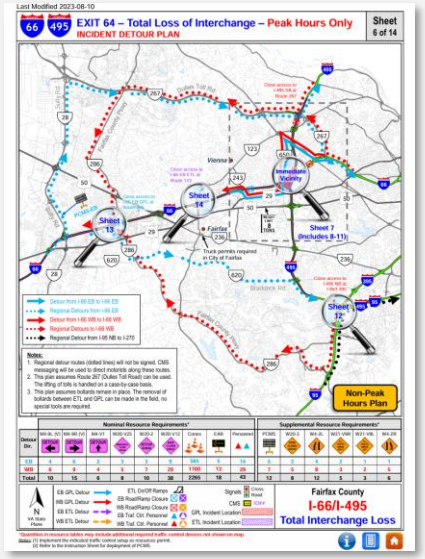
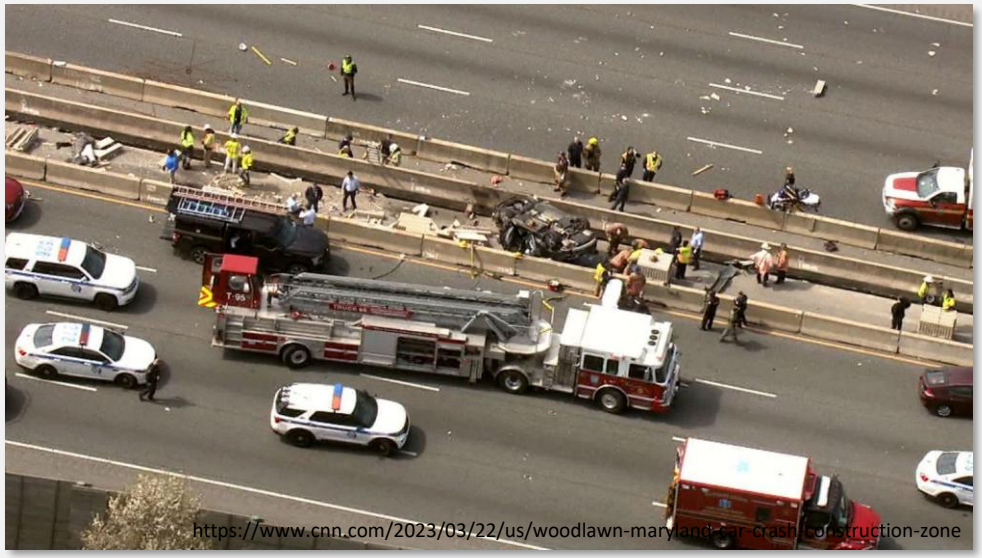
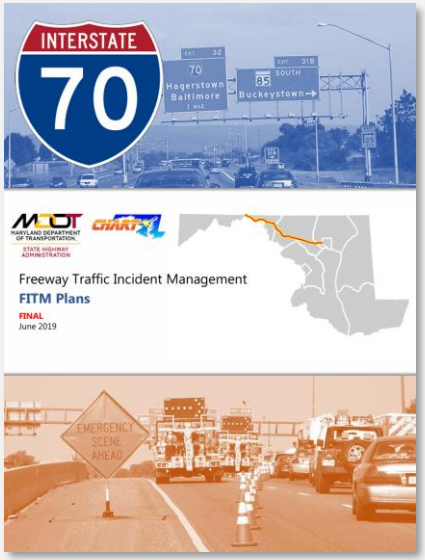
Building Operational Readiness Through Multi-State Traffic Incident Management Plans







Tanya King, PE, PTOE, and Will Fisher, RSP1

Daniel Consultants, Inc.

2026 Mid-Colonial District ITE Annual Meeting

Lancaster, PA | April 16, 2026

Why Major Freeway Incidents Matter

Full freeway closures are rare

but high-impact

Congestion spreads across regional networks

Secondary crashes increase

Emergency response coordination

becomes complex

https://www.nbcnews.com/video/car-in-maryland-crashes-into-highway-work-zone-killing-6-166351941773

Challenges Occur when a Freeway Closes

- No pre-identified detour routes
- Agencies respond independently
- Limited field access to operational plans
- Local road networks quickly become overwhelmed

Importance of Pre-Planned Incident Management

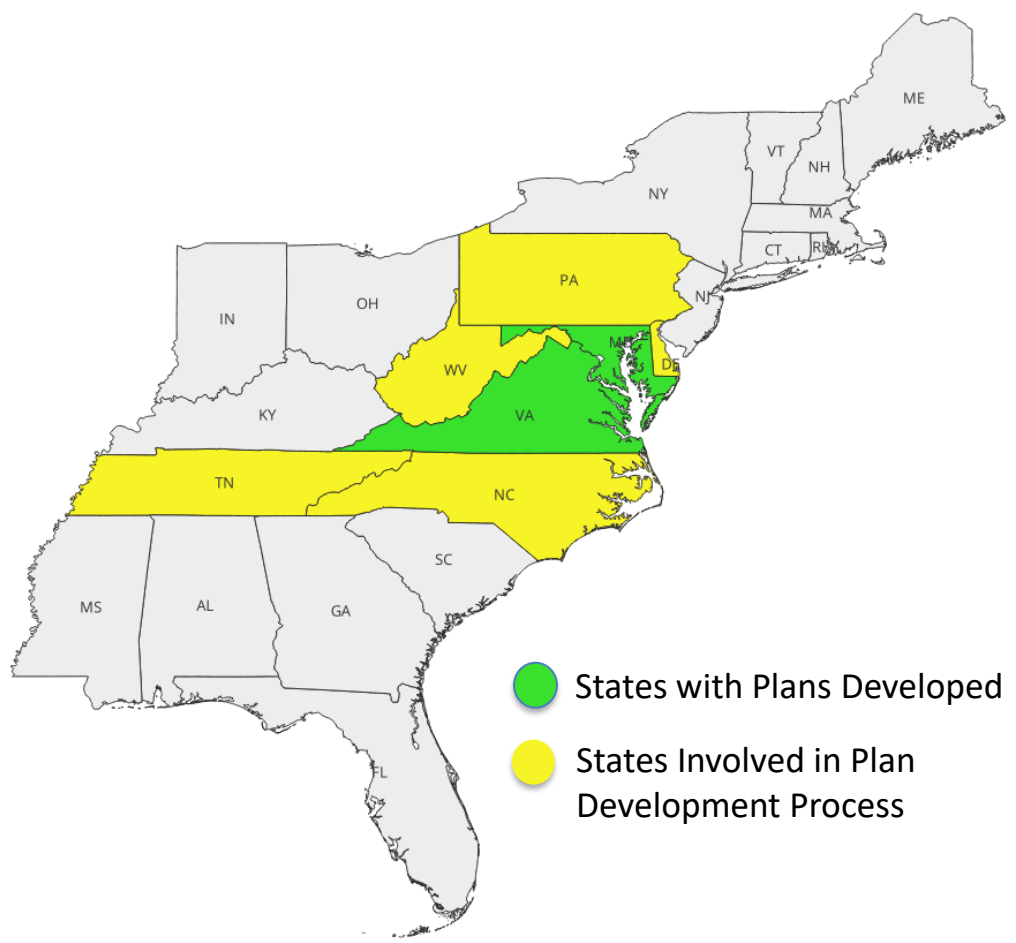
How can we control for chaos? Pre-planned, coordinated response

Improves Response and Training

Improves Teamwork

Improves Consistency

Regional Implementation

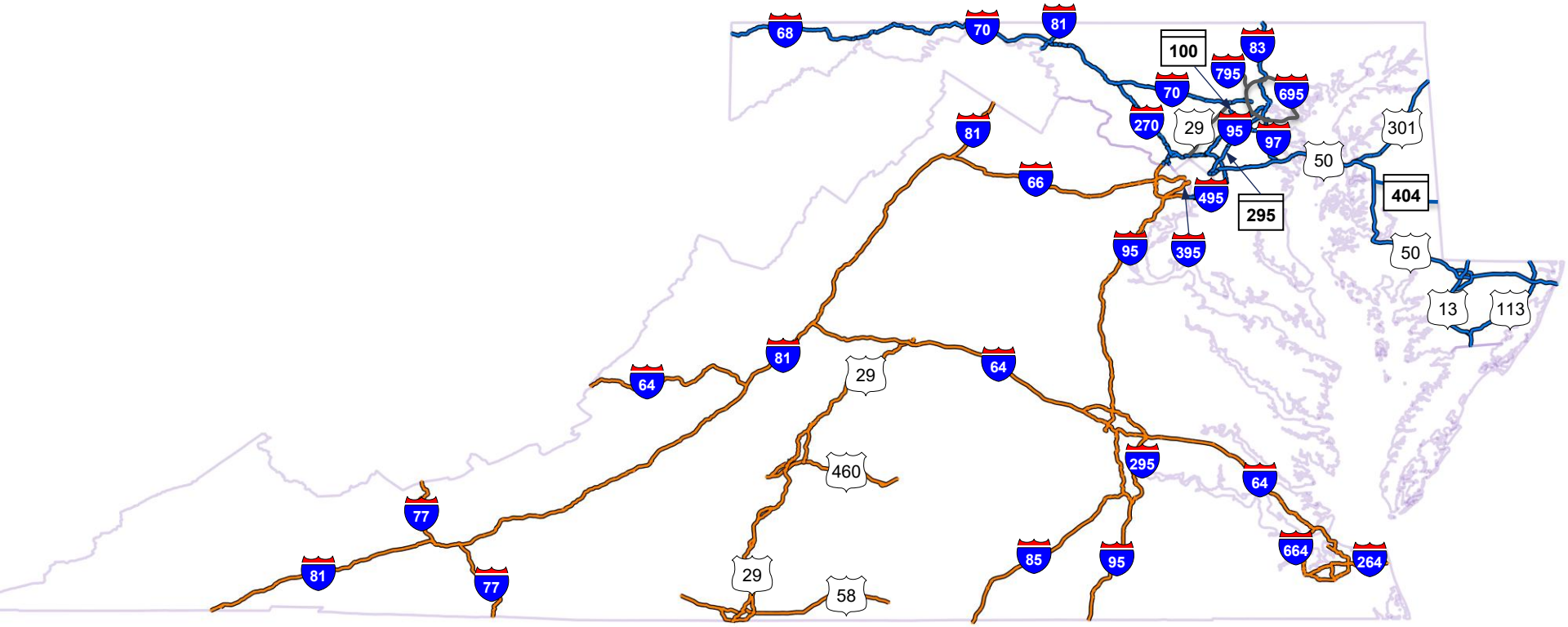


- Current plans cover ~**80%** of MD interstates and ~**90%** of VA interstates
- Collaborated with PA, DE, WV, NC, and TN

Corridors Covered by Plans

FITM - Freeway Incident Traffic Management (MD)

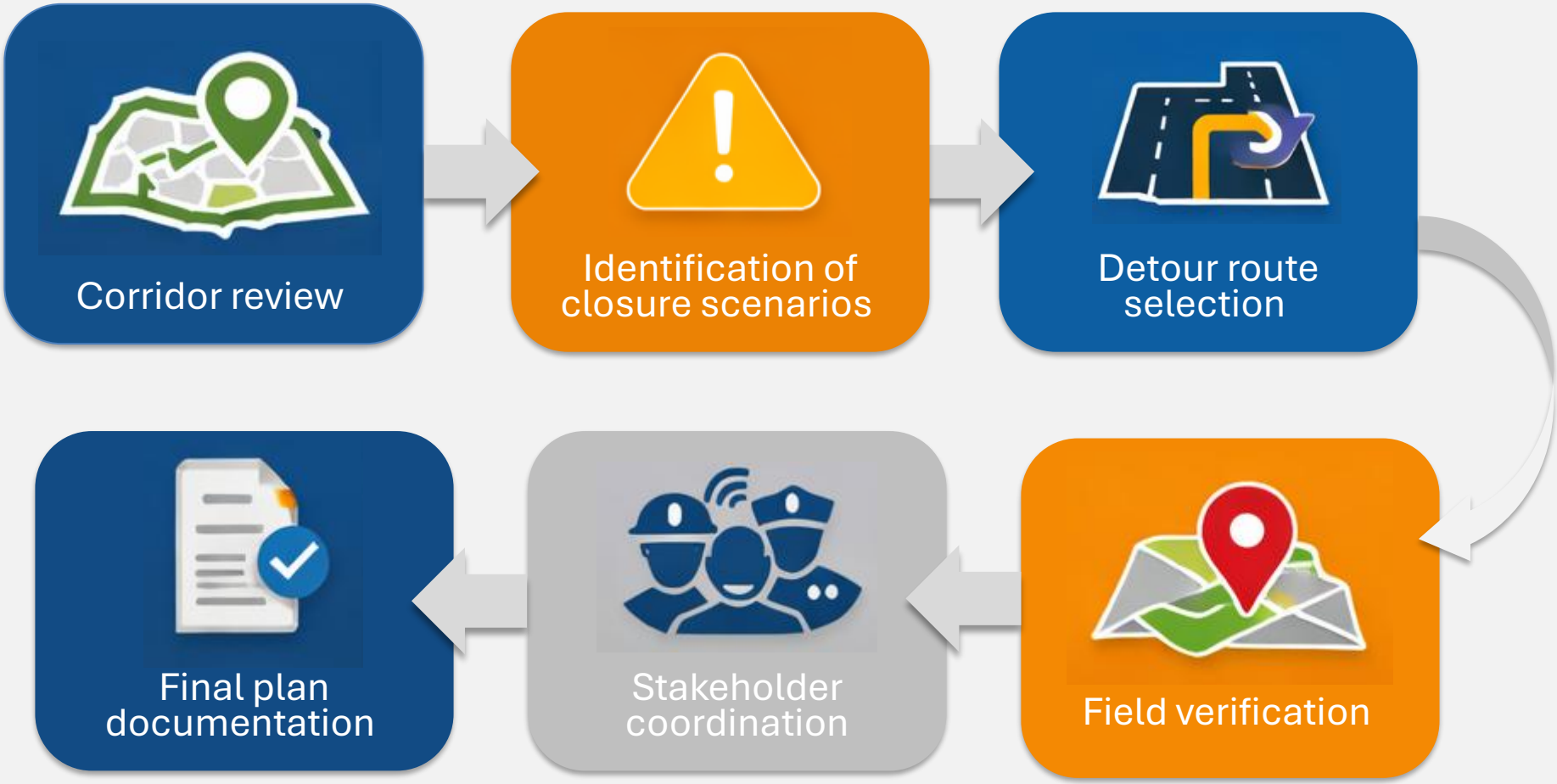
IDP - Incident Detour Plans (VA)



- Majority of plans for Interstate corridors and controlled access freeways
- New plans for non-limited access arterials in Virginia

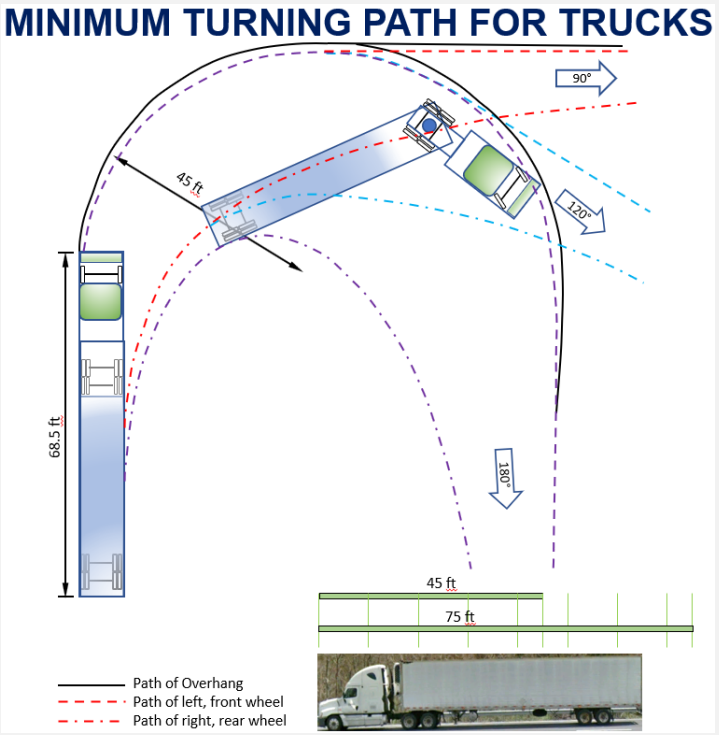
Plan Development Process

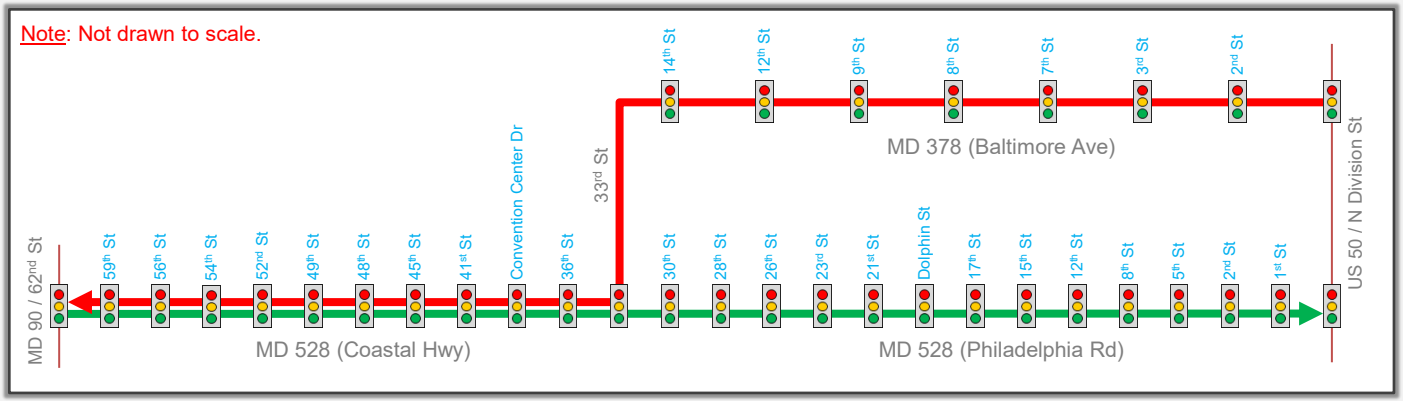
Operational readiness requires planning before incidents occur



Detour Route Selection

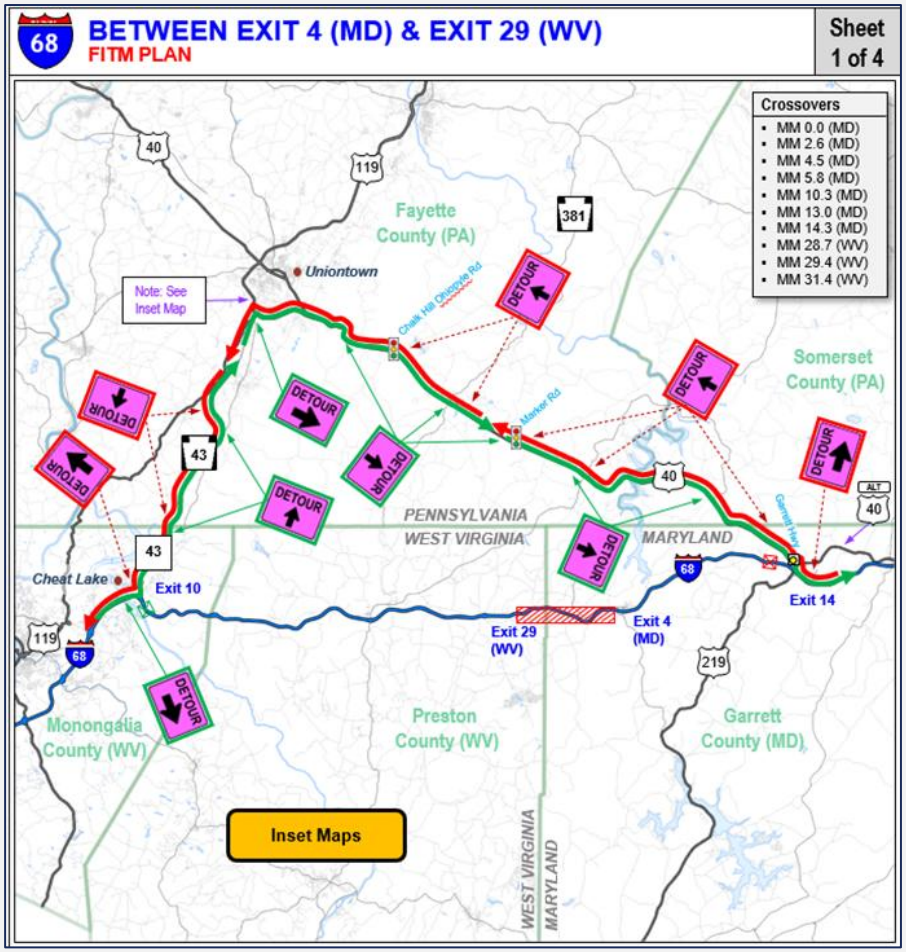
- Roadway capacity
- Geometric constraints
- Truck restrictions
- Bridge and structure restrictions
- Signal timing and traffic operations
- Stakeholder feedback
- Roadway maintenance





Stakeholder Coordination

Plans fail if stakeholders do not approve!

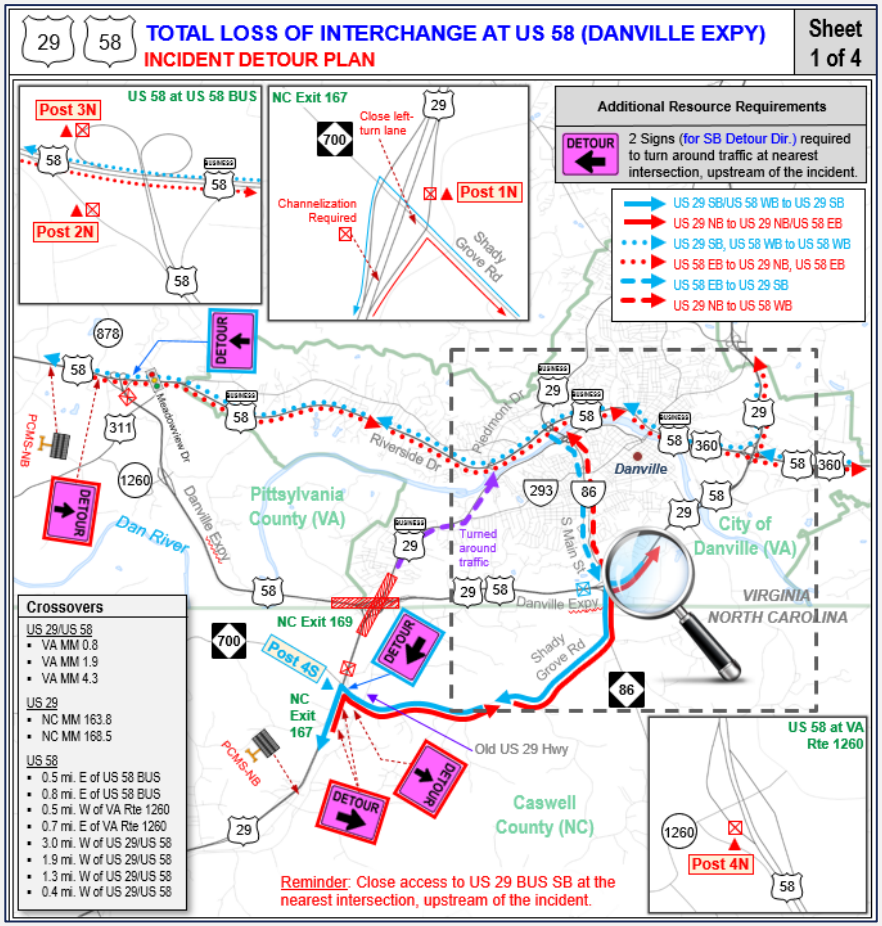


- Local knowledge improves plan quality and operational practicality
- LE input for traffic control
- Fire/EMS access considerations
- Roles and responsibilities defined in advance
- Especially important for plans involving multiple states

Plan Components

- Detour maps
- Law enforcement control posts
- Traffic control device requirements
- DMS message recommendations
- Signalized intersections
- Agency Phone Numbers

PCMS (NC) US 29 NB, 1.5 mi. prior to Exit 167
  Page 1: ROAD | CLOSED | AHEAD
  Page 2: FOLLOW | DETOUR
PCMS (NC) US 29 NB at NC MM 160
  Page 1: CRASH | ROAD | CLOSED
  Page 2: USE | ALT | ROUTE



	Nominal Resource Requirements*									Supplemental Resource Requirements*					
Detour Dir.	DETOUR ←	DETOUR →	DETOUR ↑	EMERGENCY SCENE AHEAD	DETOUR AHEAD	RAMP CLOSED AHEAD			Personnel		ROAD CLOSED AHEAD		ALL TRAFFIC MERGE RIGHT	ALL TRAFFIC MERGE LEFT	
SB	4	3	10	2	3	6	180	2	5	5	2	1	1	1	1
NB	1	3	7	1	2	11	210	1	5	6	1	1	1	0	0
Total	5	6	17	3	5	17	390	3	10	11	3	2	2	1	1

PDF Navigation Document

MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

CHART

Maryland Freeway Incident Traffic Management (FITM) Plans

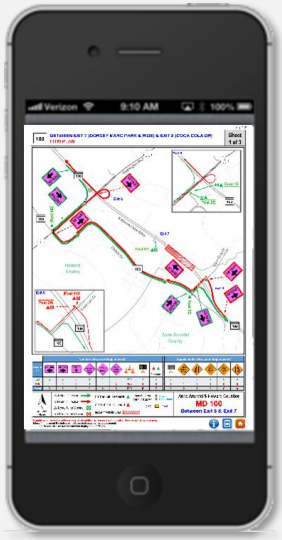
FINAL
April 2020

START

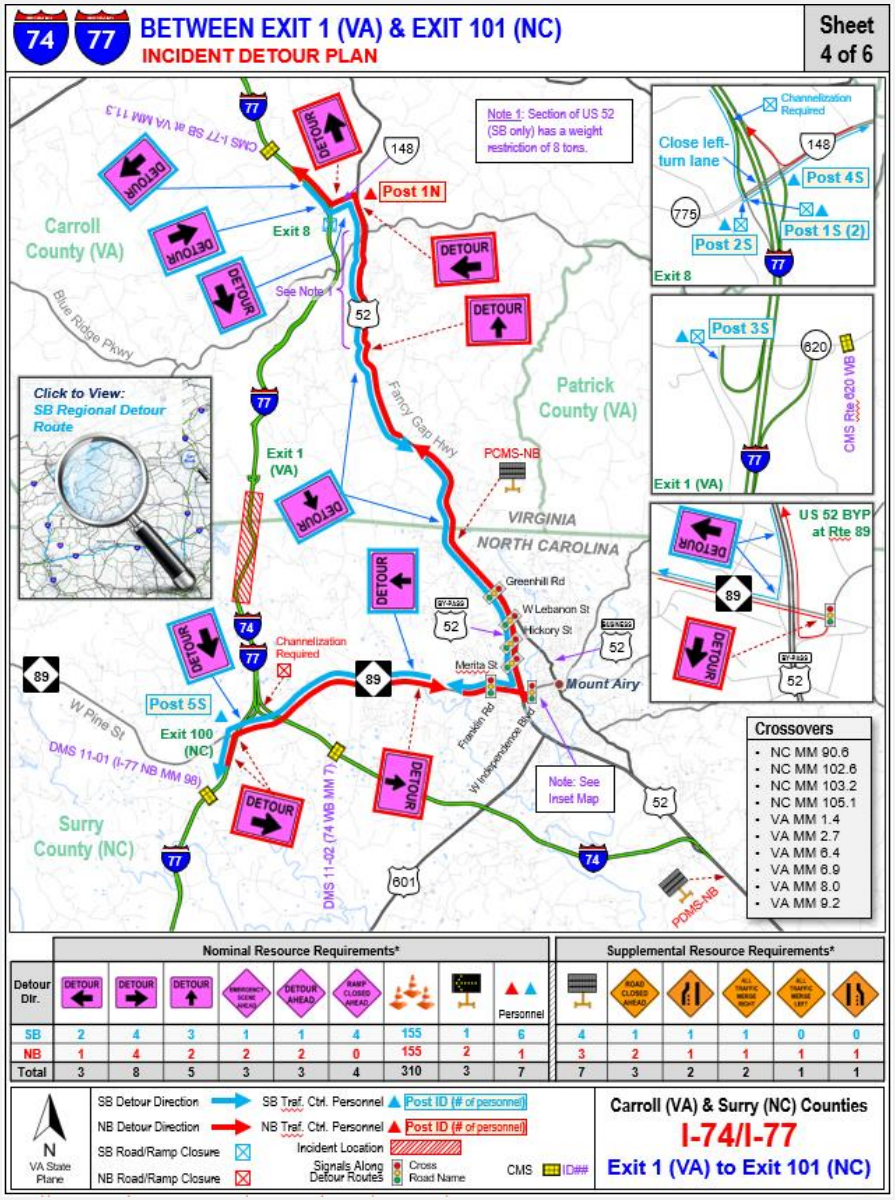
Deployment Tools in Field

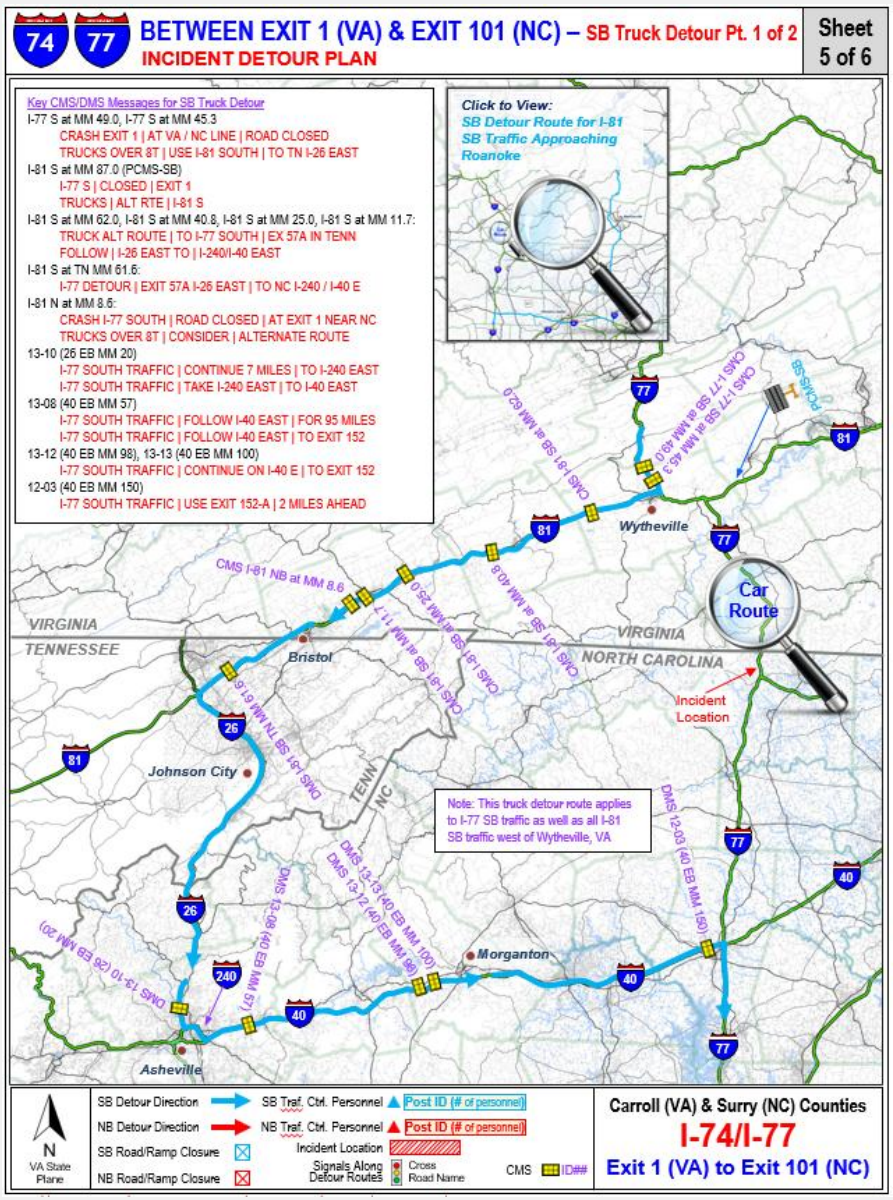
Plans must be usable during emergencies

- Mobile-friendly PDFs
- Hyperlinked navigation
- Mobile data terminal access
- Tablets and smartphones



I-74/I-77 Regional Detour Plan

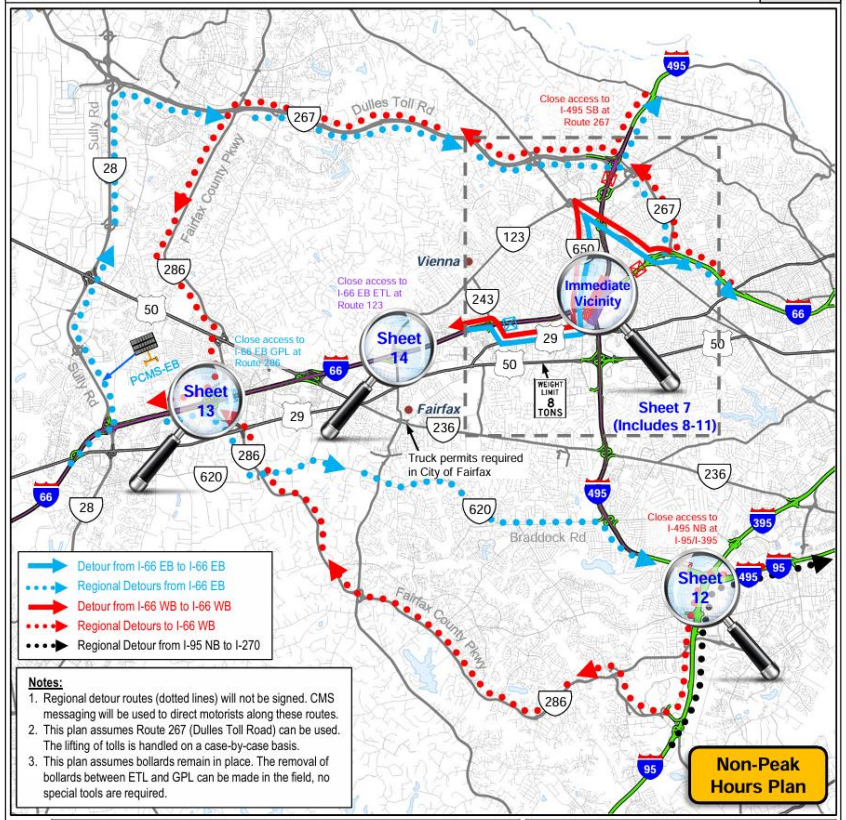




I-66/I-495 Total Loss of Interchange Plan

Last Modified 2023-08-10 Pg. 10

EXIT 64 – Total Loss of Interchange – Peak Hours Only
INCIDENT DETOUR PLAN
Sheet 6 of 14



Notes:
1. Regional detour routes (dotted lines) will not be signed. CMS messaging will be used to direct motorists along these routes.
2. This plan assumes Route 267 (Dulles Toll Road) can be used. The lifting of tolls is handled on a case-by-case basis.
3. This plan assumes bollards remain in place. The removal of bollards between ETL and GPL can be made in the field, no special tools are required.

Detour Dir.	Nominal Resource Requirements*									Supplemental Resource Requirements*					
	M4-9L (V)	M4-9R (V)	M4-V1	W20-V25	W20-2	W20-V12	Cones	EAB	Personnel	PCMS	W20-3	W4-2L	W21-V9R	W21-V9L	W4-2R
EB	4	6	2	3	3	9	565	5	14	5	3	4	2	1	1
WB	6	9	4	5	7	29	1700	13	29	7	5	8	3	2	5
Total	10	15	6	8	10	38	2265	18	43	12	8	12	5	3	6

EB GPL Detour · WB GPL Detour · EB ETL Detour · WB ETL Detour
ETL On/Off Ramps · EB Road/Ramp Closure · WB Road/Ramp Closure · EB Traf. Ctrl. Personnel · WB Traf. Ctrl. Personnel
Signals: Cross Road · CMS: ID## · GPL Incident Location · ETL Incident Location
N VA State Plane

Fairfax County
I-66/I-495
Total Interchange Loss

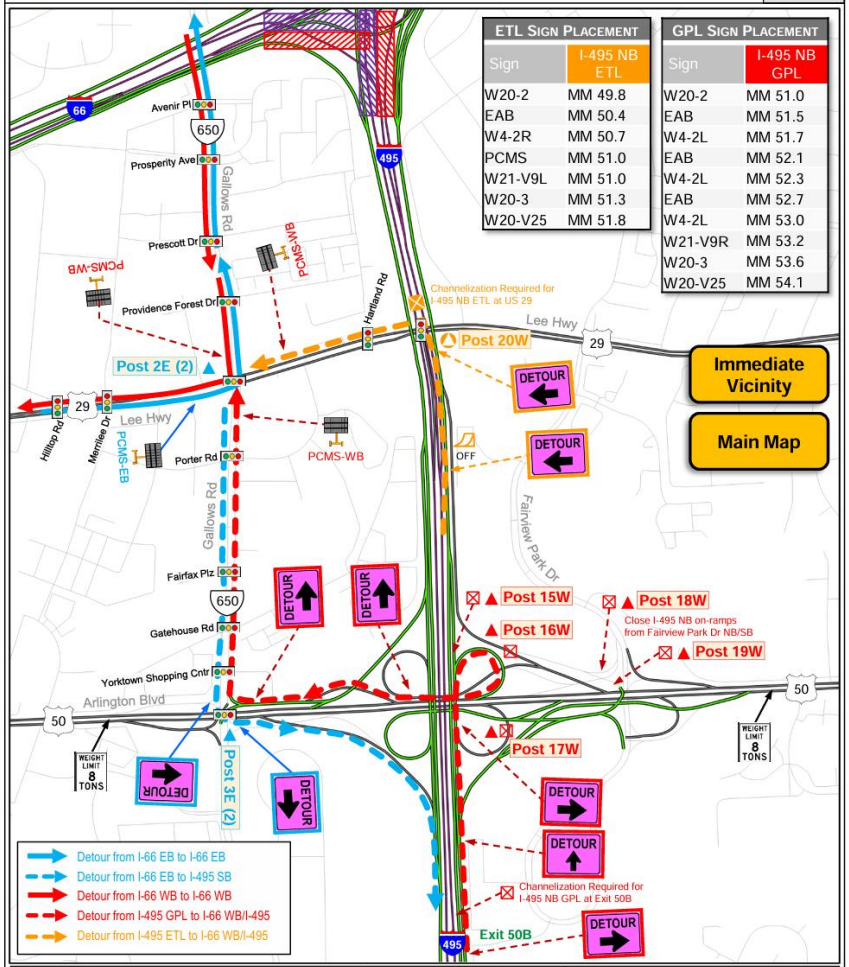
*Quantities in resource tables may include additional required traffic control devices not shown on map.
Notes: (1) Implement the indicated traffic control setup as resources permit.
(2) Refer to the Instruction Sheet for deployment of PCMS.

Last Modified 2023-08-10 Pg. 14

EXIT 64 – Total Loss of Interchange – Peak Hours Only
INCIDENT DETOUR PLAN
Sheet 10 of 14

ETL Sign Placement	
Sign	I-495 NB ETL
W20-2	MM 49.8
EAB	MM 50.4
W4-2R	MM 50.7
PCMS	MM 51.0
W21-V9L	MM 51.0
W20-3	MM 51.3
W20-V25	MM 51.8

GPL Sign Placement	
Sign	I-495 NB GPL
W20-2	MM 51.0
EAB	MM 51.5
W4-2L	MM 51.7
EAB	MM 52.1
W4-2L	MM 52.3
EAB	MM 52.7
W4-2L	MM 53.0
W21-V9R	MM 53.2
W20-3	MM 53.6
W20-V25	MM 54.1



EB GPL Detour · WB GPL Detour · EB ETL Detour · WB ETL Detour
ETL On/Off Ramps · EB Road/Ramp Closure · WB Road/Ramp Closure · EB Traf. Ctrl. Personnel · WB Traf. Ctrl. Personnel
Signals: Cross Road · CMS: ID## · GPL Incident Location · ETL Incident Location
N VA State Plane

Fairfax County
I-66/I-495
Total Interchange Loss

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Notes: (1) Implement the indicated traffic control setup as resources permit.
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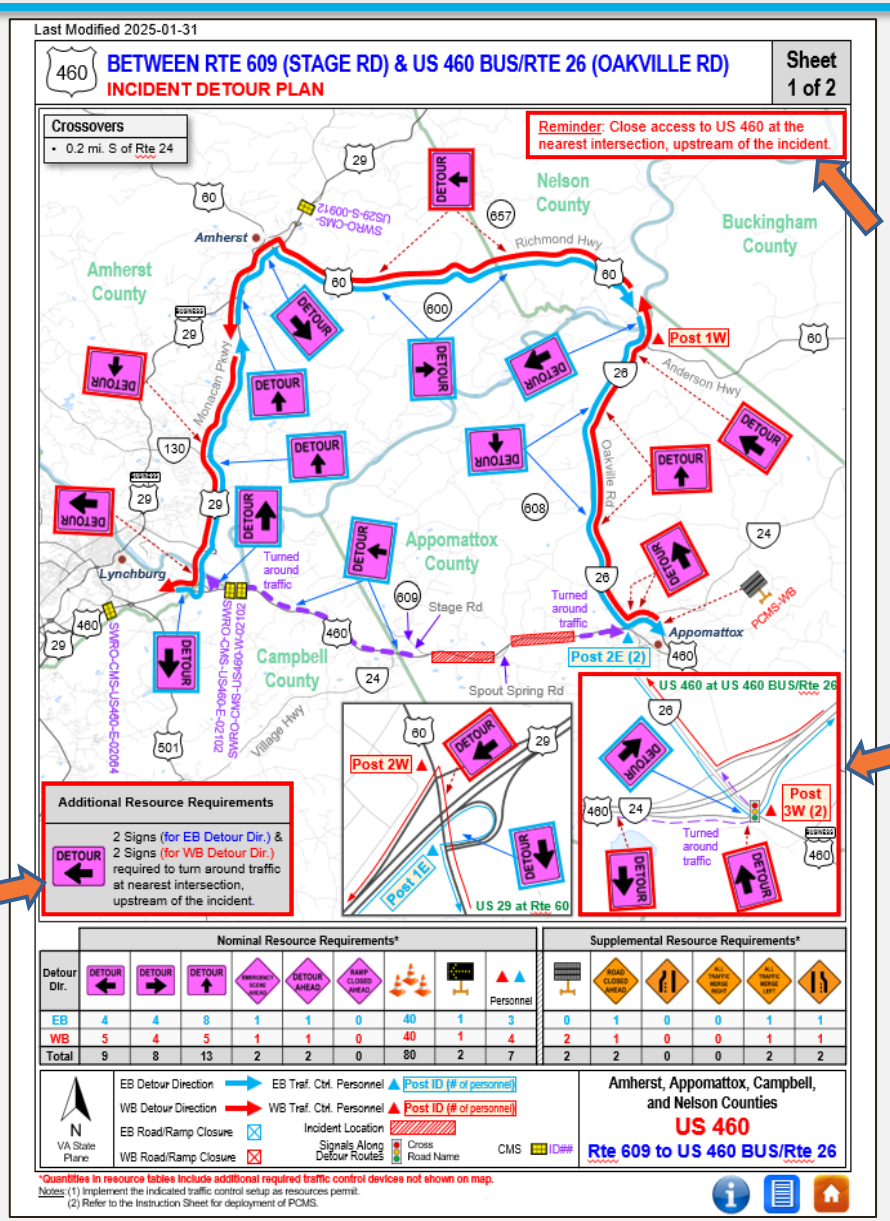
US 460 Non-Limited Access Arterial Plan

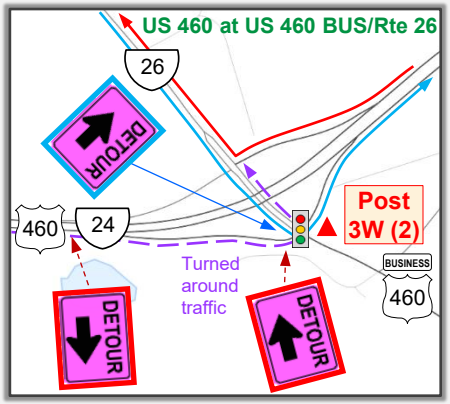


- Motorists directed to take detour route with portable CMS messaging and detour signage, local traffic can continue beyond
- Hard closure at the nearest intersection, upstream of the incident
- Turned around traffic shown

Additional Resource Requirements

DETOUR

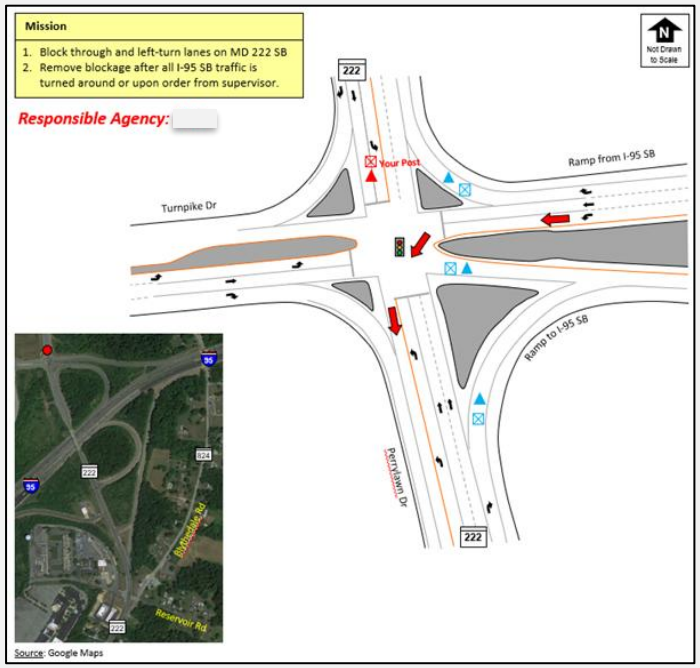
2 Signs (for SB Detour Dir.) & 2 Signs (for NB Detour Dir.) required to turn around traffic at nearest intersection, upstream of the incident.

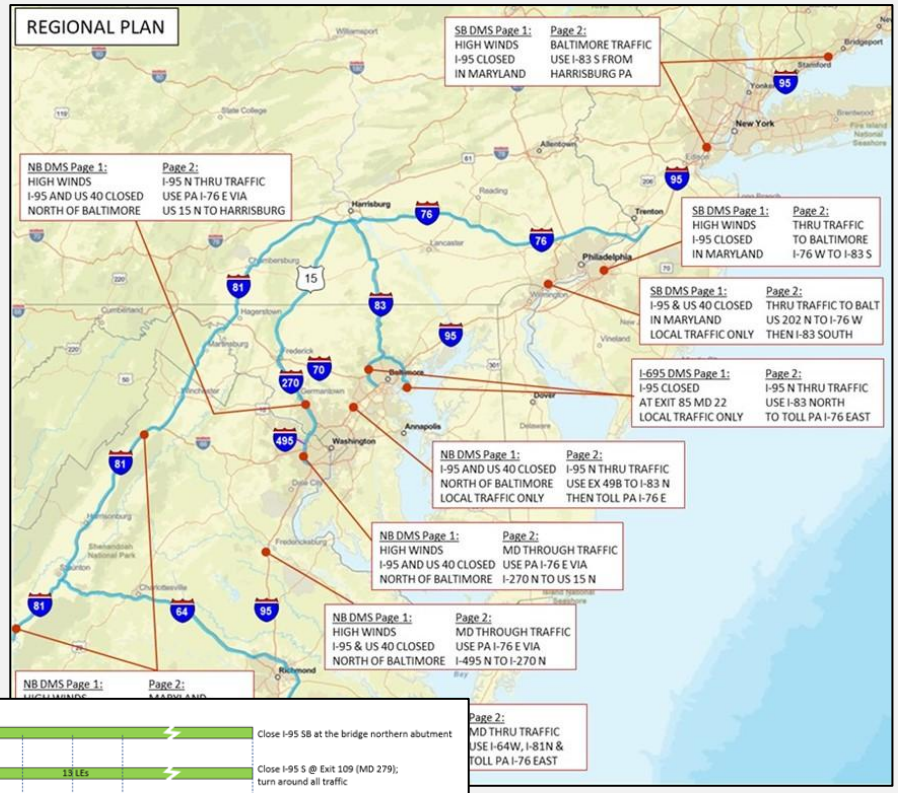


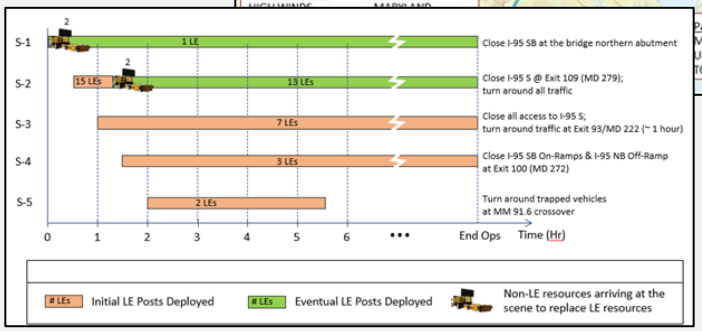
Reminder: Close access to US 460 at the nearest intersection, upstream of the incident.

I-95 & US 40 Simultaneous Bridge Closures Plan

Comprehensive plans developed for simultaneous closures of the Tydings (I-95) and Hatem (US 40) Bridges in Maryland due to an exceptional wind event from March 2018.







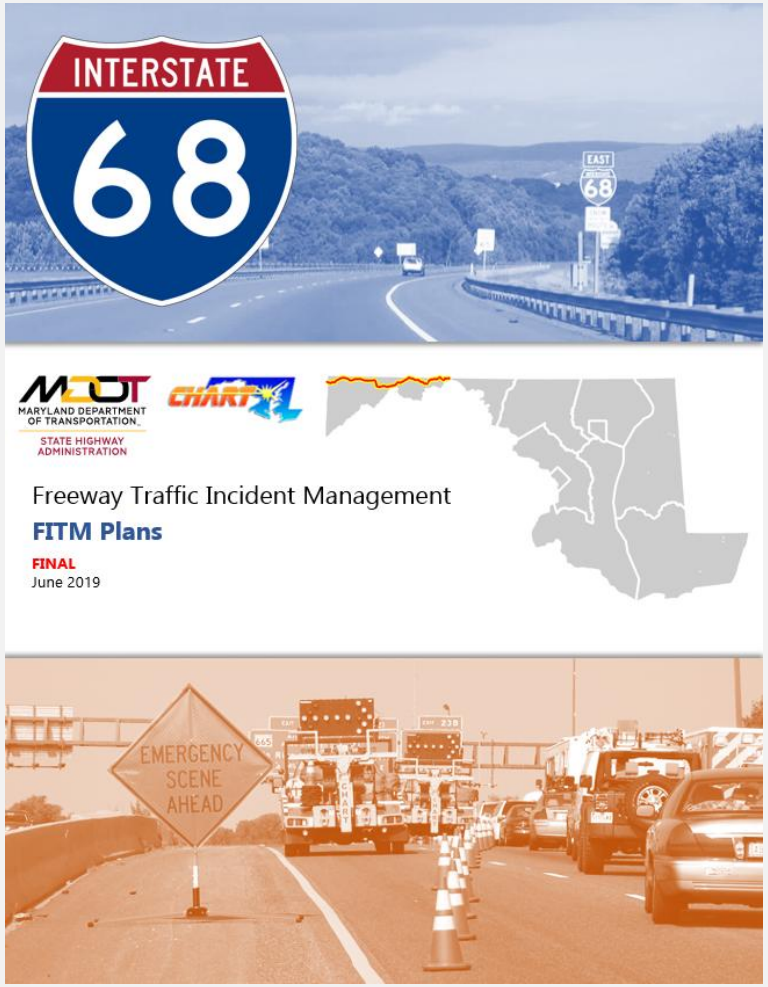
Indirect Benefits

Plans still provide value and documentation even if there are no incidents.

- DOT maintenance shops have acquired budget for more signage and resources
- Signals along official detour routes have received greater priority when planning traffic signal upgrades
- Districts have received funds to install permanent signs for long detour routes

Key Takeaways

- Major incidents require advanced planning
- Regional coordination is essential
- Standardized plans support faster response
- Accessible operational tools improve effectiveness
- Plans have fostered stronger agency cooperation



Questions?

Thank You! Please contact us at:

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