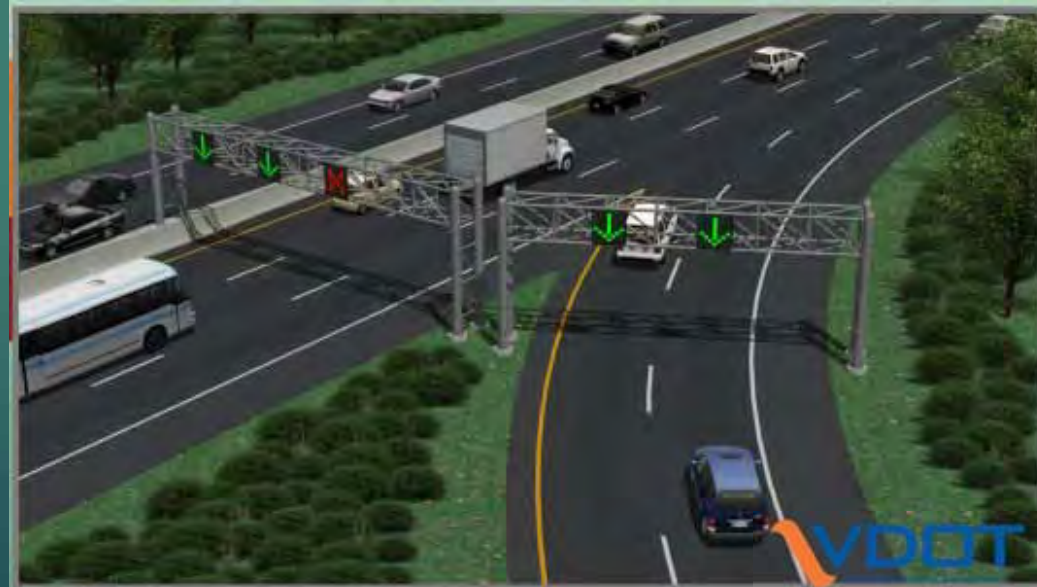


Bryan Park Dynamic Lane Merge Assessment

STUART SAMBERG, P.E., PTOE
& RAKESH MORA, P.E.

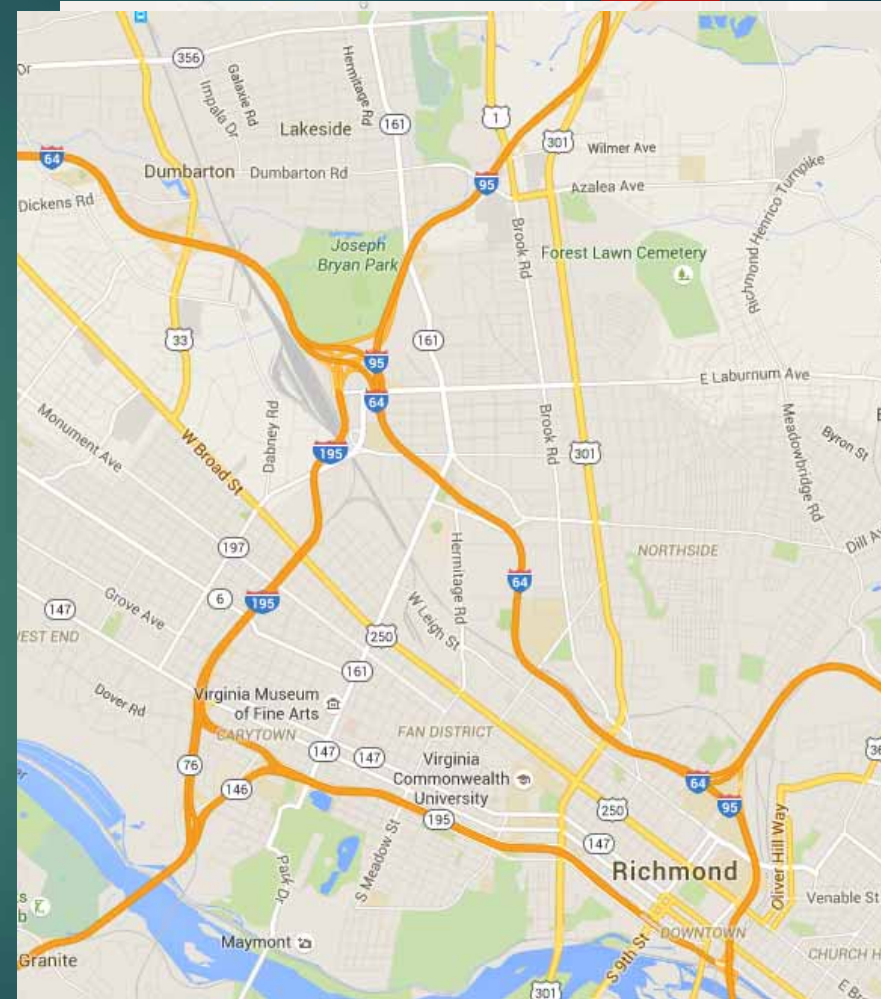


Overview

- ▶ Introduction
- ▶ Existing Conditions
- ▶ DLM Build Alternatives
- ▶ Literature Review
- ▶ Methodology
- ▶ Analysis Results
- ▶ Conclusions

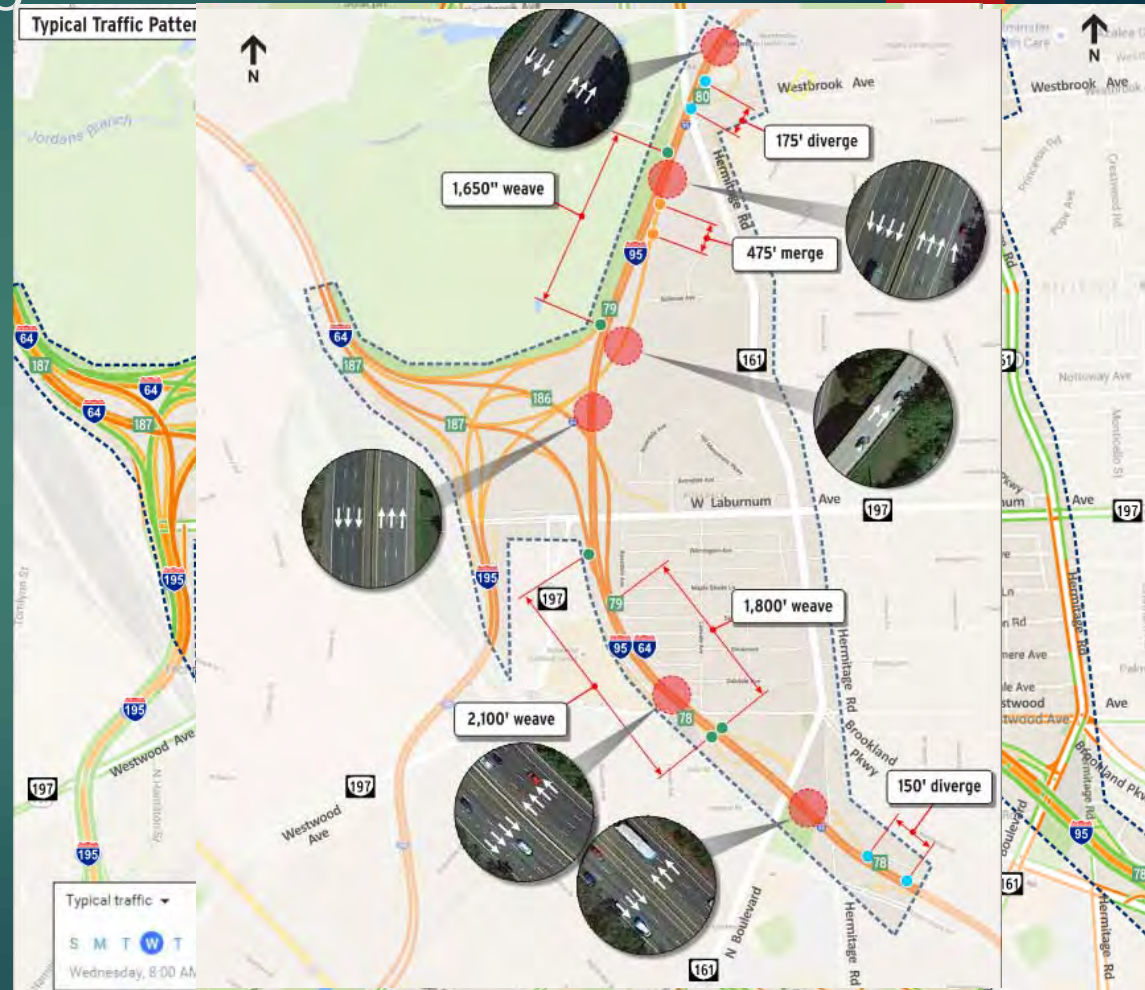
Introduction

- ▶ A VDOT Initiative to improve mobility
- ▶ I-95/I-64/I-195 Bryan Park Interchange
- ▶ Heavily directional traffic
- ▶ Severe congestion on I-64/I-195 Ramps



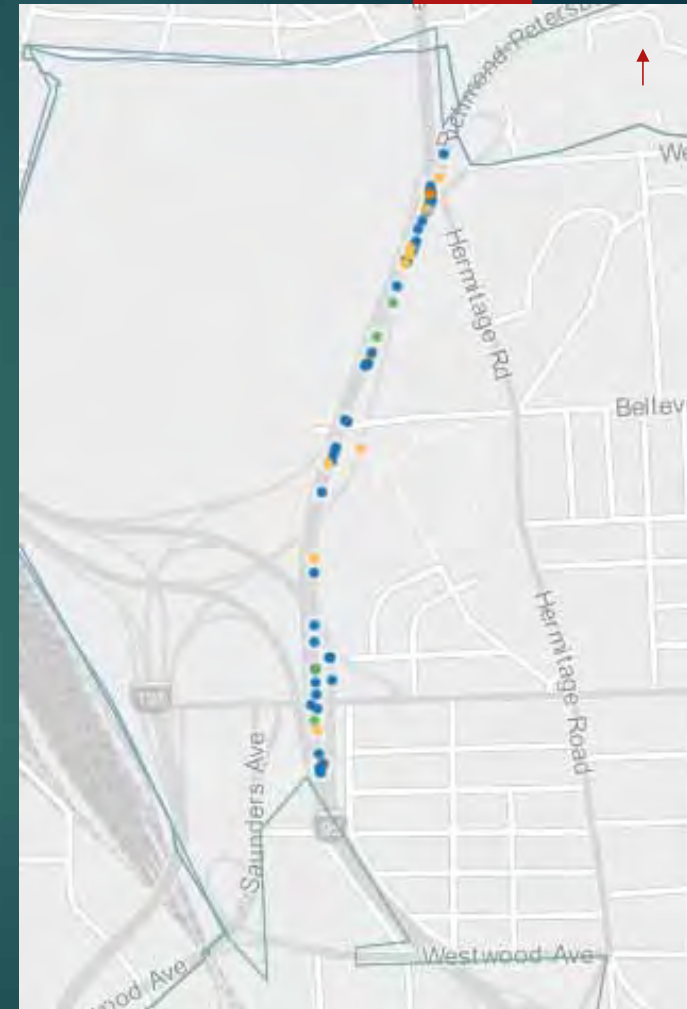
Existing Conditions

- ▶ Lane Configuration
- ▶ Operations
 - ▶ Satisfactory I-95 Operations
 - ▶ Failing I-64 / I-195 Ramp Operations



Existing Conditions (Contd..)

- ▶ Crash Analysis
 - ▶ 1.1 Mile Segment (between Exits 79 and 80)
 - ▶ 65 Incidents & 80% PDO
 - ▶ 60% Rear-End (39 Incidents)
 - ▶ I-64/I-195 Merge Area
 - ▶ 28 Incidents
 - ▶ 79% Rear-End (22 incidents)



DLM Build Alternatives

- ▶ Alternative 1 – Dual lane merge with I-95 Widening
 - ▶ Alternative 2 – Dual lane merge without I-95 Widening
 - ▶ Alternative 3 – Single lane merge without I-95 widening (Existing Lane Configuration)
-
- ▶ Additional Street Network Improvements
 - ▶ Exit 80 Off-Ramp Closure
 - ▶ Roundabout Installation

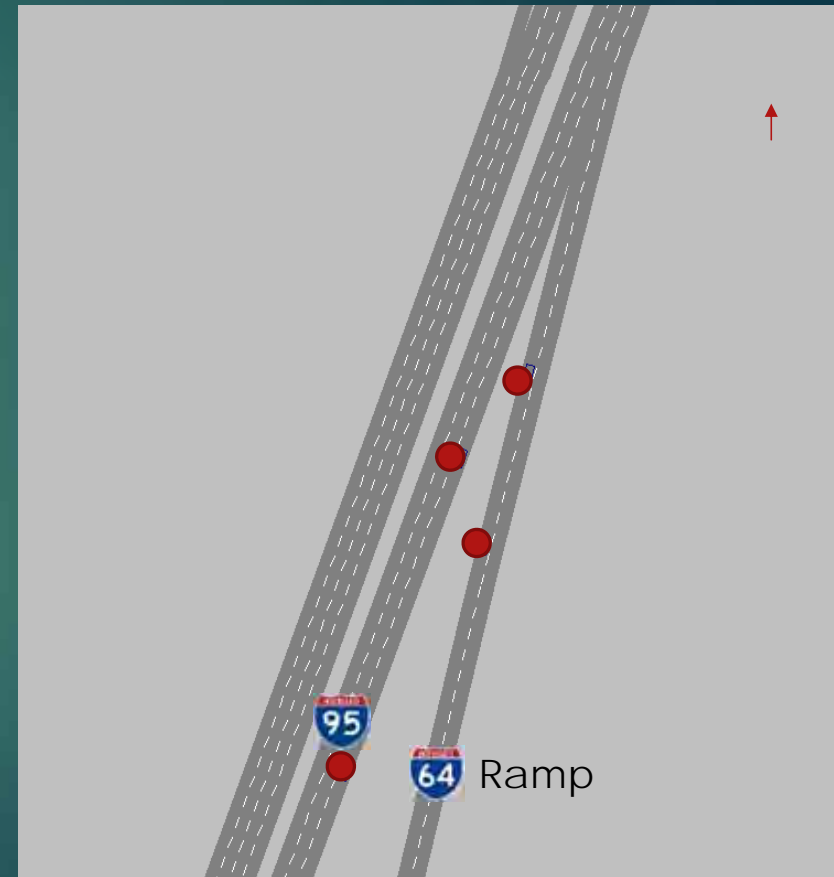


Literature Review

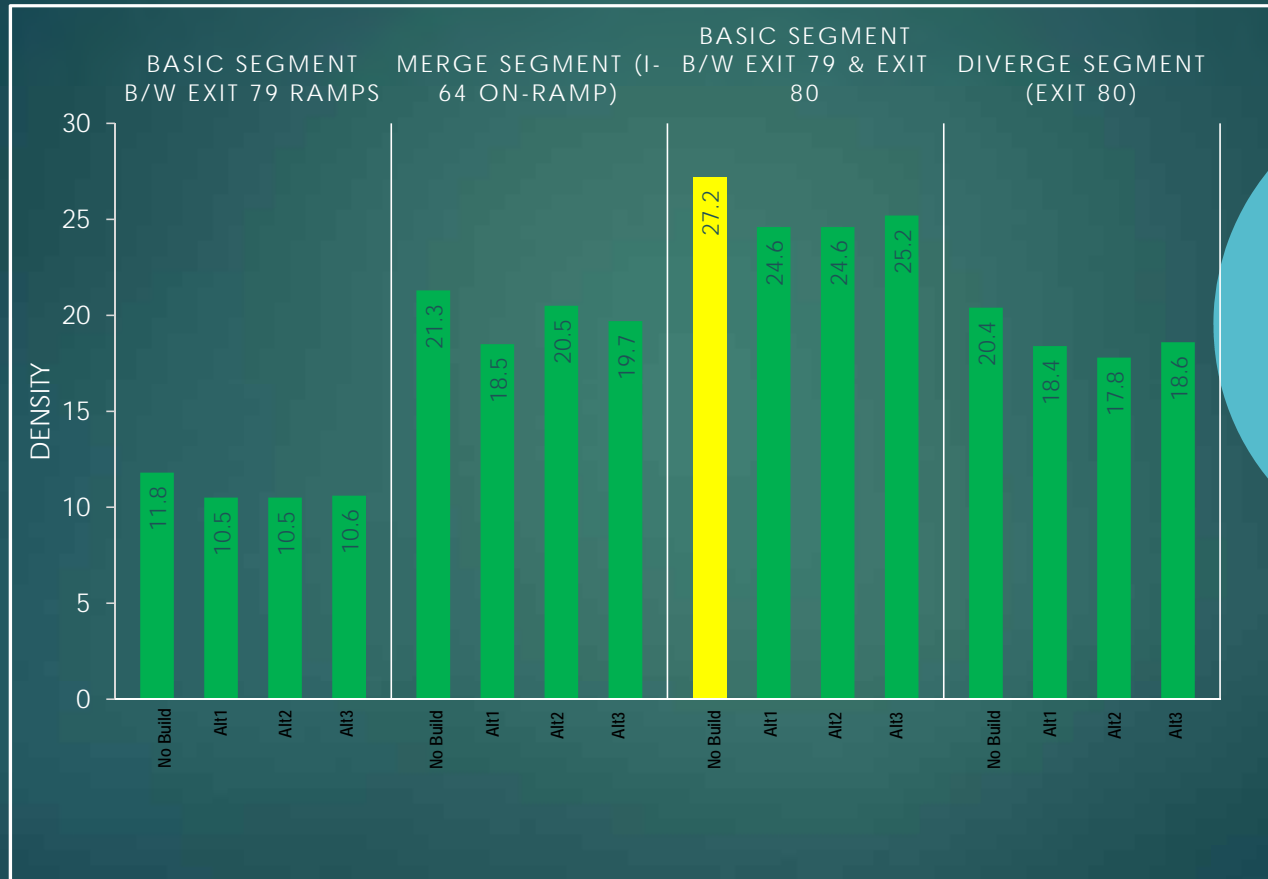
- ▶ Active Traffic Management (ATM) Strategy
- ▶ Dynamic Lane Merge (DLM) Mostly used in work zones
 - ▶ Concept of Early Merging Vs Late Merging
 - ▶ Proven to improve operations and safety
 - ▶ Real time monitoring of queue and operations

Methodology

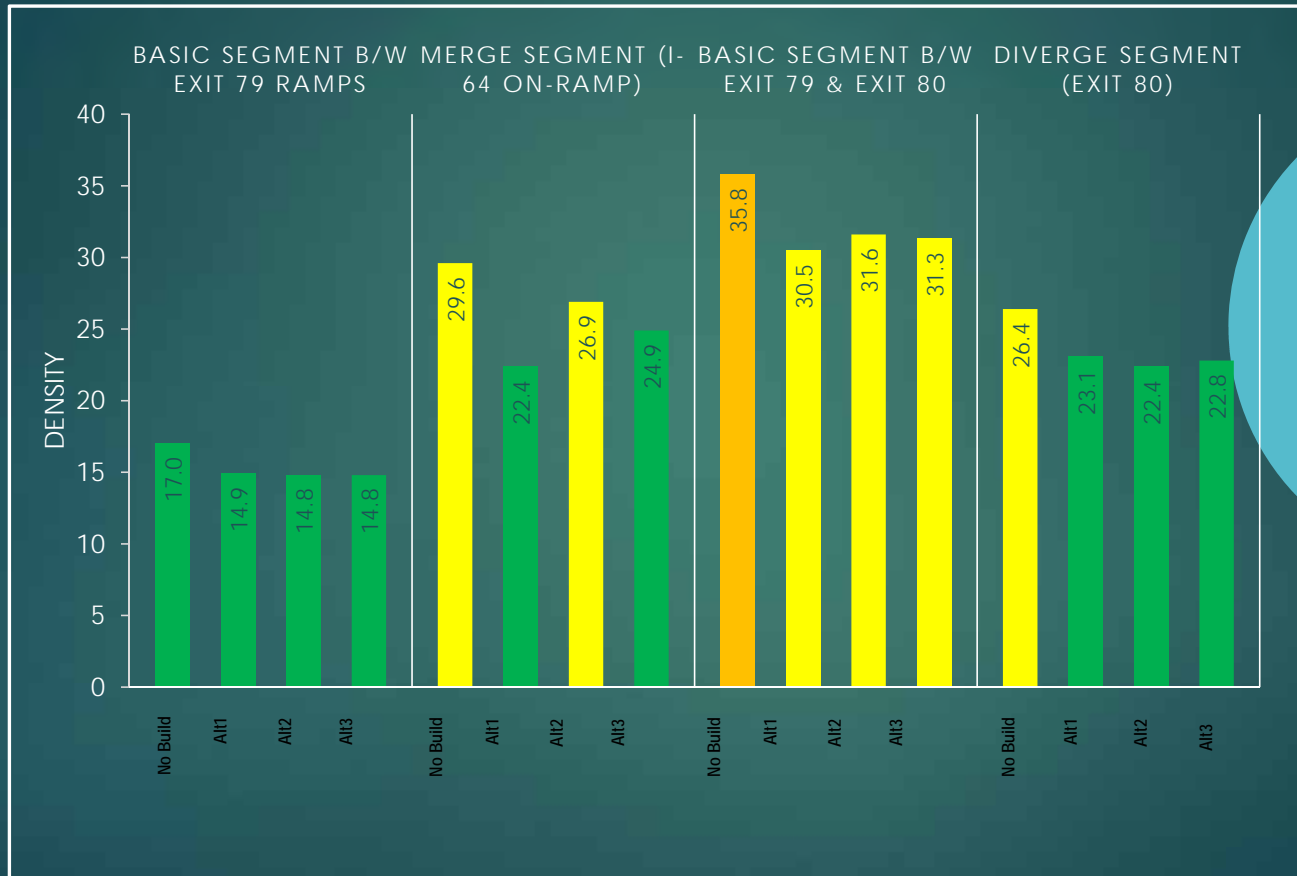
- ▶ DLM control on I-64/I-195 On-ramp to utilize excess I-95 capacity
- ▶ DLM control dependent on I-95 operations
 - ▶ Speed threshold (≤ 45 MPH)
 - ▶ Detector Interval = 120 Secs
 - ▶ Message Interval = 240 Secs



Analysis Results (AM)



Analysis Results (PM)



DLM Video (VISSIM)



Active DLM Duration



Conclusions

- ▶ DLM noted to improve operations
- ▶ Preferred Alternative
 - ▶ Single lane merge without I-95 Widening
- ▶ Corridor wide implementation anticipated to have better Cost/Benefit

Questions...

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