Diverging Diamond Interchange

Accommodating Bicyclists and Pedestrians

U.S. Department of Transportation
Federal Highway Administration
Diverging Diamond Interchange
Outside Walkway
With transverse crossing

Center Walkway
Putting Peds “Down the Middle”

- Very positive feedback from user surveys
- Saves bridge width
Outside vs. Inside Pedestrian Paths

• Pedestrian facilities on the inside minimizes conflicts with left-turning traffic to and from the freeway and allows crossing the interchange in all directions (travel along the arterial and crossing the arterial)

• At underpass DDIs, shorter vertical clearance on the outside may make placing pedestrians on the outside more practical
Pedestrian Guidance

Cut-through walkways can guide the pedestrian directly to the intended crossing point.
Where should crosswalks be placed?

Source: MoDOT
Pedestrian Pathway Railing and Lighting

Outside walkway at Dorsett Road (Maryland Heights, MO)
• Not a new problem but often ignored
• Pedestrian accommodation and safety can be improved with use of signals, or ped-activated signals
• Accessible design may require signalization
Sight lines of pedestrians wanting to cross the free-left turn are obscured by the bridge wall.
A Pedestrian’s view of approaching vehicles is restricted...
For approaching drivers, pedestrians are hidden from view by the bridge wall.
…making it difficult to find an acceptable gap in approaching traffic to cross
Pedestrians are particularly vulnerable when crossing in this direction.
Consideration: Realign crosswalk
Consider adding RRFB (Rectangular Rapid Flashing Beacon)
Right Turn from Freeway: Signalize or Yield?

Source: MoDOT
Off-Ramp Right Turn Video
Speed and Pedestrian Fatality Risk

**Four Basic Options:**

1. Marked bicycle lane throughout the DDI
2. Marked bicycle lane on the approach to the DDI terminating upstream of the first crossover
3. Separated bicycle way or multi-use path
4. Bicyclists use the vehicular travel lane or pedestrian walkways (i.e. no specific bicycle provisions)
Some cyclists will ride “down the middle”
Bicycle Lane Considerations

- Seven-foot bicycle lane width
  - provides additional room between the bicyclist and the concrete barrier and/or
  - a marked buffer between bicycle lane and vehicle lane
- Colored pavement and/or dashed bicycle lane lines
  - connect the solid bicycle lane lines at intersections
  - Where bicycle lanes cross exit ramps, colored pavement may increase visibility to motorists
Different Ways to Bike a DDI
DDI and Light Rail Transit

DDI with center-running light rail at I-494 and 34th Avenue in Bloomington, MN
Contact Information

George W. Merritt
FHWA Resource Center
George.merritt@dot.gov
(404) 562-3911