



DIVERGING DIAMOND INTERCHANGE



More Information: tti.tamu.edu/policy/how-to-fix-congestion

Description

A diverging diamond interchange (DDI) is a new freeway cross-street design that handles heavy left-turn movements. The ramp formation is similar to a traditional diamond interchange (common in Texas). However, traffic on the cross street switches to the left side of the roadway before the signalized intersection. By doing so, left-turning vehicles can enter the freeway without a left-turn signal phase at the signalized intersection. Also, left-turning vehicles on the cross street do not conflict with opposing through traffic and may turn without stopping.

The Missouri DOT completed the first DDI in 2009 at the IH 44/Route 13 interchange in Springfield. This project has shown significant congestion and safety benefits and positive public perception. Since this first project, several states (Texas, Idaho, Indiana, Kansas, Kentucky, Minnesota, North Carolina, Oregon, Tennessee, Virginia, and Utah) have installed DDIs.

Target Market

A DDI could be considered for any interchange with signal lights on the cross

road. A DDI works best if:

- One of the left-turning movements is high.
- Through movements are unbalanced during peak hours.

While designs do exist, DDIs do not work well in corridors with continuous frontage roads that must pass through the intersection.

How Will This Help?

- **Decreases construction time.** DDIs typically take less than half the time needed for other traditional or innovative interchange types.
- **Decreases costs.** DDIs are cheaper to build (by 50 percent or more) because of reduced right of way and bridge width.
- **Improves safety.** Traffic flows better, and there are fewer conflict points for intersection crashes.

Implementation Issues

DDIs are a new and unfamiliar type of interchange. Since motorists will have to drive on the left side of the road, DDIs may initially confuse some, and the

COST



TIME



IMPACT



WHO



STATE

HURDLES



PUBLIC ACCEPTANCE

SUCCESS STORIES

The Springfield, Missouri, DDI eliminated the typical 1-mile daily AM and PM backups and 2- to 3-mile weekend and holiday backups caused by the traditional diamond design.

It reduced total crashes by:



▼ 46%

87% Public polling showed that a very high percentage of users felt safer.

80% Many also felt that **large-vehicle movement and pedestrian/bicycle movement were better than or similar to a standard diamond.**

public may not embrace them. However, issues can be minimized by:

- A public information campaign.
- Appropriate signage.
- Marketing.
- Education.

