

Diverging Diamond Interchange (DDI) Criteria

General Design Criteria

The general design of all Diverging Diamond Interchanges (DDI) shall be in accordance with FHWA's "Diverging Diamond Interchange Informational Guide, August 2014" along with other design guidelines. Each DDI should be designed to accommodate the proposed design hour volumes and level of service as shown in the IMR for each location. The design vehicle will be AASHTO WB-62. All travel lanes shall accommodate the design vehicle in each travel lane simultaneously. Each Provide adequate travel lane shall be 12 feet in width with extra shoulder width to accommodate design vehicle off tracking, plus an additional 2 feet offset in areas with median barriers.

The shoulder width adjacent to median barriers and raised concrete median between the crossovers is 4.6 feet minimum. At the crossover approach to the median barrier, the raised concrete median can be offset 3.4 feet to the travel lane with the nose of the median barrier offset 4.6 feet minimum. The outside shoulder width on the bridge shall be a minimum of 4 feet. The design shall provide SSD throughout the interchange.

The distance between the centers of each crossover shall be 600 feet minimum. At each crossover, there shall be a minimum of 20 feet of tangent section leading to the stop bar and a minimum of 10 feet beyond the projection of theoretical edge of the opposing traffic travel path. The horizontal design speed of each crossover shall be 25 mph minimum with appropriate superelevation as required. Provide supplemental signals at each crossover where warranted. Decrease spacing of reflective pavement markers (RPM) by half from 200 feet prior to the crossover until 200 feet beyond the last crossover.

The DDI design shall provide a multiuse pedestrian access area in the center of the roadway for pedestrians and bicycles between the interchange ramps. This area shall be protected by concrete barriers between the crossovers. Transition the barriers from normal height to 6 inches in height with a 4:1 slope at the approach end of the crossover. The barrier shall be offset one foot horizontally from the face of the raised concrete island on the approach side. Provide concrete pavement under and between the median barriers in areas beyond the bridge. Provide concrete barriers where warranted at the crossover intersection to restrict sight distance in the direction of opposing vehicles and reduce the potential for wrong way movements.

See Attachment B for general typical section details of bridges over I-26 on US 176 (Broad River Road) and S-48 (Columbia Avenue).

Provide a Complete Interchange Lighting (CIL) system for each DDI. The CIL shall be designed and constructed to provide adequate lighting considering traffic volumes, adjacent light use and other variables discussed in the "Diverging Diamond Interchange Information Guide, August 2014". The interchange lighting at a minimum shall include each ramp from diverge taper and merge taper to the crossing route intersection including deceleration and acceleration lanes. Lighting shall also include the crossing route a minimum of 600' outside the ramp intersections and in some cases may extend beyond

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600' to light overhead signage or intersection approach geometry. Sites with pedestrian facilities in the median shall use high mast, mast arm or davit-style lighting as primary lighting and supplemental lighting as necessary for adequate illumination.

Design Items specific to US 176 Interchange (Exit 97)

Provide new control of access and maintain existing control of access as shown on conceptual plans.

The design shall provide a minimum 15 feet wide median, including a 7 feet raised concrete median, along US 176 from the intersection with Broad Stone Road to the left turn lane at the entrance into the Food Lion.

Design Items specific to S-48 Interchange (Exit 91)

Provide new control of access and maintain existing control of access as shown on conceptual plans. For movement from eastbound S-48 to I-26 eastbound, provide a right turn lane with minimum of 200 feet storage along S-48.

The design shall provide a raised concrete median and curbed earth median along S-48 similar to that as shown in Proposed Right of Way Plans, Project Number P042383, in the project information package. Provide throat widths as required by design vehicle at all intersections. Provide new control of access as shown in Proposed Right of Way Plans, Project Number P042383, in project information package. Do not include landscaping as shown in Proposed Right of Way Plans, Project Number P042383, in the project information package. The construction of S-48 shall begin at station 171+22, constructing the full width typical section. Begin the transition from the existing two travel lanes to the proposed travel lanes beginning at station 171+22. Use asphalt pavement in the median area instead of curbed earth median within the transition area.