:16PM EDT until June 18 at 6:45PM EDT by NWS Baltimore/Washington

Display Less

...THE SEVERE THUNDERSTORM WARNING FOR NORTHEASTERN CHARLES... SOUTHEASTERN PRINCE GEORGES...NORTH CENTRAL ST. MARYS AND WEST CENTRAL CALVERT COUNTIES HAS EXPIRED... THE STORMS WHICH PROMPTED THE WARNING HAVE MOVED OUT OF THE AREA. THEREFORE THE WARNING HAS BEEN

Weather Alert for Fairfax County,



Heat Advisory issued July 18 at 3:11PM EDT until July 19 at 8:00PM EDT by NWS Baltimore/Washington

Display Less

...HEAT ADVISORY IN EFFECT FROM 1 PM TO 8 PM EDT SUNDAY... THE NATIONAL WEATHER SERVICE IN BALTIMORE MD/WASHINGTON HAS ISSUED A HEAT ADVISORY...WHICH IS IN EFFECT FROM 1 PM TO 8 PM EDT SUNDAY. * HEAT INDEX VALUES...UP TO 105 DUE TO TEMPERATURES IN THE LOWER TO MID 90S...AND

Weather Alert for District of Columbia



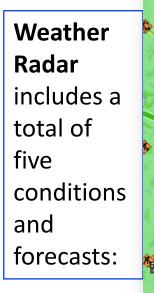
Air Quality Alert issued July 18 at 4:35PM EDT by NWS Baltimore/Washington

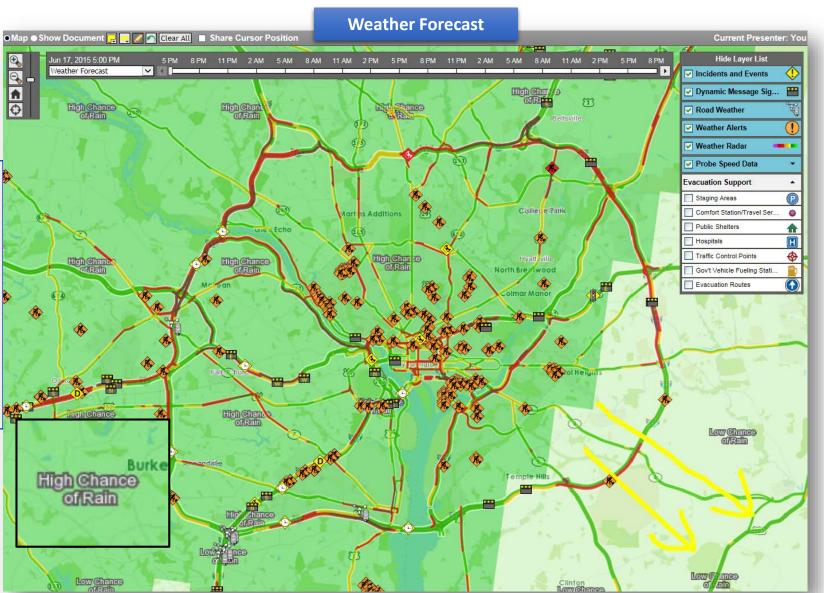
Display Less

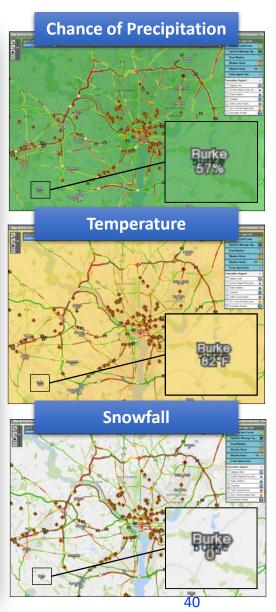
...AIR QUALITY ALERT IS IN EFFECT FOR SUNDAY JULY 19 2015... THE METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS IN ASSOCIATION WITH MARYLAND DEPARTMENT OF THE ENVIRONMENT, VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, AND DISTRICT DEPARTMENT OF ENVIRONMENT HAS ISSUED A CODE ORANGE AIR QUALITY ALERT SUNDAY FOR THE DC METRO AREA. A CODE ORANGE AIR

The Map/Document Area - Weather Radar





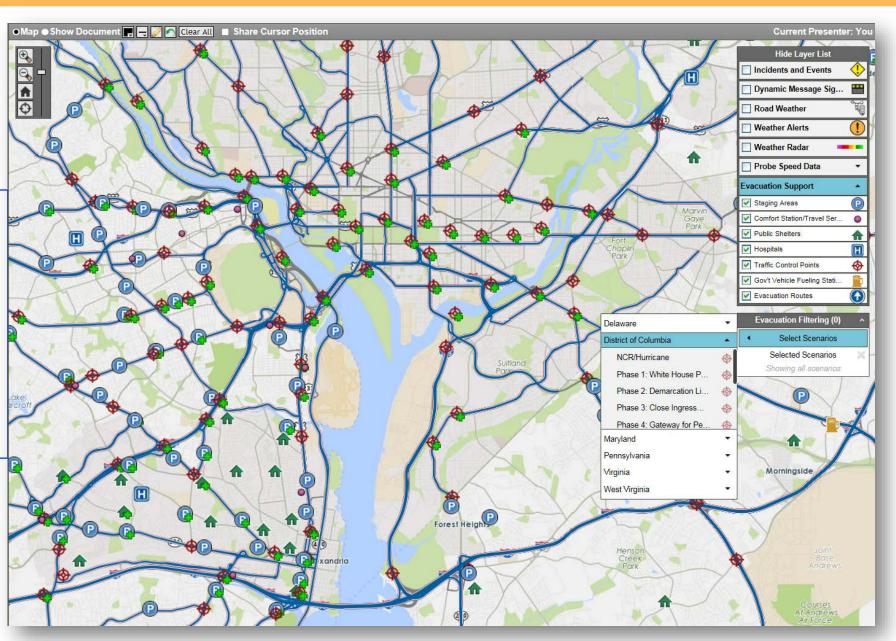




The Map/Document Area – Evacuation Support



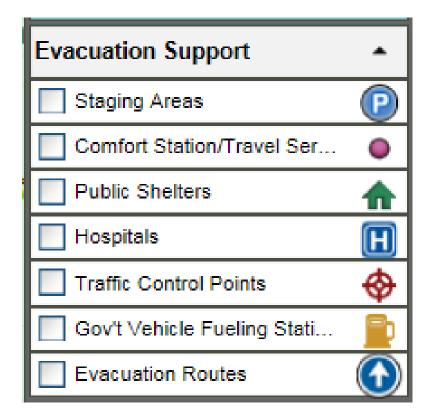
This map shows layers pertaining to evacuation support: routes, staging areas, hospitals, traffic control points, etc.



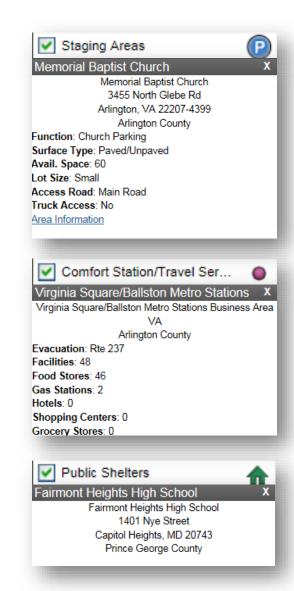
The Map/Document Area – Evacuation Support Data

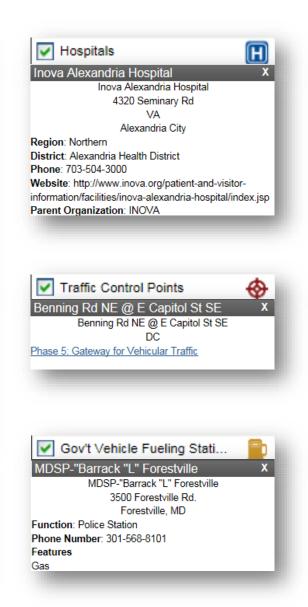


Click on the checkboxes in the Layer List to activate or deactivate Evacuation Routes,
Staging Areas, Comfort Stations, Hospitals, etc.:



Then click on a map icon to bring up more information...





After the Meeting





An email, with a complete log of all information, will be automatically generated and sent to all participants.



Overview of the RITIS Meeting Tool

6/12/15 10:30 AM Host: John Allen Maryland

To learn about this awesome new tool!

Recommendation:

Close, continuous coordination leading up to, during and after the Pope's visit.

Number of Attending: 3

Forecast:

8:00 AM - 12:00 PM

Mostly clear; temperatures in the low to mid 80s.

12:00 PM - 4:00 PM

Increasing clouds; temperatures between 90-95 degrees.

4:00 PM - 8:00 PM

There is an 80% chance of heavy thunderstorms moving through the Washington, D wind gusts of 60 mph and golf ball-size hail.

8:00 PM - 12:00 AM

Storms will subside and weather will be clear and calm; temperatures in the low 70s

Polls:

What time should rail start running the day of the Popes visit? 3 AM (0) 4 AM (1) 5 AM (1) 6 AM (0) 2 of 2 Attendance Voted	Papal Visit - Rail Transit	1:18 PM
4 AM (1) 5 AM (1) 6 AM (0)		running the day of the
5 AM (1) 6 AM (0)	3 AM	(0)
6 AM (0)	4 AM	(1)
(*)	5 AM	(1)
2 of 2 Attendance Voted	6 AM	(0)
	2 0	of 2 Attendance Voted

Capacity
How many additional cars should be added to each train?

Papal Visit - Train

each train?	
1 car	(1)
2 cars	(1)
3 cars	(0)
none	(0)

2 of 2 Attendance Voted

Meeting Notes:

John Allen: (1:36 PM) We need to meet weely up until the week prior to the Pope's visit,

John Allen: (1:38 PM) SEPTA and PENNDOT, as well as DVRPC and other transportat agencies need full involvement.

John: (1:40 PM) All participants need to review the RITIS Meeting QRG to ensure they a versed in all aspects of the tool.

Shared Media:

Uploaded by: John Allen

Time: 11:00 AM Description:



Survival Guide for the Papal Visit:

1. Wear comfortable shoes. You're going to be doing a lot mo walking than you've been used to, probably.
2. Forget driving. Bringing your car into town will be a nonstarter, Mayor Michael Nutter said at a City Hall news conference this morning.

3.If you live in the 'burbs, ask a friend to drop you off at the nearest open SEPTA Regional Rall station. And be sure to purchase your Pope Pass beforehand, 'cause you won't be abi to leave home without it, unless you like long bus rides. More all this below.

4.If you live in the city, the news is relatively good: Your pass and tokens will get you where you need to go. But it will probably be on a bus rather than on rapid transit.

Read more at http://www.philiymag.com/news/2015/06/16/septa-stations pope-map/#jswgk45vKQylCsam.99

Attendance:

Host	
John Allen	

Organization	Participant	Email
CATT Lab	John	alenjc5@aol.com
CATT Lab	John	allenjc5@aol.com
CATT Lab	John Allen	jallen35@umd.edu

Poll Information:

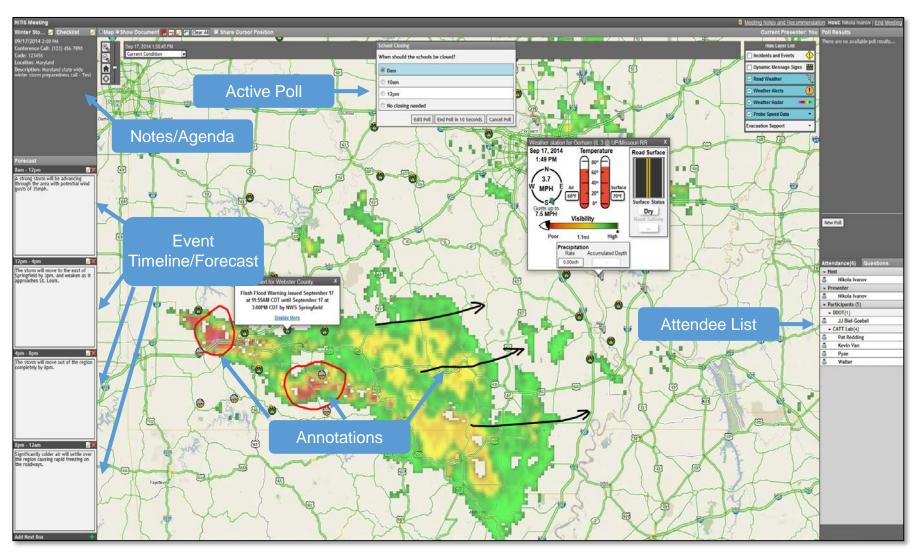
Papal Visit - Rail Transit: What time should rail start running the day of the Popes visit?		
Participant	Vote	
John	4 AM	
John Allen	5 AM	

Papal Visit - Train Capacity: How many additional cars should be added to each train?	
Participant	Vote
John	2 cars
John Allen	1 car

5/5

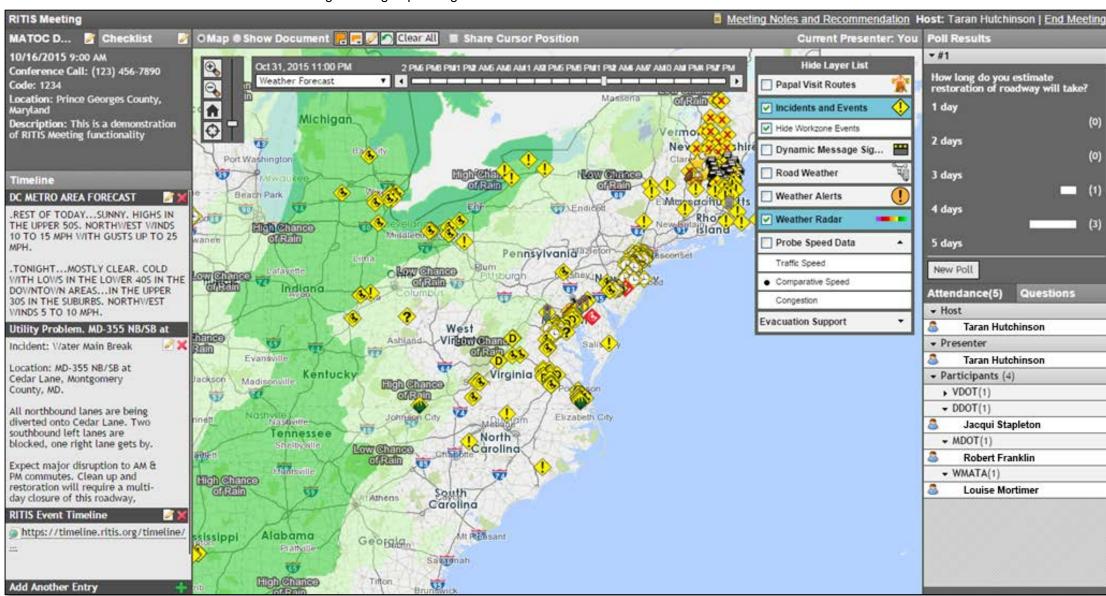
Collaborative Decision Making Tools – Meeting in Progress

Clear, comprehensive, and organized layout of tools and information makes collaborating simple and easy.



Collaborative Decision Making Tools – Meeting in Progress (Cont'd.)

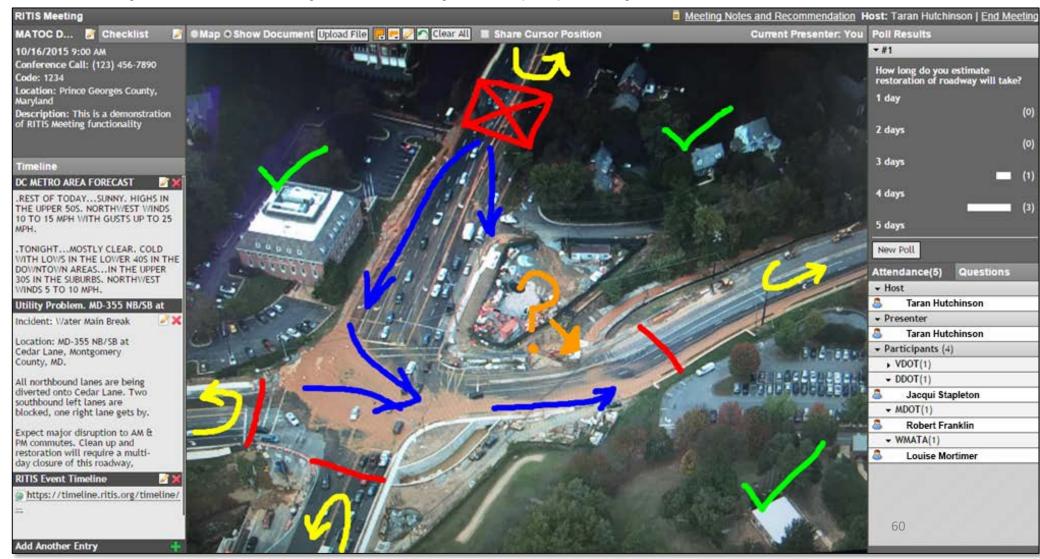
Pre-weather event meeting showing impending weather and incidents.



Collaborative Decision Making Tools – Meeting in Progress (Cont'd.)

Running a Poll

The host of the meeting or a designated presenter can share images and documents during the meeting. This person can add and remove annotations on the files they are sharing. In the image below, RITIS Meeting is used during a water main break to identify closures, rerouting, and other items. The meeting host used the drawing tool to walk participants through the event.



Collaborative Decision Making Tools – Meeting Log

A meeting log is generated after every meeting. This log keeps track of all the information shared in the meeting, and is sent out to all the participants afterwards.

MATOC Weather Call: January 26 Event

1/25/15 2:00 PM Host: Taran Hutchinson District of Columbia

This is the RITIS Meeting for MATOC Severe Weather Coordination Working Group to discuss the anticipated winter weather event forcasted to impact the region Sunday night into Monday (1/26) morning.

Recommendation:

Recommend MWCOG Snow Call for 3AM Monday (1/26)

We will have a follow up MATOC Weather Call at 2PM Monday (1/26) to discuss how the event is progressing and impacts to PM rush as well as impacts for Tuesday AM rush.

Number of Attending: 9

Forecast:

Current Advisory

NATIONAL WEATHER SERVICE BALTIMORE MD/WASHINGTON DC 1040 AM EST SUN JAN 25 2015

- ...WINTER WEATHER ADVISORY REMAINS IN EFFECT FROM 2 AM TO 6 PM EST MONDAY...
- * PRECIPITATION TYPE...SNOW...POSSIBLY HEAVY AT TIMES.
- * ACCUMULATIONS...1 TO 2 INCHES.
- * TIMING...SNOW WILL BEGIN LATE TONIGHT AND CONTINUE THROUGH LATE MONDAY AFTERNOON. THE HEAVIEST SNOWFALL WILL OCCUR BETWEEN EARLY MONDAY MORNING AND MONDAY AFTERNOON.
- * TEMPERATURES...IN THE LOWER 30S.
- * WINDS...NORTHEAST 10 TO 15 MPH.
- * IMPACTS...ROADS WILL BE SNOW COVERED AND SLIPPERY WITH VISIBILITIES BEING REDUCED TO NEAR ONE-QUARTER MILE AT TIMES. THE COMBINATION OF SNOW COVERED ROADS AND LOW VISIBILITY WILL MAKE TRAVELING DANGEROUS.
- * OUTLOOK...SNOW WILL CONTINUE MONDAY NIGHT INTO TUESDAY...WITH ADDITIONAL ACCUMULATION POSSIBLE.

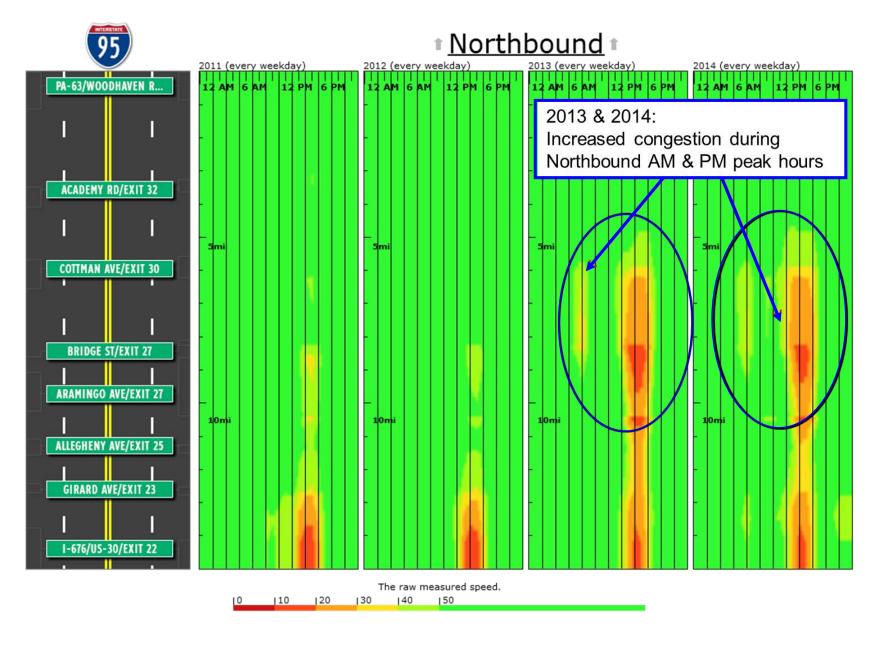
PRECAUTIONARY/PREPAREDNESS ACTIONS..

A WINTER WEATHER ADVISORY FOR SNOW MEANS THAT PERIODS OF SNOW WILL CAUSE PRIMARILY TRAVEL DIFFICULTIES. BE PREPARED FOR SNOW COVERED ROADS AND LIMITED VISIBILITIES...AND USE CAUTION WHILE DRIVING. Polls: Poll #1 2:08 PM When do you recommend a MWCOG Snow Sunday afternoon (late) Sunday evening Monday morning (early Monday morning (late) 5 of 8 Attendance Voted Shared Media: Uploaded by: Taran Hutchinson Time: 1:46 PM Description: MATOC Road Conditions Table **TABLE 1: Transportation system status levels** Road Condition 5: IMPASSABLE/ DANGEROUS/ 'dangerous" Be where you need to be **TREACHEROUS** Some roads could be temporarily impassable. This may be the result of severe weather (low ather aets bad. visibility, etc.) or road conditions (drifting, excessive unplowed snow, glare, ice, accidents, y where you are. stranded vehicles, etc.) Skeletal transit services. Limited above-ground rail service if more than 8" of accumulation. Lane drops in certain sections. Road Condition 4: ICY/SNOW PACKED The pavement surface is covered with packed snow and/or ice. There may be loose snow <time>. Avoid or postpone travel for on top of the icy or packed snow surface. Transit lifeline services only with significant delays next <hours>. for rail and bus. Refreeze possible. Lane drops in certain sections. eave early, to avoid travel during "caution", "passable" Road Condition 3: SNOW AND/OR SLUSH COVERED Avoid being stranded at bus stops The payement surface has continuous stretches of packed snow with or without loose snow Avoid or postpone travel for next on top of the packed snow or ice. Core bus services only, delays in rail services. Lane drops tay off the roads stay at the office an extra <hour>, eave early, to avoid travel during i Road Condition 2: SNOW / SLUSH COVERED W/ Avoid discretionary travel. Road crew WHEEL TRACKS EXPOSED engaged in clearing activities. Accumulations of loose snow or slush up to 2 inches are found on the pavement surface. Packed and bonded snow and ice are not present. Regular transit services with some minor exceptions and detours for buses. Drifting snow. Road Condition 1: CLEAR WET/DRY Clear and wet/dry pavement surface is the general condition. There are occasional areas having snow or ice accumulations resulting in drifting, sheltering, cold spots, frozen meltwater, etc. Transit operations per schedules. 2 L/B7

Other tools for evaluating Work Zones

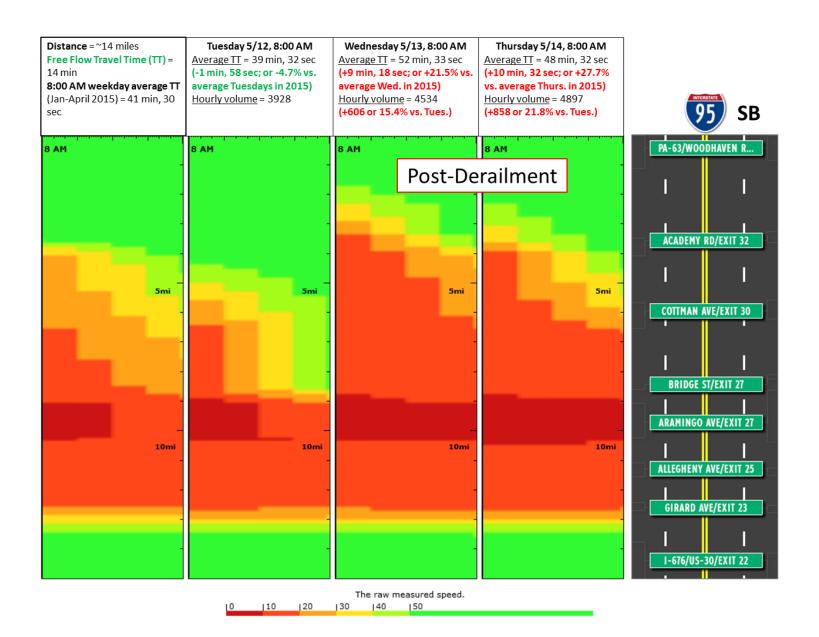
 The Probe Data Analytics Suite has additional features and functionality that can be used to measure the impacts of construction events, and then

Probe Data Analytics Can Supplement RITIS Meeting



- I-95 Reconstruction in Philadelphia
- Construction began late 2011; multiple sections underway starting late 2012
- Graphic instantly communicates impacts to wide variety of audiences
- Spatial and temporal
- Great starting point for analysis of changes/issues

Probe Data Analytics Can Supplement RITIS Meeting



- Impact of the Amtrak
 Derailment &
 Suspension of SEPTA's
 Trenton Line
- Significant travel time increases on I-95 Wednesday and Thursday
- Likely that most Trenton Line riders ended up driving
- Still working on analysis of hourly volumes

Other Probe Data Analytics Tools

 User Delay Cost tables and Animated Comparison Maps can all be used to help show the impacts of work zones



These slides were produced using tools developed by the CATT Laboratory.

Michael L. Pack

CATT Laboratory 301.405.0722

PackML@umd.edu



www.cattlab.umd.edu npmrds.ritis.org www.ritis.org www.ritis.org www.cattlab.umd.edu/map-21