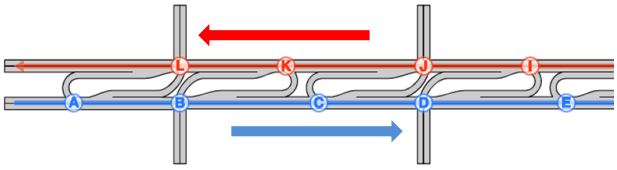
# Synchronized Streets (Superstreets)

Communities and transportation professionals strive to promote smooth and efficient travel flow that helps drivers along a street or corridor keep moving while providing safe access to and from various locations along the street for drivers and pedestrians.

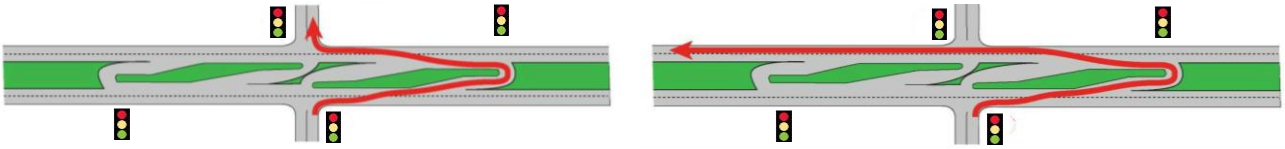
Most delays to drivers and pedestrians along a street or corridor occur at signalized intersections, and multiple turn arrows or left turn phases can exacerbate those delays by reducing the amount of time during a signal cycle available for both through travel and other movements.

"Synchronized Streets" can dramatically improve travel by *allowing simultaneous coordination of both travel directions at all times of day* – while providing reasonable access to side streets with signal control.




A Synchronized Street is sometimes known by different names – such as Superstreet, J-turn, Restricted Crossing U-turn, Reduced Conflict Intersection and Alternative Intersection – but the end result is the same: smoother traffic flow, fewer collisions, and a more efficient use of public roadways.

## Synchronized Streets – improving travel flow and safety by redirecting side street travel



Examples of how side street travelers can cross or turn left at a Synchronized Street

### How do they work?

If a driver is approaching a Synchronized Street from a side street, he or she can't go straight across or turn left in front of approaching traffic. Instead, the driver will first turn right onto the Synchronized Street and then make a U-turn at a designated median opening a little further downstream. In general, the overall delay caused by a traditional signalized intersection is much greater than the delay associated with Synchronized Streets, even with the additional travel distance, thanks to the reduction in the number of signal phases.

### Why do they work?

At a traditional intersection, a side street driver must look in both directions to cross a divided highway, and there are more threats to a left-turning driver. Conversely, a driver waiting to cross a Synchronized Street from a side street only needs to focus on one direction of traffic at a time. Synchronized Streets reduce the number of conflict points, which reduces the risk of severe right-angle ("T-bone") crashes, especially for side-street drivers desiring to turn left or cross all lanes.

### Where can they work?

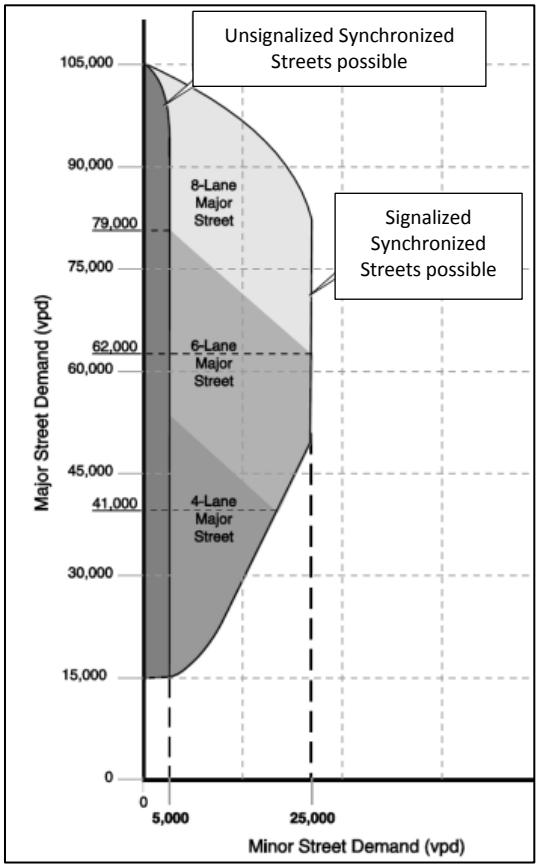
The Synchronized Street design is well suited for urban or suburban areas with many traffic signals by enabling efficient coordination in both directions. In addition, the design can be applied to lower volume rural areas without signals, with through travel free-flow rather than synchronized.

*Revised April 30, 2015*

# Synchronized Streets (Superstreets), *continued*

**Benefits of a Synchronized Street intersection or corridor**

- **High capacity** – As shown in the FHWA chart at right, Synchronized Streets can serve large traffic demands for a given number of lanes.
- **Improved coordination** – The simpler, two-phase signals on either side of the major street are easy to coordinate at any speed or any intersection spacing with a Synchronized Street.
- **Reduced delay along the main street** – Fewer signal phases, shorter cycle lengths, and coordinated operation result in reduced through travel times along the Synchronized Street.
- **Reduced delay along the side street** – While side street movements are indirect, the lower number of signal phases and shorter cycle lengths often result in delays comparable to or lower than traditional intersections, especially during peak periods.
- **Flexible operation** – Different signal cycle lengths and speeds are possible for both travel directions, and signal timing can vary throughout the day.
- **Potential to further reduce delays** – While flashing yellow arrow (FYA) is not required for a Synchronized Street, FYA can further reduce overall delays.
- **Safer for vehicle travelers** – Studies show a 60 percent reduction in fatal and injury crashes and a 42 percent reduction in all reported crashes compared with traditional intersections.
- **And, safer for pedestrians –** Synchronized Streets provide for a safer and easier crossing of the street.




*Courtesy Federal Highway Administration (FHWA)*

**Synchronized Streets capacity** *(see FHWA chart above)*

- **Four lane Synchronized Streets** – can serve through volumes of 40,000 – 50,000 vehicles/day
- **Six lane Synchronized Streets** – can serve through volumes of 60,000 – 80,000 vehicles/day
- **Eight lane Synchronized Streets** – can serve through volumes of 80,000 – 100,000 vehicles/day

*For the lower range of Synchronized Street volumes, side streets can approach 25,000 vehicles/day; upper ranges of Synchronized Street volumes need lower side street demands for efficient operation*

**Examples of Synchronized Streets in North Carolina**

- Portions of NC 55 Bypass in Holly Springs, US 17 near Wilmington, and US 15-501 in Chapel Hill use Synchronized Street intersections with simultaneous signal coordination in both travel directions.

*REF: Google Maps*

*REF: NCDOT*

Synchronized Street intersections along NC 55 Bypass in Holly Springs and U.S. Highway 17 in Leland

*Revised April 30, 2015*

**For more information about Synchronized Streets:**

J. Kevin Lacy, PE, NCDOT State Traffic Engineer, jklacy1@ncdot.gov, 919.773-2800
Meredith McDiarmid, PE, NCDOT State Systems Operations Engineer, mmcdiarmid@ncdot.gov, 919.825.2619
Joe Milazzo II, PE, Regional Transportation Alliance Executive Director, joe@letsgetmoving.org, 919.664.7065