OHIO DEPARTMENT OF TRANSPORTATION

GRE-35-4.40 Superstreets

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Project Background

- 2004 Miami Valley Regional Planning Commission and ODOT completed the Greene 35 Corridor Study
- Replace last 3 intersections on US 35 between Dayton and West Virginia carrying 40,000 vpd with 10% trucks
- 2007 ODOT begins Preliminary Engineering studies on the configuration of interchanges to meet the needs of the traveling public while addressing local accessibility concerns
- $120M solution is not obtainable it this time
- In recognition of the importance of this corridor and the associated safety and congestion issues we are proposing an interim solution – conversion of the existing signalized intersections into signalized "Superstreets".

Freight Impact

- 23,700 Tons of Freight per day
- $71.75 Million per day
- 20 hours of delay per peak hour for trucks
- 100 hours of delay of commerce per day

Recent Activities

- **TRAC Presentation – October 2015 Request for funding**
- **Preliminary Development of Superstreet as an Interim Solution**
- **Determine funding sources**
- **Where do we go from here??**

Interim Solution – Superstreets

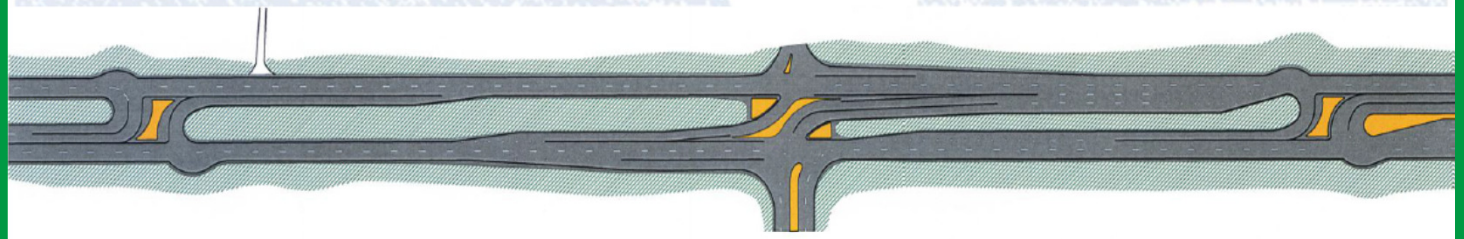
- Meets Project Purpose and Need
  - Improve Congestion & Safety
- Fundable Solution
  - Approximately $5M per intersection
  - Project could potentially be funded through ODOT, Local and MVRPC funding sources
- Provides Solution Commensurate with Cost
  - 1/10th of ultimate project and will perform better than the existing signals for many years while interchange development and construction funding is pursued.

What is a Superstreet

- It is a non-traditional signalized intersection that can provide more capacity than a traditional traffic signal (like the one at Factory Road).

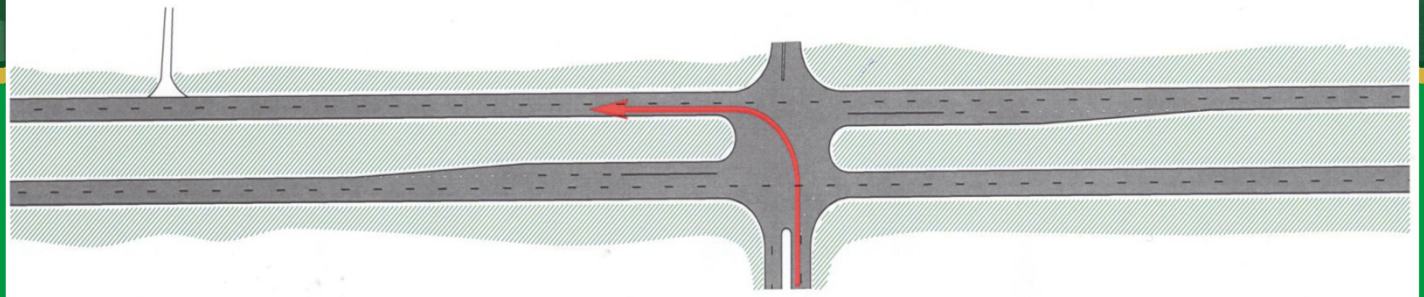
- It does not allow side street traffic to turn left or go straight through the main intersection – these movements turn right and do a u-turn at a nearby signal to get to their desired path.

The Superstreet

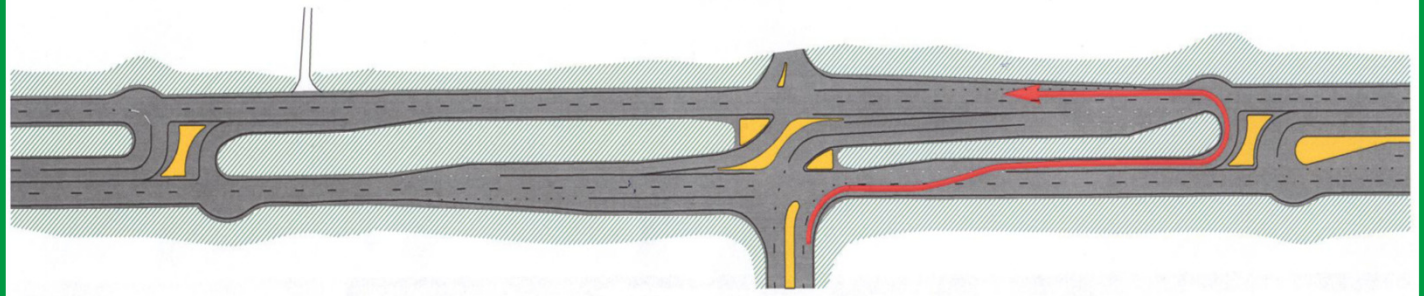


- A type of intersection in which minor cross-street traffic is prohibited from going straight through or left at a divided highway intersection.
- Minor cross street traffic must turn right, but can then access a U-turn to proceed in the desired direction.

CONVENTIONAL INTERSECTION



SUPERSTREET



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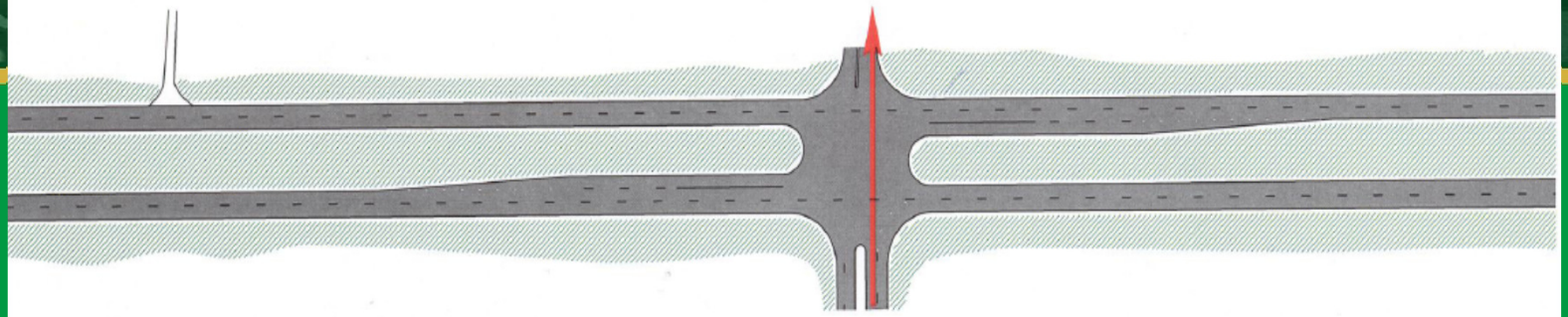

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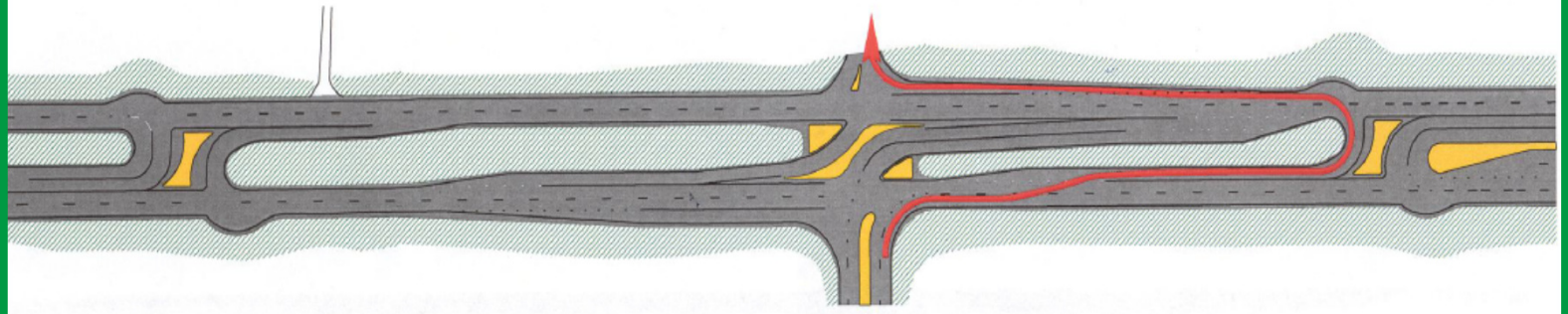

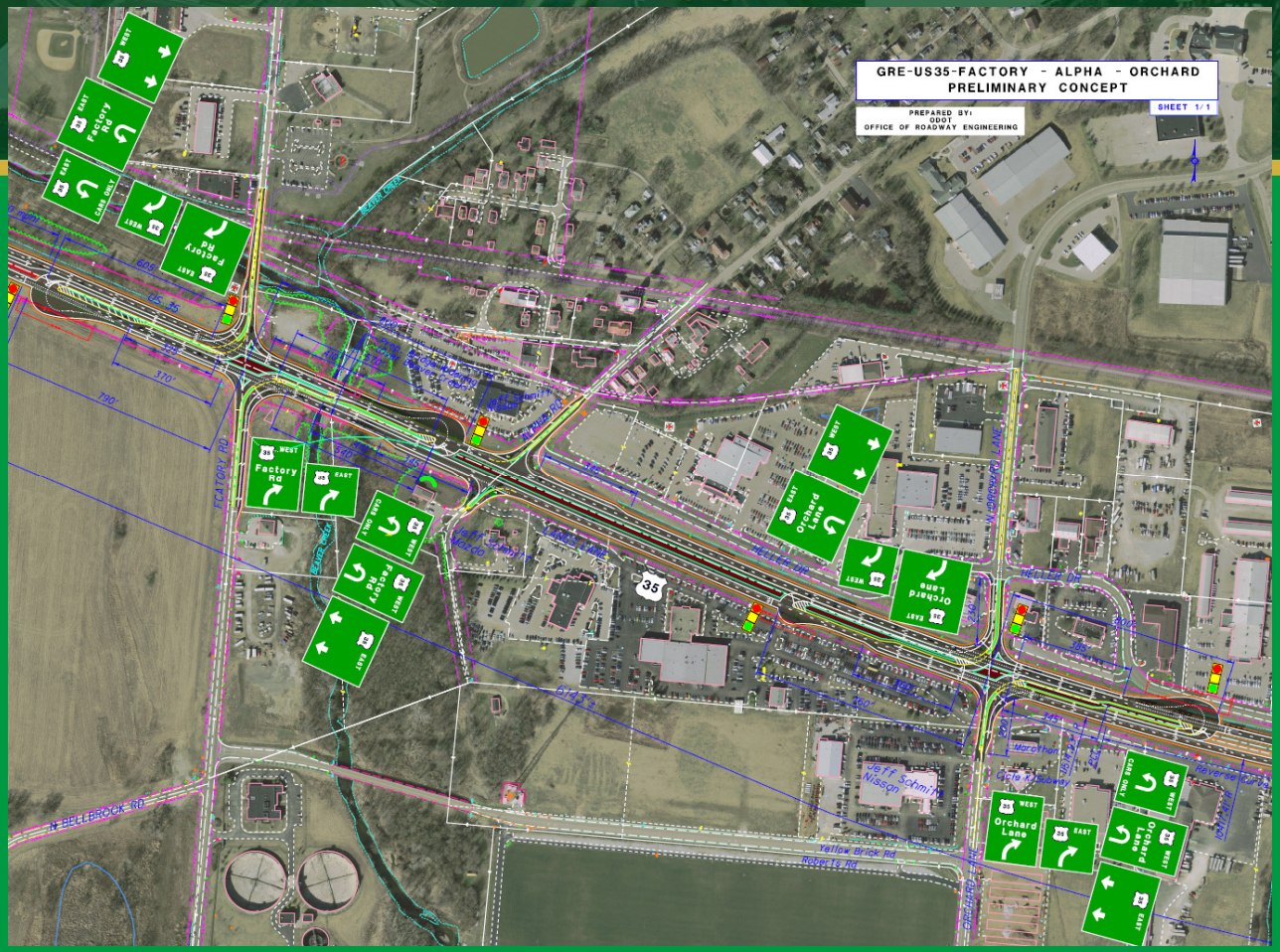

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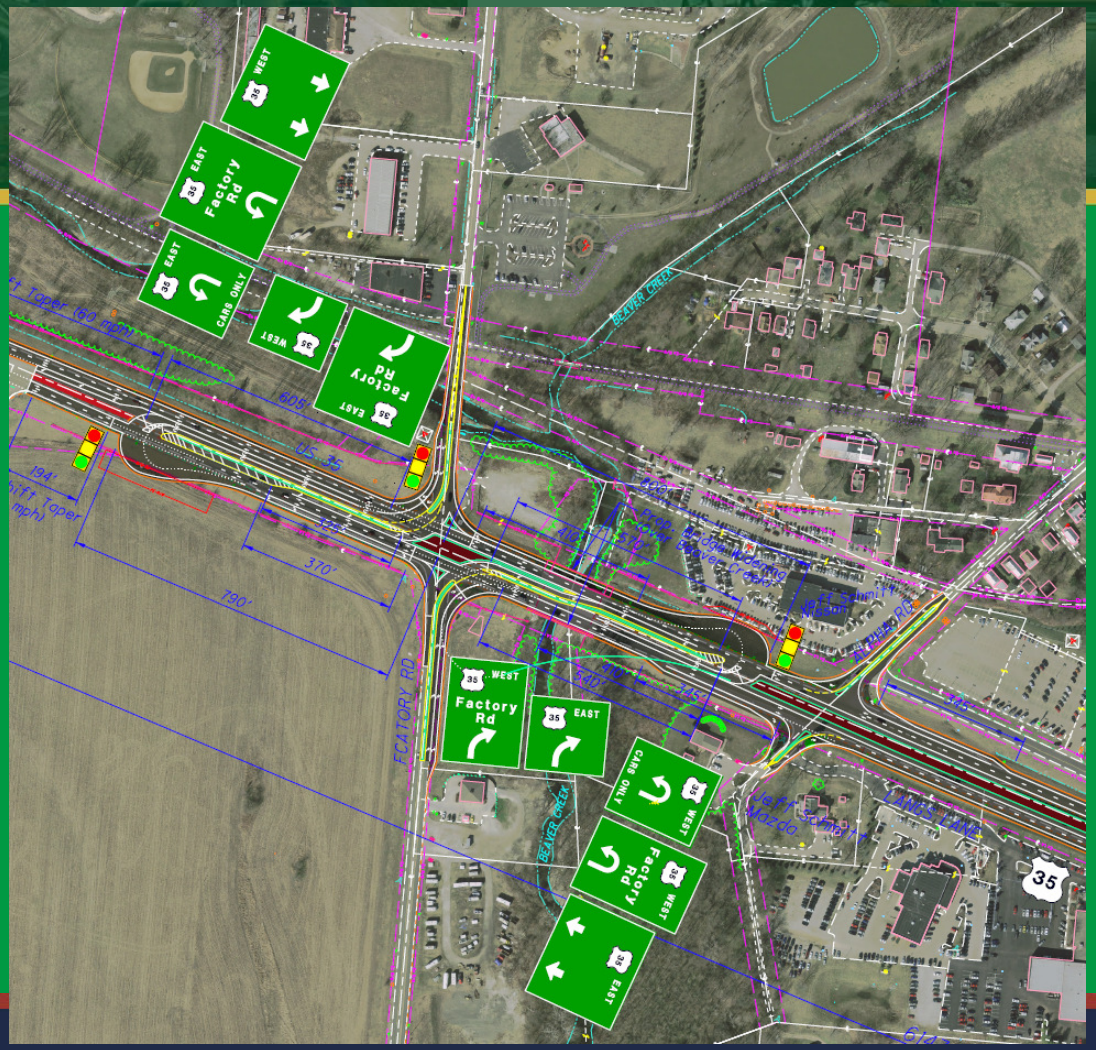
What is a Superstreet

Factory Rd.



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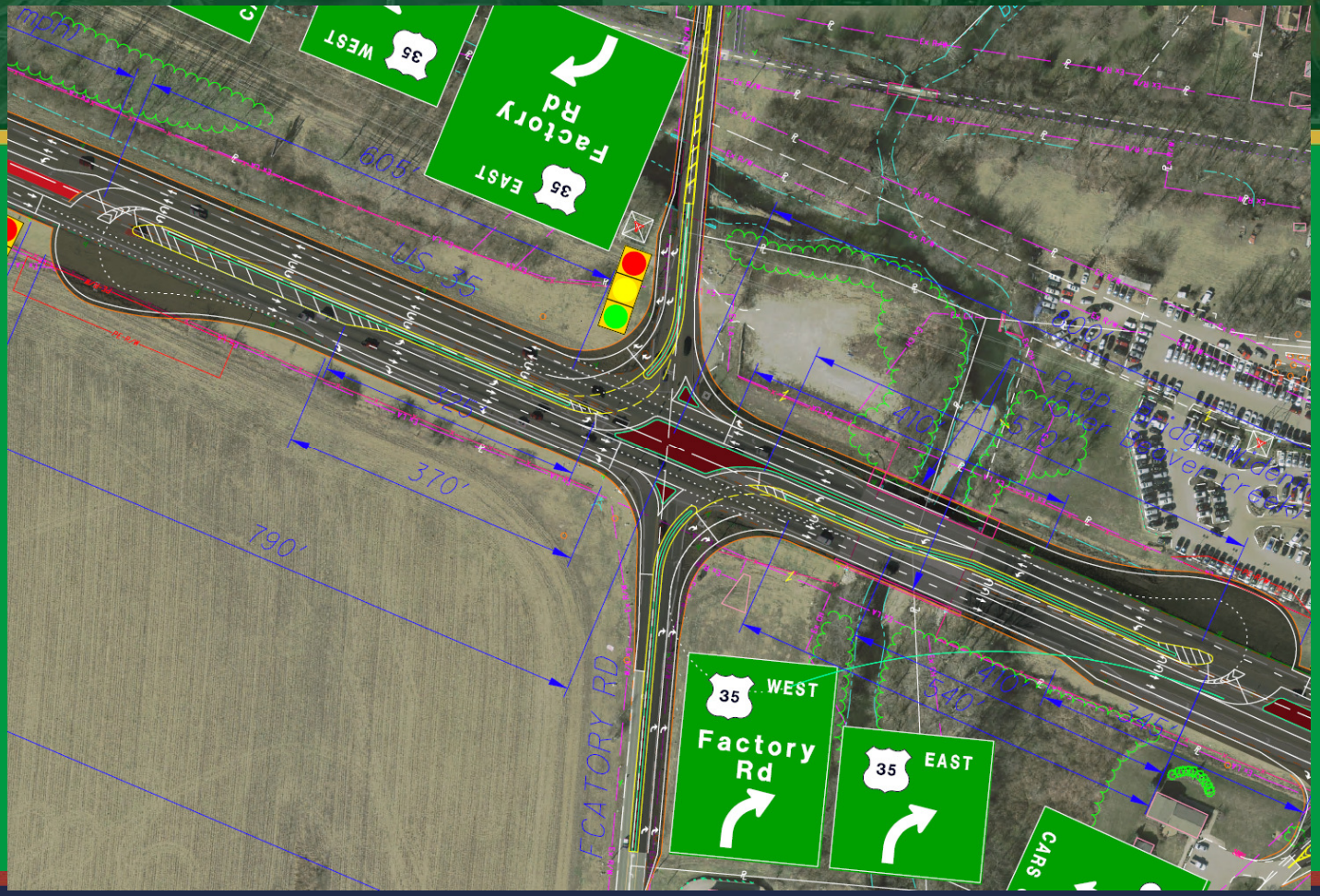
What is a Superstreet



Factory Rd.

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What is a Superstreet

- The only Superstreets in Ohio are on SR-4 Bypass

Superstreet Advantages

- Higher Capacity - Breaks movements of a traditional 8 phase intersection (like at Factory Road) into several smaller 2 phase intersections. This allows more GREEN time to be directed to heavy movements (higher capacity compared to a traditional signal).
- Coordination - You can coordinate both mainline directions independent of each other – this is only possible with a Superstreet.
- Safety – fewer conflict points.
- Reduced Delay

Higher Capacity Compared to Traditional Signals

Higher Capacity Than Traditional Signal

Signal Capacity – Maximum is 1,900 vehicles/hour/lane IF approach gets 100% of the green time (i.e., 3800 vehicles per hour for a 2 lane signalized approach)

Existing Signal at Factory Rd. PM Eastbound

- EB US35 Currently Gets approx. 60% of the green time
- 60% x 3,800 = ***2,280*** veh./hr. for EB US35 (approx.)

Proposed Superstreet at Factory Rd. Signal PM Eastbound

- Proposed Superstreet could give approx. 82% of the green time to EB US35
- 82% x 3,800 = ***3,116*** veh./hr. for EB US35 (approx.)

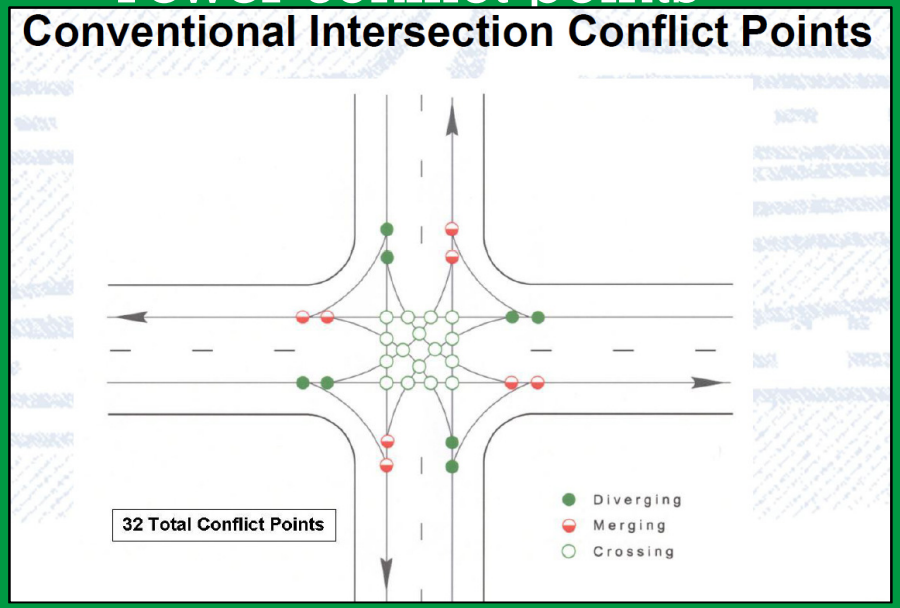
Proposed Superstreet signal can process 836 (3,116 – 2,280) more vehicles per hour for EB US35 compared to the existing signal/timing

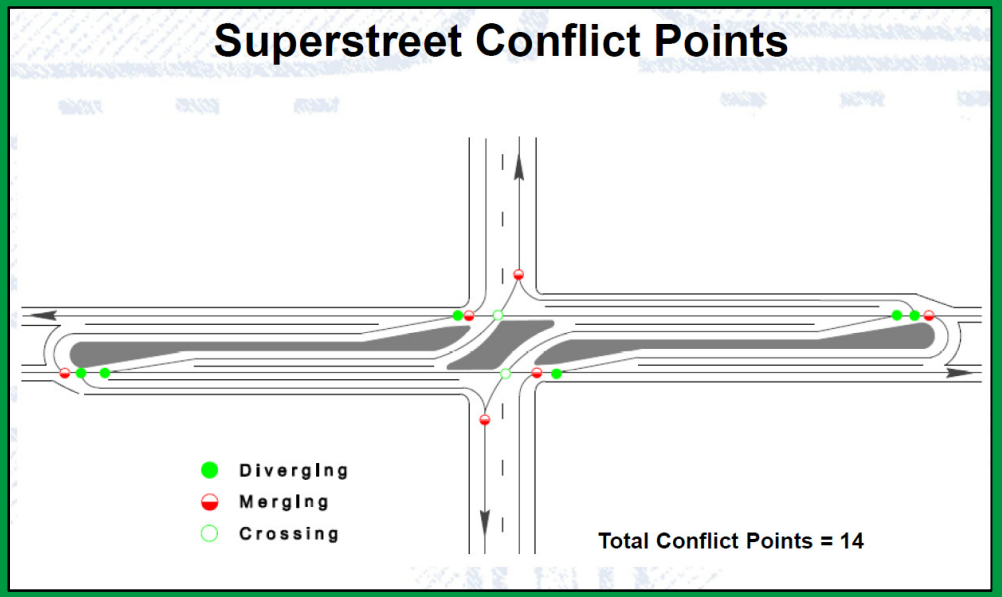
For Comparison – a FREEWAY lane (i.e., interchange instead of intersection) can process approximately 2,300 veh/hr/lane (2 lanes = ***4,600*** veh/hr/lane approx.)

Safer Compared to Traditional Signals

Safer Compared to Traditional Signals

- Less chance of severe angle crashes
- Fewer conflict points





Freight Impact

- 23,700 Tons of Freight per day
- $71.75 Million per day
- 20 hours of delay per peak hour for trucks
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Reduced Delays

- No Build Travel times
  - 203 seconds EB
  - 166 seconds WB

- Total Delay
  - 126 seconds/vehicle EB
  - 91 seconds/vehicle WB

Reductions in Delay

- Reduction in Travel time by up to 23%
- Reduction in Total Delay by up to 51%

Summary

- The Superstreet provides higher capacity than the traditional existing signal but not as high capacity as an interchange.
- Provides much better coordination (both directions independent) which should reduce the amount of times vehicles stop going through the corridor.
- It is non-traditional meaning it's operation will be new to many drivers.
- It requires people to u-turn.
- It would provide considerable improvement in operations until the interchanges can be funded/built.

Questions???