Diverging Diamond Interchange
Interstate 66 at Route 15 (Exit 40)
Town of Haymarket

Virginia's third diverging diamond interchange, or DDI, is currently in design for the Interstate 66 and Route 15 interchange in the Town of Haymarket. It will be under construction from early 2015 until fall 2017. This innovative interchange design crosses traffic to the left side of the road at one ramp intersection and back to the right side at the next ramp intersection. This allows left turns onto the interstate to be made in a free flow condition.

Benefits
A DDI reduces congestion by allowing traffic to keep moving through its intersections, reducing the number of traffic signal phases, and giving more green time to the through movements. It also improves safety by eliminating left turns against oncoming traffic, providing better sight distance at turns, and reducing the opportunities to conflict with other vehicles, which results in fewer crashes.

Did you know?
The DDI is an innovative design that increases traffic flow by over 30 percent and reduces accidents by over 50 percent!

Maneuvering a Diverging Diamond Interchange
If you look at an aerial picture of a DDI, you may think it would be a challenge to navigate. But in reality, a DDI has pavement markings and traffic signals just like an intersection.

When driving a DDI, motorists proceed through a traffic signal at the entrance to the interchange, and simply follow their lane to the opposite side of the roadway. Motorists needing to access the interstate turn left at the on-ramp without having to stop or wait for oncoming traffic to pass. Through traffic proceeds to a second traffic signal and follows its lane back to the right side of the roadway. All other turns are intuitive: if you want to turn right, stay to the right; if you want to turn left, stay to the left.

Pavement markings, signs and signals direct motorists through the intersections.

VDOT Contact Information
Christiana Briganti-Dunn, P.E., CCM
Design-Build Project Manager
(703) 259-2960; christiana.briganti@VDOT.Virginia.gov

For more information go onto the web at:
(Note: use underscore instead of spaces)
### COMPARISON OF PREVIOUS ALTERNATIVE (MODIFIED DIAMOND WITH SEMI-DIRECTIONAL FLYOVER RAMP) AND THE NEW DIVERGING DIAMOND INTERCHANGE

<table>
<thead>
<tr>
<th>CONSIDERATION</th>
<th>Previous Alternative: Modified Diamond with Semi-Directional Fly-Over Ramp</th>
<th>Current Preferred Alternate: Diverging Diamond Interchange (DDI)</th>
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</thead>
</table>
| **Safety**    | • More conflict points (32 in total, where vehicles merge, diverge or cross paths)  
• Higher risk of angle accidents and head-on collisions  
• Greater bridge surface area subject to icing during the winters | • Fewer conflict points (18)  
• No angle conflicts exist, all traffic merges  
• Improves sight distance at turns  
• Wrong way entry to ramps extremely difficult  
• 50% to 60% fewer accidents anticipated |
| **Operations** | • Single-lane, flyover ramp addressed only one of the three most heavily traveled movements and only in the morning peak period  
• Left turns onto I-66 must wait for green light (except the southbound Route 15 to eastbound I-66) | • Improves Route 15 weaving condition between Route 55 and I-66 eastbound on-ramp  
• Adds spur ramp to eliminate weaving maneuver from I-66 westbound off-ramp to Heathcote Boulevard westbound (Hospital)  
• Provides two-lane, I-66 eastbound entrance ramp from Route 15 southbound  
• Route 15 traffic signals to operate with two phases and shorter cycle lengths  
• Increases the capacity of turning movements to and from the ramps  
• Better storage between the ramp terminals |
| **Maintenance** | • Four bridges = more $ in long term maintenance  
• Snow removal presents greater challenges on flyover ramp | • Two bridges = less $ in long term maintenance |
| **Visual Impacts** | • Flyover ramp adds third level to the interchange  
• More overall area available for landscaping  
• Bridges will be architecturally treated | • DDI is a two level interchange  
• Smaller areas for landscaping, but more suitable (subject to more natural light and rainfall)  
• Bridges will be architecturally treated |
| **Right of Way Impacts** | • 22 parcels affected  
• 5 parcels (residences) were total acquisitions | • 16 parcels affected  
• 3 parcels (with residences) are total acquisitions |
| **Budget to Construct** | • $59 Million* | • $43 Million |
| **Time to Construct** | • Approx. 1,250 days to construct | • Approx. 860 days to construct |
| **Pedestrians** | • Crossings would be at signalized intersections and two high volume, unsignalized ramps | • Crossings at signalized intersections and one low-volume, unsignalized ramps |

*Based on Modified Diamond Interchange with Flyover Ramp Concept shown at the Public Hearing in March 2013.