

I-95 Corridor Study Phase II Highway Element

FAMPO Policy Committee

February 26, 2018

Activity in January & February





1. Numerous discussion with VDOT to better understand the scope of recently funded corridor improvement (i.e. Northbound River Crossing Project)
2. Revised traffic forecasts and operational analysis to test performance of new future condition in order to identify remaining choke points or other unexpected consequences
3. Further investigated effects of new access point near milepost 131 in terms of changes in volume on local streets

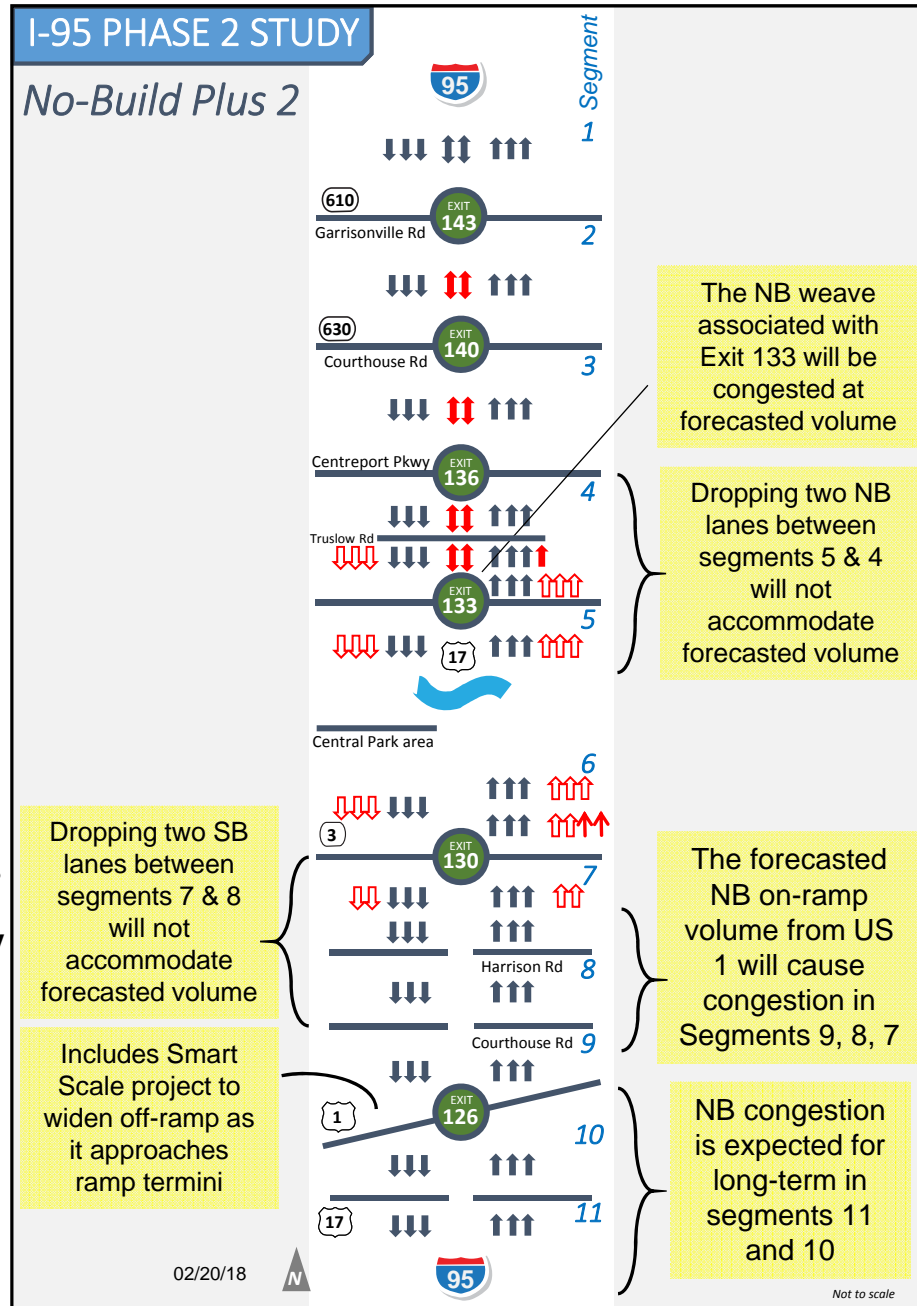
The following slides present the evaluation of a future condition defined as No-Build Plus 2

The scenario depicted at right was tested with year 2045 traffic demand.

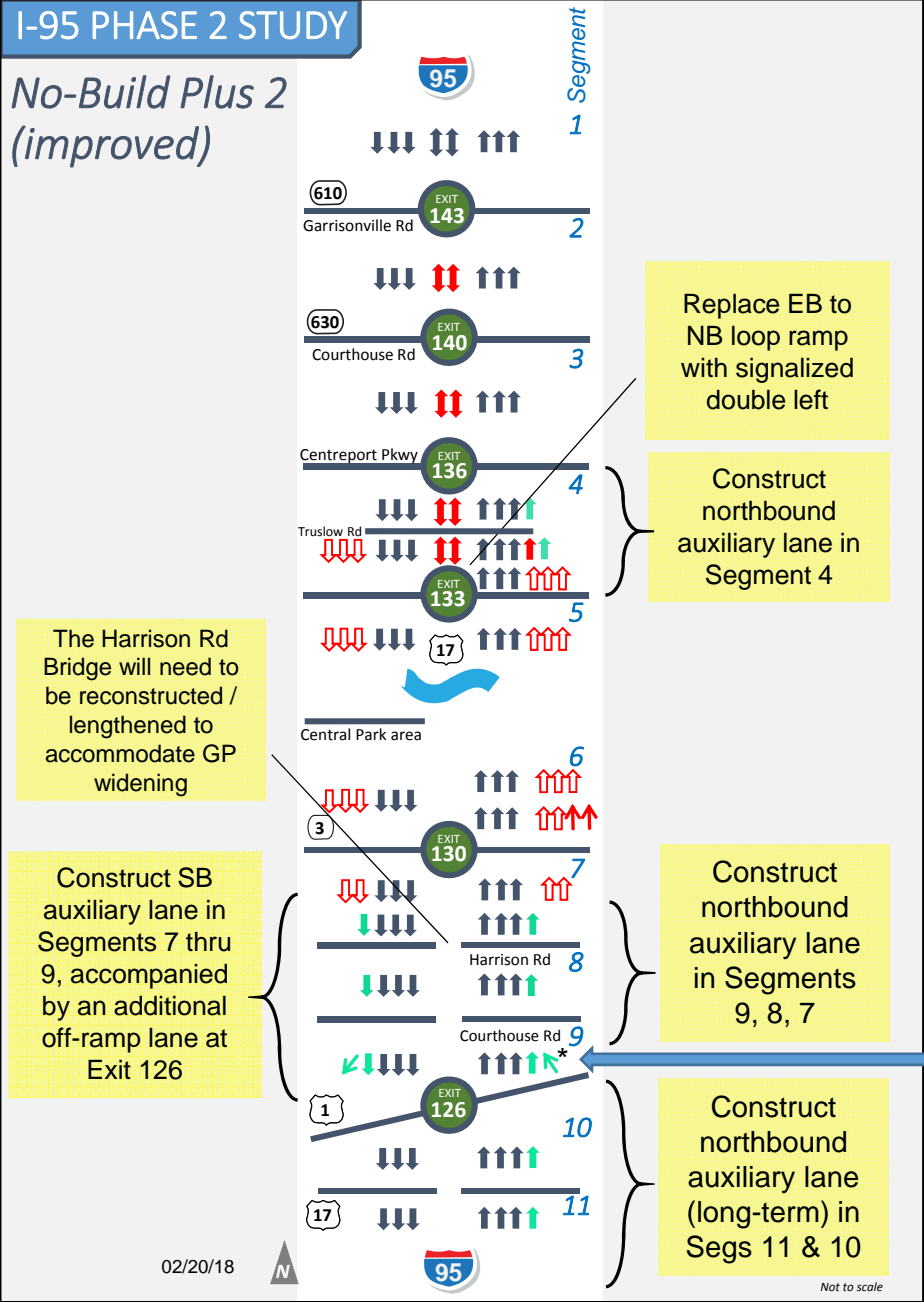
Black elements represent existing capacity in 2018

Red elements represent planned capacity for 'No-build Plus 2'

-  Solid arrows of any color reflect general purpose lanes
-  Double-headed arrows of any color reflect reversible FredEX lanes
-  Hollow arrows of any color reflect CD lanes
-  Thin arrows of any color reflect new / improved ramps



The No-Build Plus 2 includes Southbound and Northbound River crossing projects, the FredEX lanes down to Exit 133, and all other smaller funded projects in study area.



- Black elements represent existing capacity in 2018**
- Red elements represent planned capacity for 'No-build Plus 2'**
- Green elements represent proposed improvements beyond 'No-build Plus 2'**
- ↓ Solid arrows of any color reflect general purpose lanes**
- ↕ Double-headed arrows of any color reflect reversible FredEX lanes**
- ⇩ Hollow arrows of any color reflect CD lanes**
- ↓ Thin arrows of any color reflect new / improved ramps**

The Harrison Rd Bridge will need to be reconstructed / lengthened to accommodate GP widening

Construct SB auxiliary lane in Segments 7 thru 9, accompanied by an additional off-ramp lane at Exit 126

Replace EB to NB loop ramp with signalized double left

Construct northbound auxiliary lane in Segment 4

Construct northbound auxiliary lane in Segments 9, 8, 7

Construct northbound auxiliary lane (long-term) in Segs 11 & 10

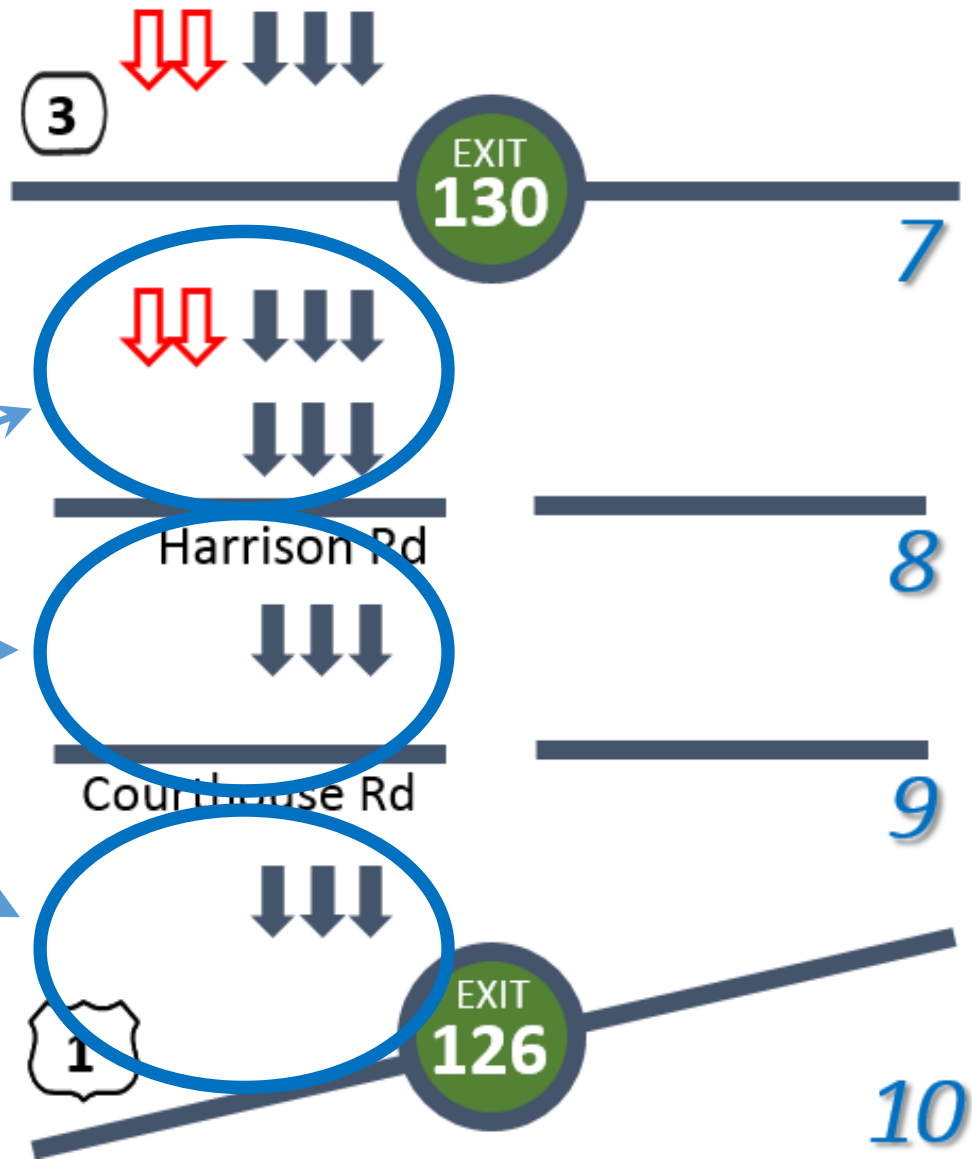
With these additional improvements, the freeway elements in this study area will operate in a very safe and reliable manner in 2045. Arterial improvements (especially near the I-95 interchanges) will still be required.

* This widened on-ramp reflects the proposed improvement described in STARS Study conducted in early 2018.

Shortest-term needs

For the southbound freeway operations in segments 7, 8, and 9, there are three areas that will lead to future congestion if not addressed:

- 1) The specific design details of the merge,
- 2) The capacity of the southbound mainline, and
- 3) The specific design details of the diverge / off-ramp to Exit 126 (US 1)

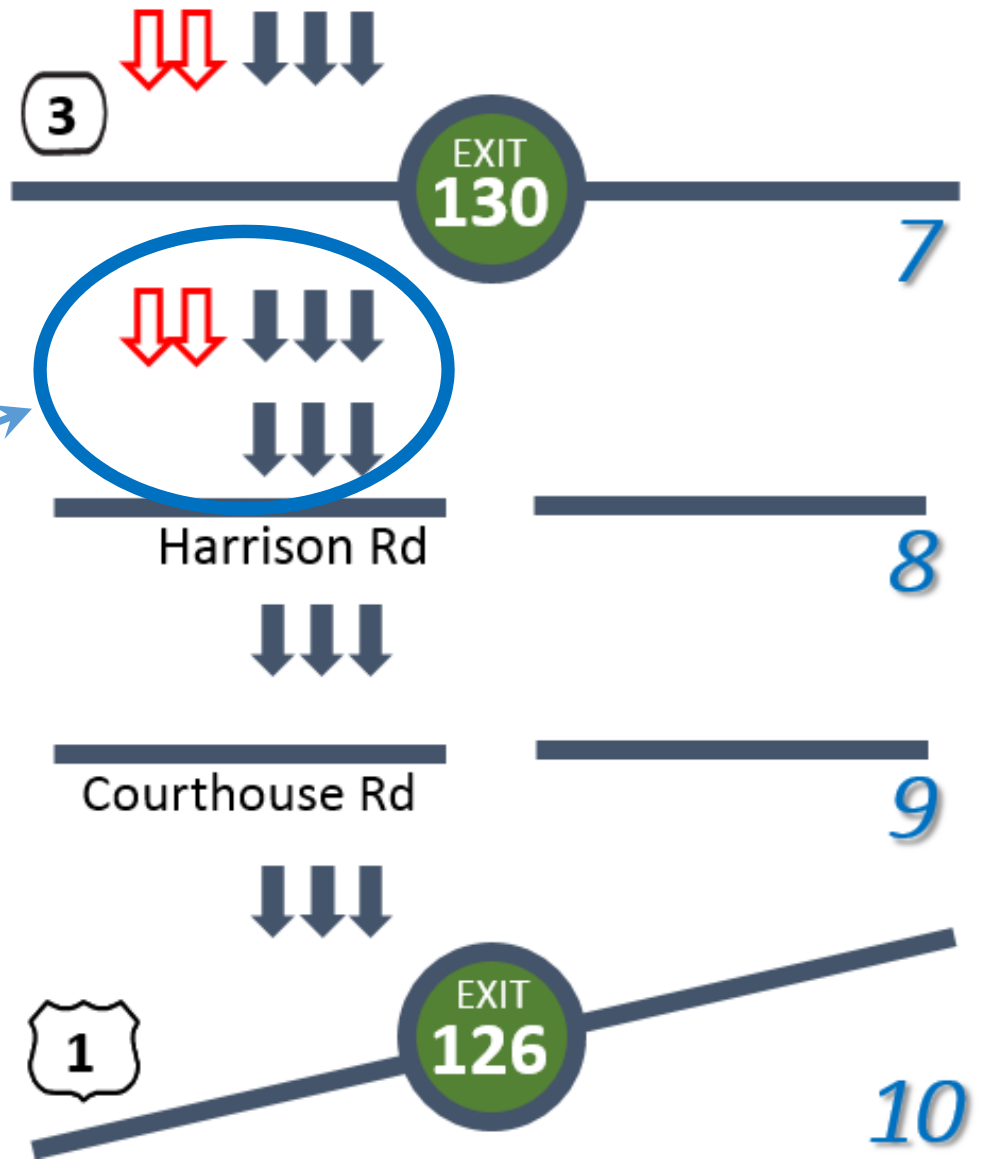


Shortest-term needs

For the southbound freeway operations in segments 7, 8, and 9, there are three areas that will lead to future congestion if not addressed:

- 1) The specific design details of the merge,

VDOT is currently working with their selected Design-Build contractor to arrive at an optimum design for this merge

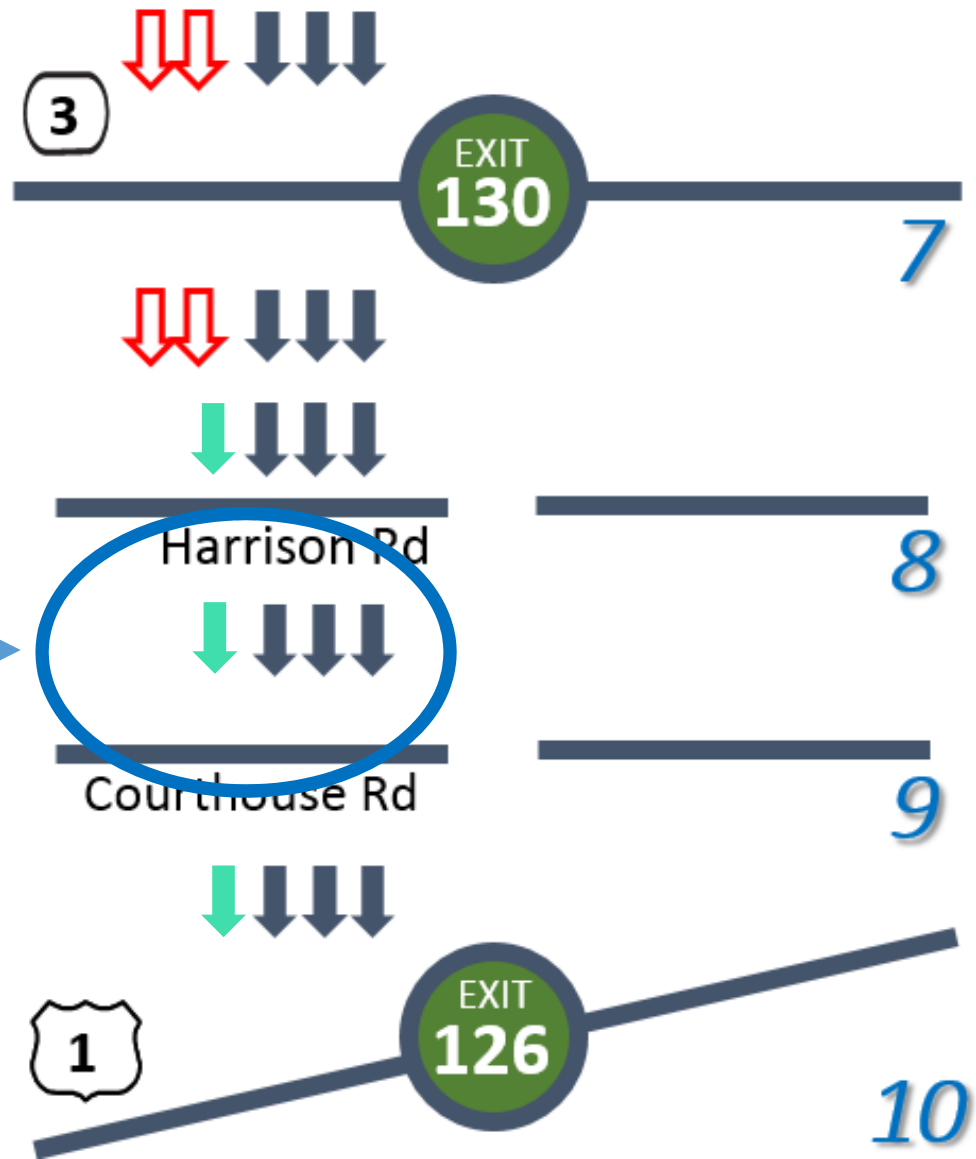


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It is recommended that a continuous 4th southbound 'auxiliary' lane be constructed in Segments 7, 8, 9

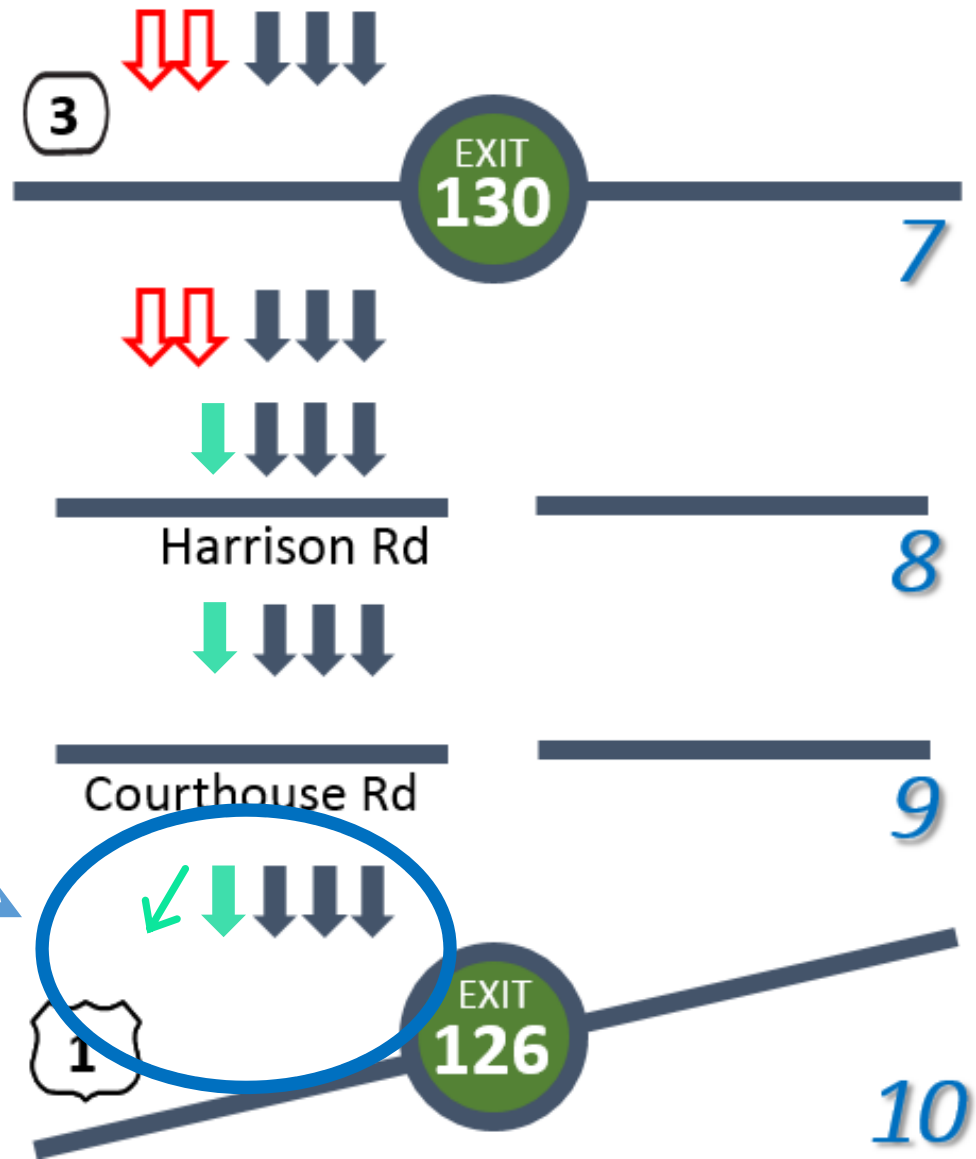


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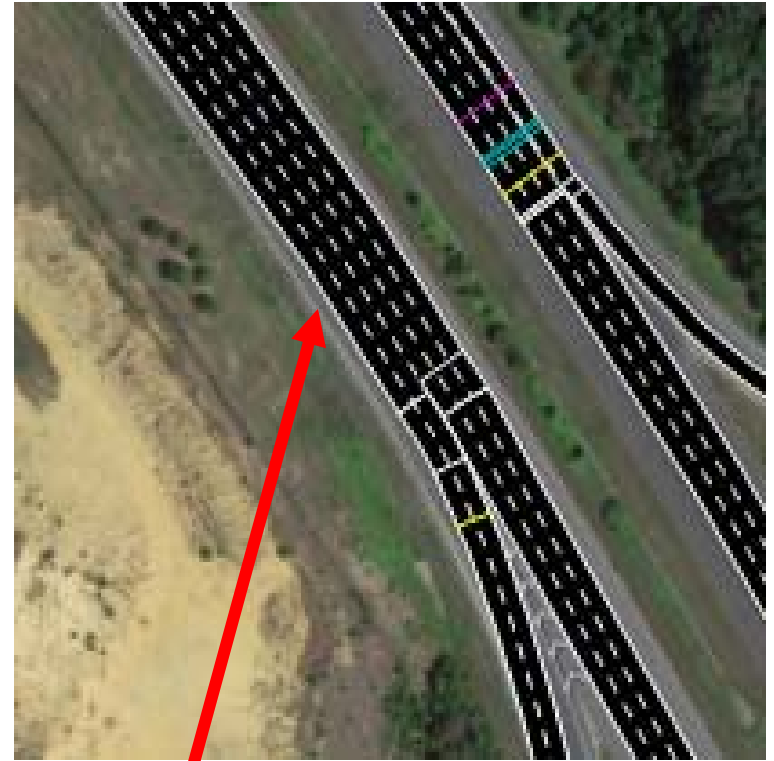
- 1) The specific design details of the merge,
- 2) The capacity of the southbound mainline, and
- 3) The specific design details of the diverge / off-ramp to Exit 126 (US 1)

The following slides show design options at this location



I-95 Southbound Off-Ramp Design at Exit 126 (Preferred Design)

- Preferred cross-section includes an 1,500 – 2,000 feet auxiliary deceleration lane on the right side of the four I-95 SB GP Lanes (*4th lane on I-95 SB between GP/CD merge and Exit 126 is currently proposed*). There is 3,300 feet of space between the Courthouse Rd bridge and the gore point for the Exit 126 off-ramp.
- The benefits with this design is inclusion of traffic storage (on the new deceleration lane) for spillbacks from the Exit 126 off-ramp due to challenges with arterial and/or ramp operations. This design significantly improves traffic safety on I-95 at Exit 126.



1,500 – 2,000 feet
auxiliary deceleration lane

I-95 Southbound Off-Ramp Design at Exit 126 (Alternative Design)

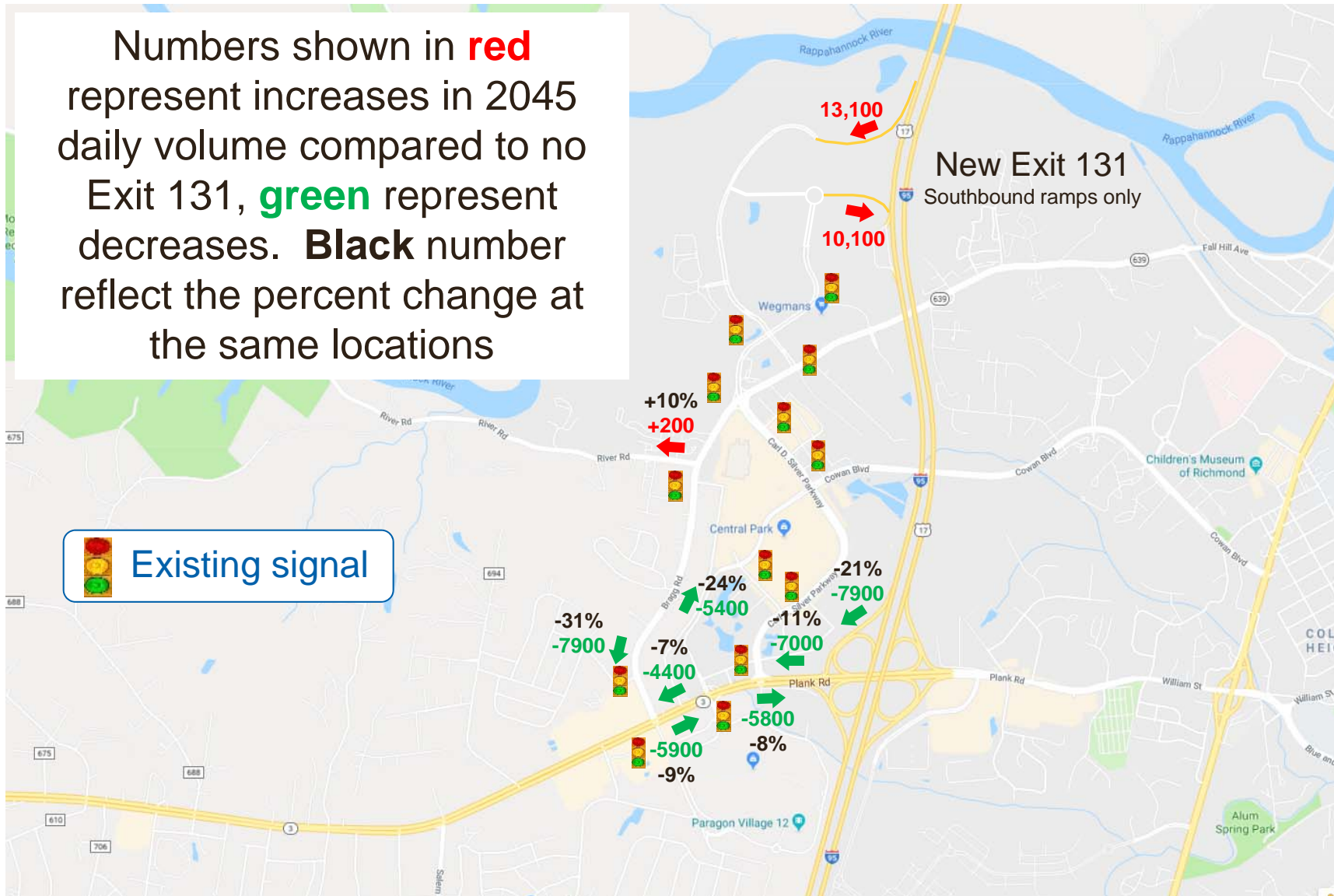
- A four-lane I-95 southbound cross-section with 2 right lanes feeding the off-ramp and 3 left lanes feeding I-95 southbound traffic will also perform satisfactorily in terms of traffic operations. The second lane on I-95 SB from the right be a shared-destination lane (choice lane).
- The concern with this design is lack of storage for traffic spillbacks from the Exit 126 off-ramp due to challenges with arterial and/or ramp operations leading to subsequent safety issues on I-95.



The following slides present the evaluation of a potential new access point at milepost 131. This concept involves a southbound off-ramp and southbound on-ramp only.

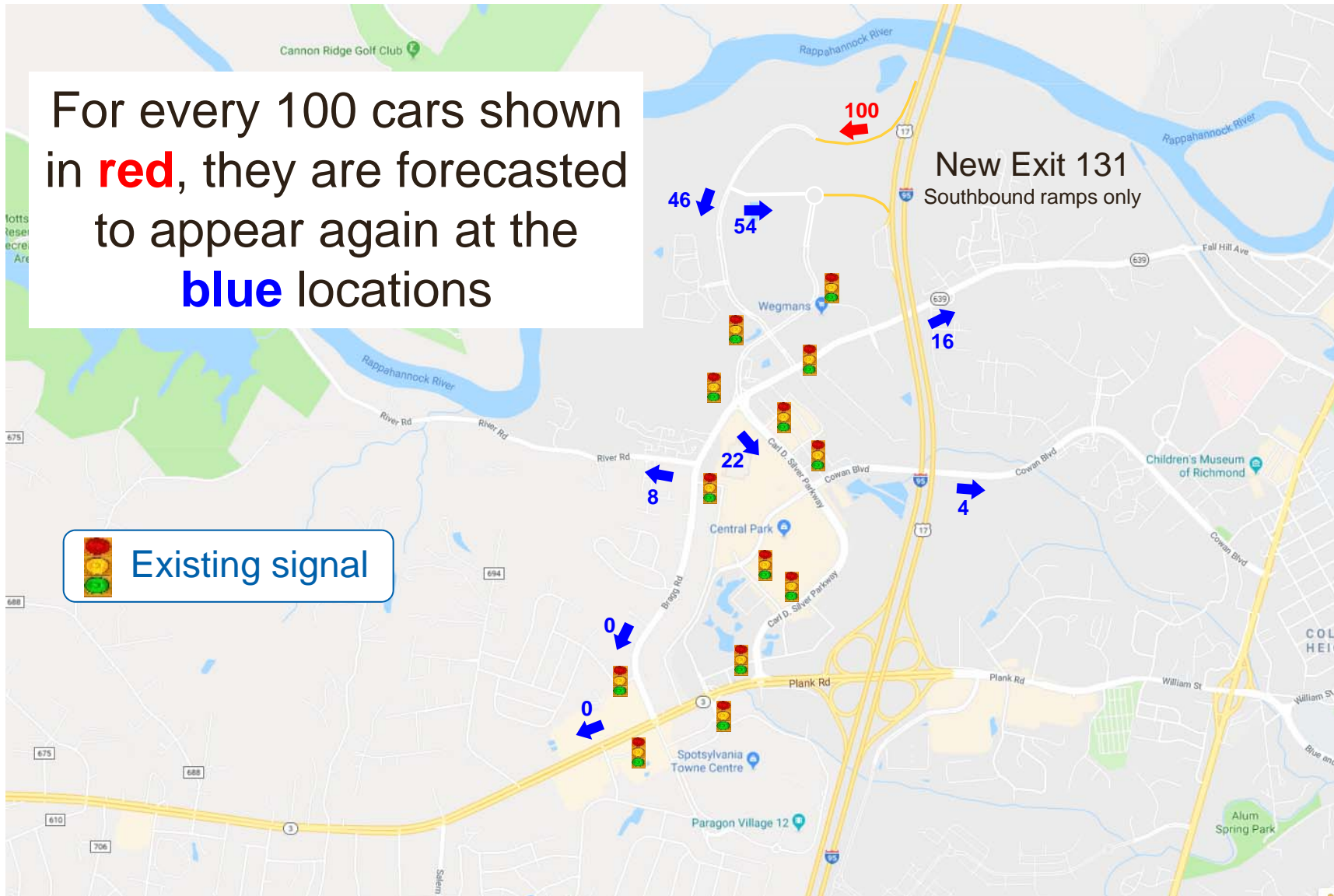
New Exit 131 access point – 2045 traffic impacts (Daily)

Numbers shown in **red** represent increases in 2045 daily volume compared to no Exit 131, **green** represent decreases. **Black** number reflect the percent change at the same locations



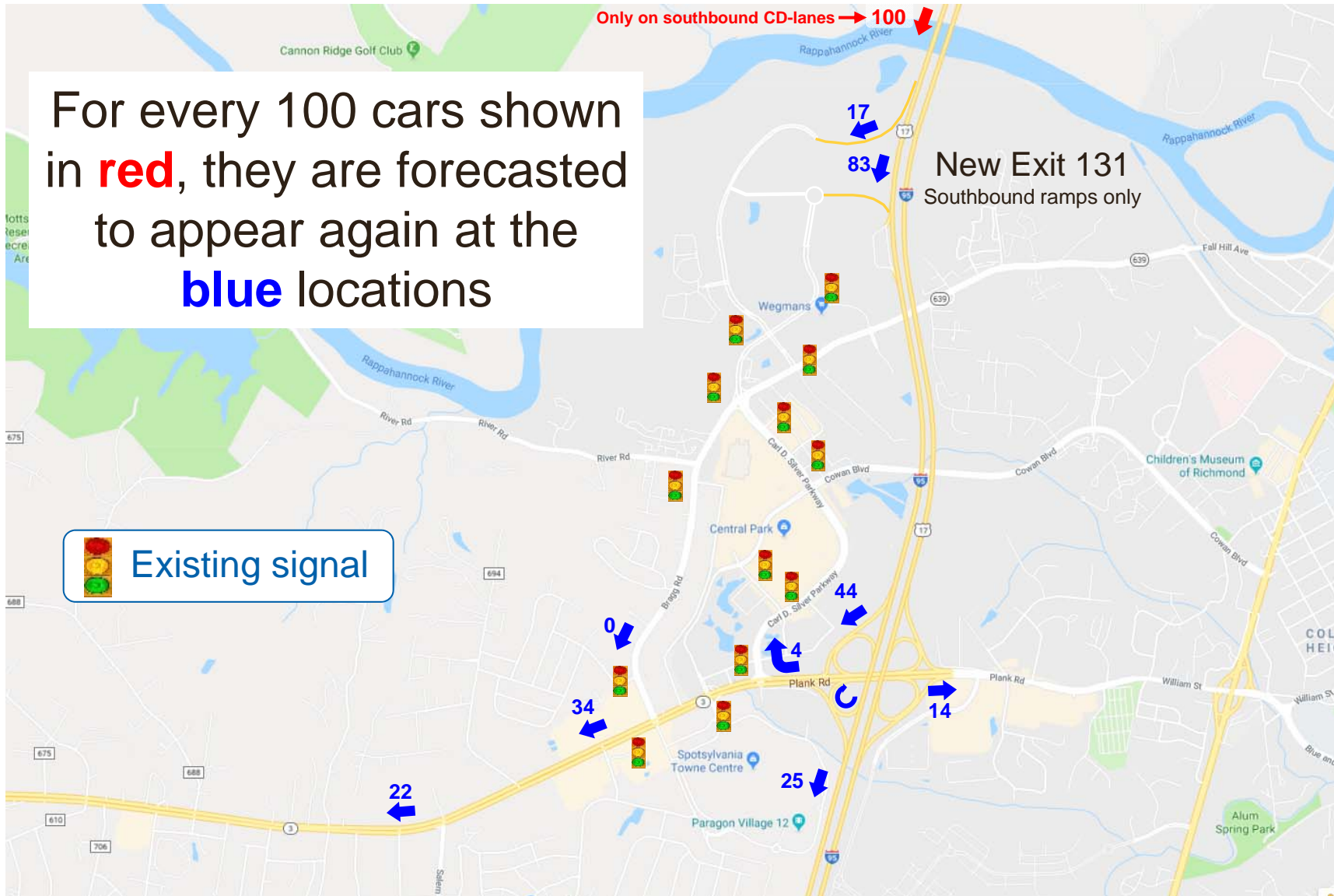
New Exit 131 access point – 2045 traffic impacts (PM)

For every 100 cars shown in **red**, they are forecasted to appear again at the **blue** locations



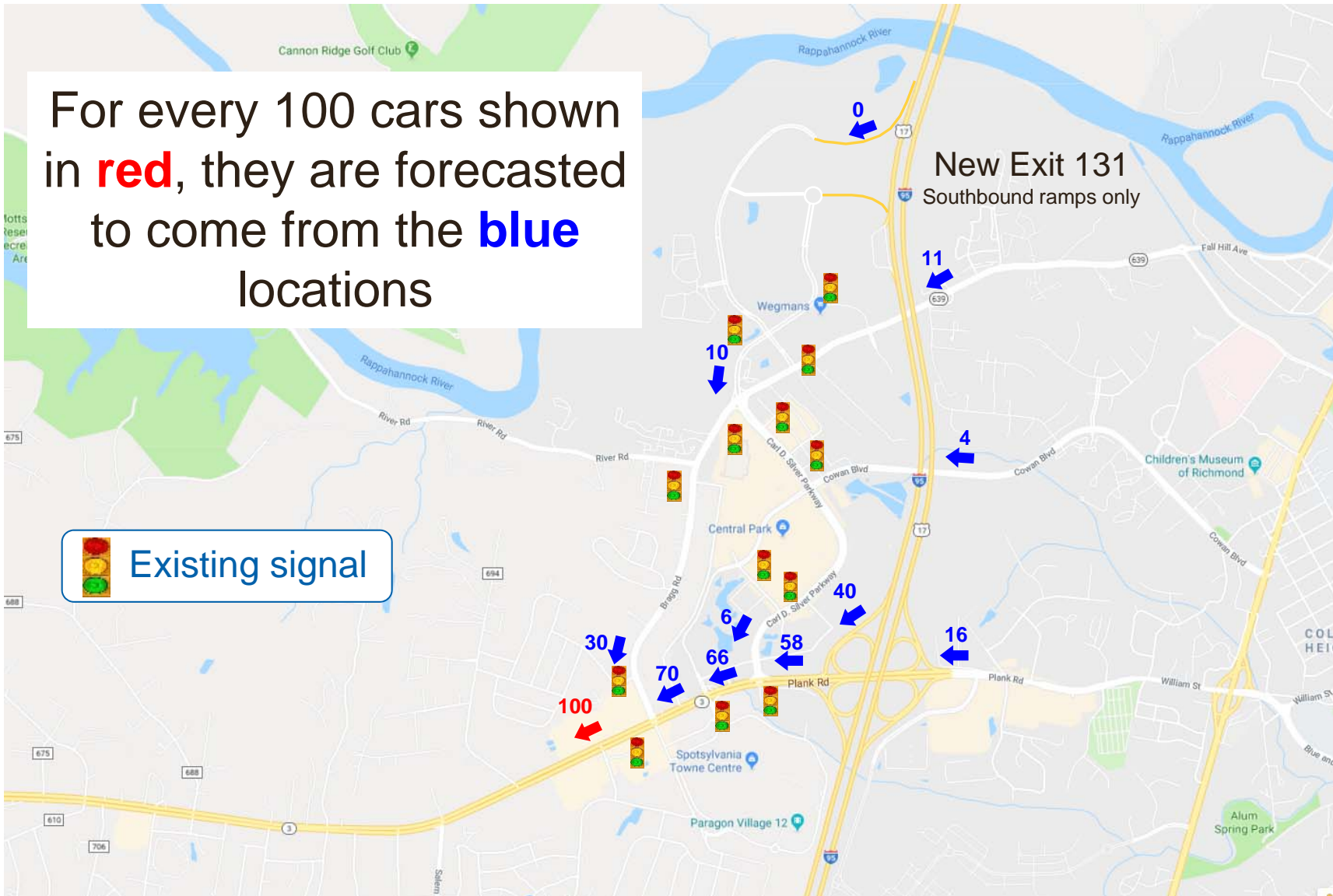
New Exit 131 access point – 2045 traffic impacts (PM)

For every 100 cars shown in **red**, they are forecasted to appear again at the **blue** locations



New Exit 131 access point – 2045 traffic impacts (PM)

For every 100 cars shown in **red**, they are forecasted to come from the **blue** locations



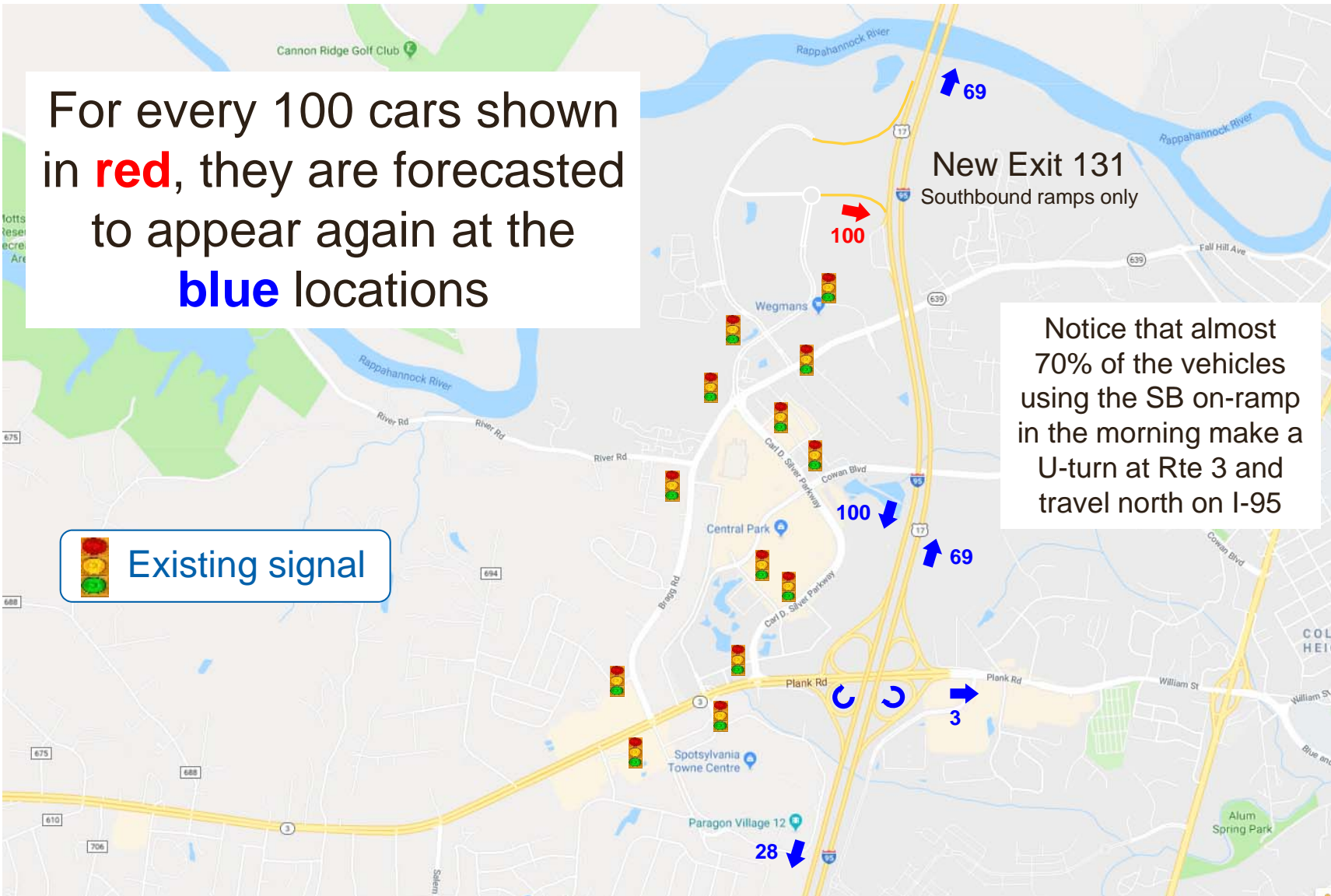
New Exit 131 access point – 2045 traffic impacts (AM)

For every 100 cars shown in **red**, they are forecasted to appear again at the **blue** locations

 Existing signal

New Exit 131
Southbound ramps only

Notice that almost 70% of the vehicles using the SB on-ramp in the morning make a U-turn at Rte 3 and travel north on I-95



Next Steps

- *Continue working with LRTP Advisory Committee to identify short-term & long term recommendations*
- *Revise future concepts based on committee feedback and discussions with VDOT*
- *Continue to refine operational details of northbound river crossing as more information becomes available*
- *Test demand impacts of other new or improved access further south in the study area*
- *Present findings to FAMPO at future meetings*

Two Additional Task Orders

Total Cost: \$181,009

1. *I-95 Corridor Evaluation Phase 2 Supplement*

- *Cost: \$132,990*
- *Purpose: To conduct additional modeling and technical analysis due to changes from State in January, 2018 including State announcement that Fred Ex project would include the I-95 NB River Crossing with some additional funding potentially being available for I-95 improvements*

2. *Parking Management/Travel Information Supplement*

- *Cost: \$48,019*
- *Purpose: To prepare an ITS parking management/travel information project for FAMPO/GWRC Smart Scale consideration to help strengthen FAMPO/GWRC I-95 Corridor project applications*

I-95 Corridor Evaluation Phase 2 Supplement

Total Cost: \$132,990

Major items

- *Task 3 - Additional technical analysis for new/improved interchanges in Spotsylvania at Exit 128 (Harrison), Exit 126 (Rte 1), and Exit 124 (Alexander's Crossing)*
- *Task 4 – Additional technical analysis for I-95 River Crossing projects at both Southern and Northern Termini and for Exit 133 (Rte 17) interchange improvements*
- *Task 9 & 10 – Additional project meetings and presentations*

Parking Management/Travel Information Supplement

Total Cost: \$48,019

- *Wayfinding information to enhance Real time travel information on the availability of spaces in FAMPO Park and Ride lots and for Transit/Vanpooling/Carpooling*
- *Coordination with State I-95 ITS/ICM Study effort*
- *Can increase the Smart Scale score for FAMPO/GWRC I-95 corridor projects*