

- A DDI has a higher capacity for all signalized movements when compared to the conventional diamond interchange. The capacity of left-turn movements is approximately twice that of the corresponding capacity of left-turn movements of the conventional diamond interchange. Exclusive left-turn lanes on the cross route are not necessary for the DDI. The ability to accommodate a high number of left turns improves the efficiency and, thereby, the capacity of the interchange.
- To be comparable to a 4-lane DDI, a conventional diamond interchange would require 6 lanes to provide the same capacity. When additional future capacity is needed, it could be advantageous to convert a conventional diamond interchange to a DDI instead of pursuing the more costly option of widening the major and minor roadways in the interchange (including widening the bridge) and adding additional lanes to the ramps. Any conversions and capacity/efficiency benefit however should be analyzed using the appropriate traffic analysis tools.
- The application of a DDI may reduce project costs by allowing the use of existing structures and right of way or, at least, requiring the narrowest or shortest bridge and right of way template possible. This is mainly due to the reduction of required left-turn lanes. Under appropriate traffic conditions, there may be a possibility that designated left-turn lanes can be eliminated in one or both directions on the cross route. The appropriate lane geometry of a DDI should be however analyzed and modeled ahead for traffic operational behavior.
- The DDI's advantage is to make the movement from the cross route to the major roadway more efficient. The left turn from the cross-ramp onto the on-ramp should not be signalized unless necessary to address the potential for pedestrian conflicts.\*

### **DISADVANTAGES OF THIS TYPE OF INTERCHANGE**

While the advantages of the DDI make it an attractive solution for a variety of traffic conditions, it is not applicable everywhere. As with any solution, there are disadvantages to consider.

- When current or projected cross route through volumes are high, the drivers inconvenienced the most by the installation of a DDI are those going through on the cross route because they must crossover to the left side of the road and then back again to reach their destination.
- Problematic for high-speed arterials. Reverse curves of crossovers based on 35 mph or slower.
- Through movements must be controlled and cannot be free-flow. If current or projected through traffic volumes on the crossing route are high, other interchange configurations should be considered at the conceptual stage.
- Off-ramp traffic may not directly re-enter an on-ramp. However this design does allow for U-turns from one direction of the major route to the other.

\* Added 7/14