



Innovative Intersections and Interchanges



Today, congestion and safety challenges on our roadways are more complex than ever, and conventional intersection and interchange designs can often be insufficient for resolving these transportation problems. Like in medicine, engineering, and other technical fields, complex problems require innovative solutions. VDOT is implementing **innovative intersections and interchanges** as one strategy to address deficiencies on our roadways.

What are innovative intersections and interchanges?

Innovative intersections and interchanges modify vehicle, pedestrian, and bicycle paths to improve safety, reduce delay, and increase efficiency.

What are the benefits of innovative intersections and interchanges?

- Improved safety
- Increased efficiency
- Increased capacity
- Shorter wait times
- Long-term cost effectiveness

Who can use innovative intersections and interchanges?

Everyone — innovative intersections and interchanges accommodate all roadway users, including motorists, pedestrians, and bicyclists.



How is VDOT implementing innovative intersections and interchanges?

VDOT has incorporated the consideration of innovative intersections into its design policies. Innovative intersections and interchanges should be considered:

- At new intersections and interchanges
- As an alternative to existing or proposed traffic signals
- On intersections and interchanges on the VDOT Arterial Preservation Network
- When developing funding applications

VDOT's toolbox of innovative intersections and interchanges includes:

INTERSECTIONS

- | | | |
|--------------------------|-----------------------------------|--------------------------------|
| Bowtie | Displaced Left Turn (DLT) | Single Loop |
| Center Turn Overpass | Median U-Turn (MUT) | Split Intersection |
| Continuous Green-T (CGT) | Quadrant Roadway (QR) | Roundabout and Mini Roundabout |
| Echelon | Restricted Crossing U-Turn (RCUT) | |

INTERCHANGES

- | | | |
|-------------------------------------|------------------------------|---------------------------------------|
| Contraflow Left | Double Roundabout | Single Point Urban Interchange (SPUI) |
| Displaced Left Turn (DLT) | Michigan Urban Diamond (MUD) | Single Roundabout |
| Diverging Diamond Interchange (DDI) | Partial Cloverleaf | |

When should innovative intersections and interchanges be considered?

Each intersection or interchange location is unique so the use of innovative intersections and interchanges will depend on consideration of the following factors:

- ✓ Roadway geometry
- ✓ Major street and side street traffic volumes
- ✓ Location(s) with a high frequency of turning vehicles
- ✓ Access for trucks, buses and emergency vehicles
- ✓ Existing crash patterns
- ✓ Right-of-way impacts
- ✓ Design requirements
- ✓ Pedestrian and cyclist use
- ✓ Budget

Where are innovative intersections and interchanges implemented?

Innovative intersections and interchanges are being designed and constructed throughout the Commonwealth of Virginia and nationwide. Each intersection or interchange location is unique; therefore, VDOT works with local jurisdictions to tailor the design to the specific needs at each location.





Want to learn more about innovative intersections and interchanges?

Visit www.virginiadot.org/innovativeintersections to:

- Learn about the different types of innovative intersections and interchanges
- Watch videos on how to navigate the most common innovative intersections and interchanges
- See where innovative intersections and interchanges have been constructed or are planned for construction in Virginia
- Understand how VDOT is implementing innovative intersections and interchanges

