Quadrant Roadway Intersection vs. Traditional Intersection

Instead of expanding intersection and asphalt, use existing blocks for quadrant roadways – cross street traffic still flows, but with less impact on highway traffic.

Traditional Intersection

Traditional intersection signal cycle has 4 phases –

2 for left turns

2 for through movements
Traditional Intersection

4 Phase Signal Cycle Times*

*average intersection

75% of the traffic (through movement) gets only about 60% of the cycle time
Too much time spent on left turns and yellow signals (transition between movements)

Innovative Intersection

Innovative intersection signal cycles have only 2 (or 3) phases – left turns are moved or redirected
Innovative Intersections create **more green** time

### 4 Phase Signal Cycle Times

- 22% lefts
- 10% straight through
- 62% straight through

75% - 80% of traffic gets only about 60% of time

### Innovative 2 Phase Signal Cycle Times

- 4% lefts
- 6% straight through
- 90% straight through

100% of traffic gets 90% of time – no waiting for left turns

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**Quadrant Roadway Intersection**

This quadrant roadway intersection uses one block to offset all the left turns away from the main intersection.

Others use 2, 3, or 4 quadrant roadways to complete the intersection.
Quadrant Roadway Intersection

Left turns from highway are routed around existing blocks with non-residential lots.

Land uses remain intact

Neighborhood traffic uses existing streets and fits within grid system

Merchantville, NJ
Quadrant Roadway Intersection

Left turns from highway are routed around existing blocks with non-residential lots.

Left turns move through on 2nd signal phase with the cross street traffic.

Highway traffic stops while left turning vehicles continue moving into quadrant.

Merchantville, NJ

Quadrant Roadway Intersection

This quadrant is adjacent to a corridor with a median u-turn system. It can accommodate a number of left-turn movements.

Bloomfield Hills, MI
Quadrant Roadway Intersection
Example: Owings Mills, MD

The two roads that use this quadrant intersection are grade-separated (overpass)

This type of quadrant intersection is also called a “single loop” intersection

Quadrant Roadway Intersection

Existing Quadrant Intersections:

- Birmingham, MI – Woodward Ave & Maple Rd
  *MUT intersection that also uses Peabody St as Quadrant*
- Golden Triangle, NJ – Kaigns Ave and Chapel Ave
  *These quadrants are triangle shaped*
- Parry, NJ – US 130 and Church Rd

Existing Single Loop Intersections (Quadrants with an overpass):

- Akron, OH – Wolf Ledge Pkwy & Exchange St (Arc Drive)
- Vaughan to Thornlea, ONT – Hwy 7 has 4
- Wallingford, CT – Colony Rd & Church St
- Collingswood, NJ – Intersection of Haddon Ave and Crescent Blvd uses 4 loops with overpass

For more information visit compassidaho.org
Jughandles

A Jughandle is typically smaller than a quadrant, but provides a loop for left-turning vehicles, redirecting them to cross the intersection as a through movement. They are most common in New Jersey. They may be single or double Jughandles, and if 4 are used it is known as a mini-cloverleaf.

The only known mini-cloverleaf is in Toms River, NJ near the Ocean Country Mall (right).

They can also be straight (left).

Jughandles

Jughandle Examples

Jughandles have been used in a variety of situations and configurations – each of these is different from the others:

- Las Vegas, NV – Iron Horse Dr & Grand Central Pkwy
- Point Pleasant, NJ – Burnt Tavern Rd & Maple Ave
- Point Pleasant, NJ – Old Bridge Rd & Morningstar Rd
- Pontiac, MI – Elizabeth Lake & Telegraph Rd
- Toms River, NJ – Locust St & Main St/Lakewood Rd
- Toms River, NJ – Locust St & Clifton Ave
- Toms River, NJ – Hooper Ave & Fischer Blvd

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Quadrant Roadway Intersection

Can be built with 1, 2, 3, or 4 quadrants to accommodate left-turning traffic
Can be built in urban and downtown areas with grid street pattern or small blocks

Thank You

For more information visit compassidaho.org  Air photos source: Google Earth and Bing Maps