504.02 FOUR-LEG INTERCHANGES

Four-leg interchanges include diamond interchanges, full cloverleaves, partial cloverleaves (parclo), and interchanges with direct and semidirect connections. Each basic interchange type is described and discussed in the following sections.

Diamond Interchange

Diamond interchanges are the most commonly used interchange (Figure 500.02). They consist of four ramps which parallel the main roadway, providing all eight turning movements.

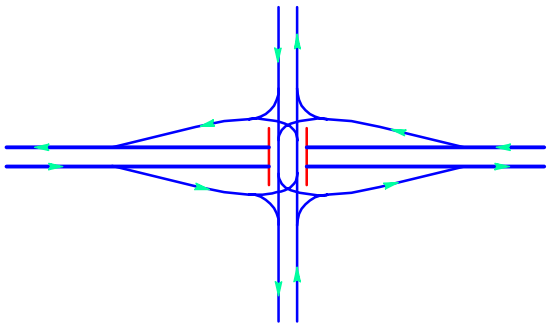

Figure 500.02
Simple Diamond

Application - The diamond is used at major/minor roadway crossings with direct high speed exit/entrance ramps on the major roadway and at-grade intersections on the minor roadway.

It is adaptable to a wide range of traffic volumes and capacity may be increased by widening the ramps and cross road in the intersection area by providing storage lanes, two-lane left turns, channelization, and traffic signals at the ramp cross road intersections.

Advantages -

- High design standard single exits in advance of the structure.
- High design standard single entrances beyond the structure.
- Requires relatively little right-of-way.
- Comparatively low construction cost.
- Direct cross road turning maneuvers.
- Single exit feature simplifies expressway signing.
- No need for speed change lanes on or under the structure.
- No weaving on the expressway.

Disadvantages -

- Overall capacity is limited by ramp intersection capacity.
- Capacity is lowered on the minor road due to left turning movements.
- Increased accident potential unless signalized.
- Possibility of wrong-way movements.
- Turning traffic from the expressway is obliged to stop at the minor road. Storage lane treatment may be required.
- Little possibility for future expansion.

Single Point Diamond Interchange

The Single Point Interchange (SPI) is also known as an urban interchange or a single point diamond interchange (Figure 500.03). All four turning movements are controlled by a single traffic signal and opposing left turns cross to the left of each other.

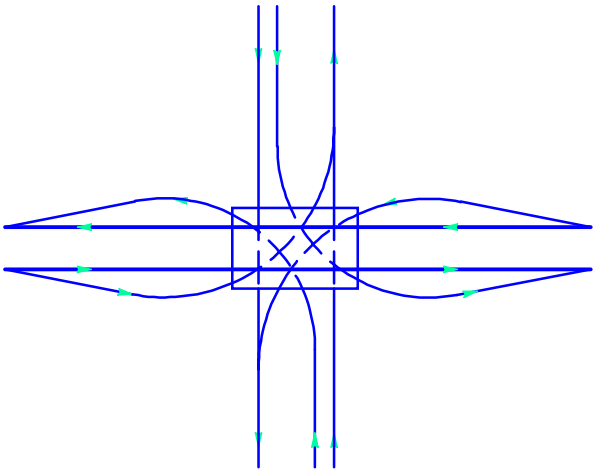

Figure 500.03
Single Point Diamond Interchange