

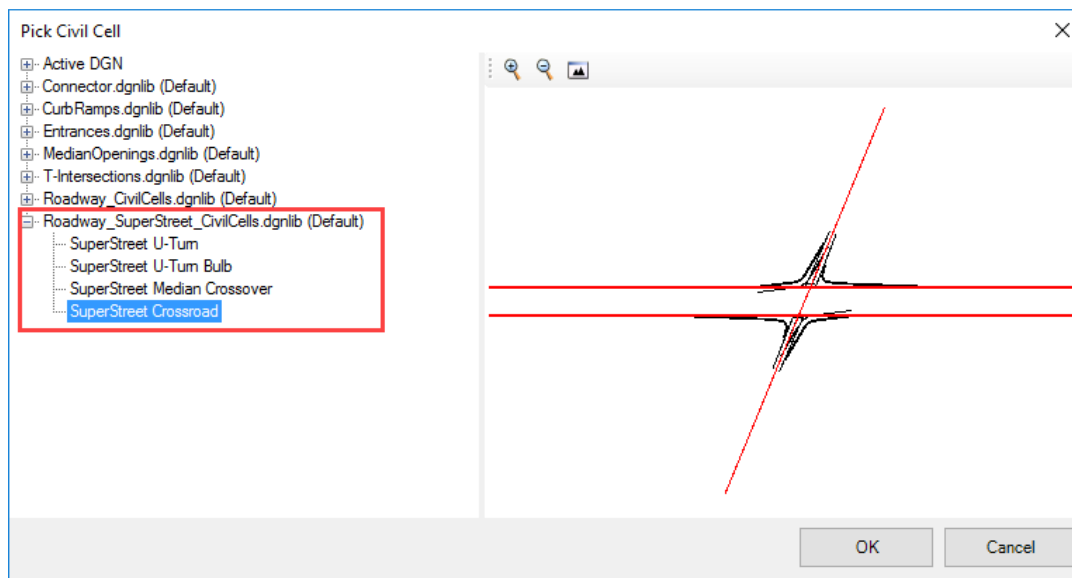
## 18\_03 Civil Cells for RCUTs/Superstreets

*Effective immediately with the next CONNECT workspace update.*

New superstreet civil cells have been created to improve the way RCUTs (Redirected Crossing U-turns, aka Superstreets or J-Turns) and Superstreets are designed and modeled. These new civil cells should allow roadway engineers to compare different alternatives and site locations, for RCUT intersections, as early as the functional and preliminary phases. As with all civil cells, they are dynamic in nature and can automatically adjust to HAL/VAL changes. Their civil geometry components are fully customizable by the design engineer after they are placed.

FHWA has been promoting RCUTs for several years:

[https://safety.fhwa.dot.gov/intersection/innovative/uturn/brochures/rcut\\_brochure/](https://safety.fhwa.dot.gov/intersection/innovative/uturn/brochures/rcut_brochure/)

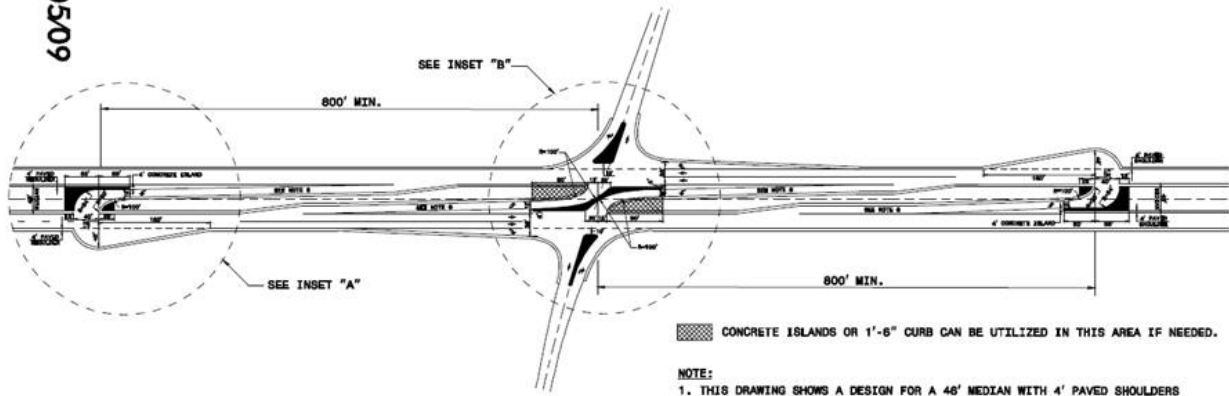


Traditionally designing superstreets can be time consuming. The objective of these new civil cells is not to achieve 100% of what is required on the initial placement, but rather to quickly generate a dynamic design of a typical RCUT intersection using some default values (normally less than a minute). This should draft about 85%-90% of what is required to go into the plans. The remaining 10%-15% of the work will have to be adjusted by the engineer to meet the parameters of the project design criteria (e.g. paved shoulder widths, three-centered curve radii, taper/storage lengths, etc.). When these civil cells are upgraded to 3D, incorporating the profile vertical aspect to the 2D horizontal design, they can help model these past Corridor Modeling problem areas fairly easily and efficiently.

The default values and geometry are based off the [Roadway Design Manual Part I, Chapter 9 At-Grade Intersection](#). As it is noted, "DIMENSIONS BASED ON TURNING RADII FOR WB-50, SCHOOL BUS AND SU". However, the crossroad radii have been updated to the WB-62 standards.

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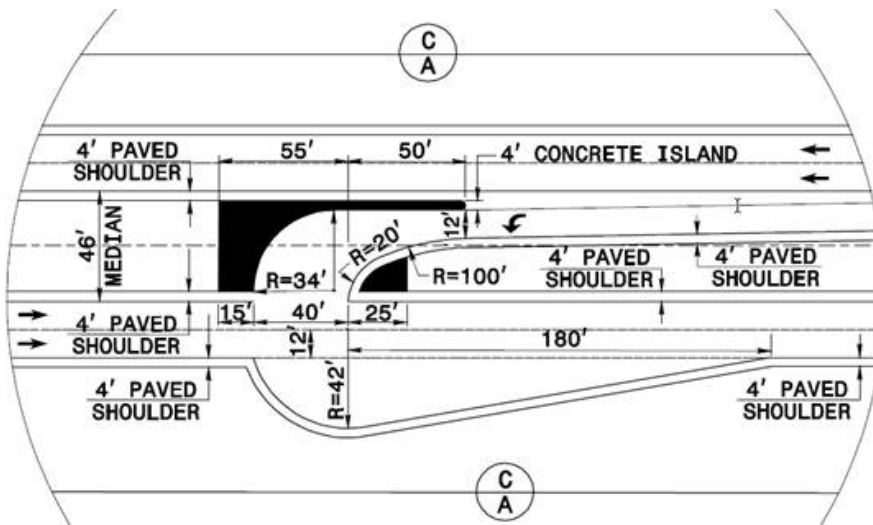
### DIRECTIONAL CROSSOVER WITH MEDIAN U-TURNS



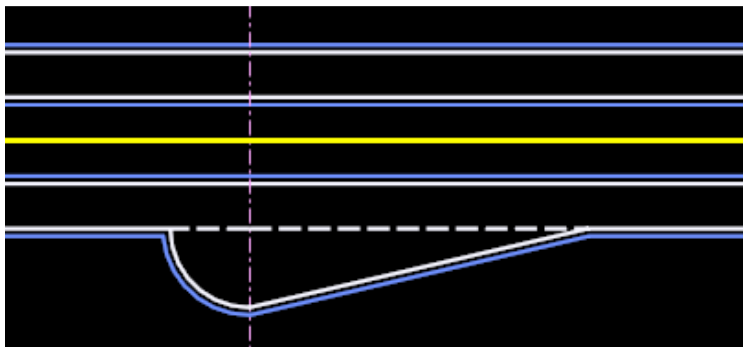
**PLAN**

CONCRETE ISLANDS OR 1'-6" CURB CAN BE UTILIZED IN THIS AREA IF NEEDED.

- NOTE:**
1. THIS DRAWING SHOWS A DESIGN FOR A 46' MEDIAN WITH 4' PAVED SHOULDERS (MEDIAN AND OUTSIDE) ASSUMING A 55 MPH POSTED SPEED. WHEN OTHER MEDIAN WIDTHS, PAVED SHOULDERS, AND POSTED SPEEDS ARE USED, ENGINEERING JUDGEMENT SHOULD BE USED TO ESTABLISH APPROPRIATE GEOMETRY.
  2. AT -Y- LINES ONLY PASSENGER CAR U-TURNS ARE ACCOMMODATED.
  3. DESIGN BULB OUTS TO ACCOMMODATE 90-50. IN AREAS WHERE THERE ARE R/W OR ENVIRONMENTAL CONSTRAINTS, BULB OUT DIMENSIONS MAY BE REDUCED.
  4. ALL DIMENSIONS ARE SUBJECT TO FIELD CONDITIONS.
  5. FULL CONTROL OF ACCESS SHOULD BE OBTAINED THROUGHOUT LIMITS OF THE BULB OUT ON BOTH SIDES OF ROADWAY.
  6. USE 575' MINIMUM LENGTH FOR ALL LEFT TURN LANES (INCLUDES TAPER AND FULL STORAGE LENGTH).



### SuperStreet U-Turn Bulb

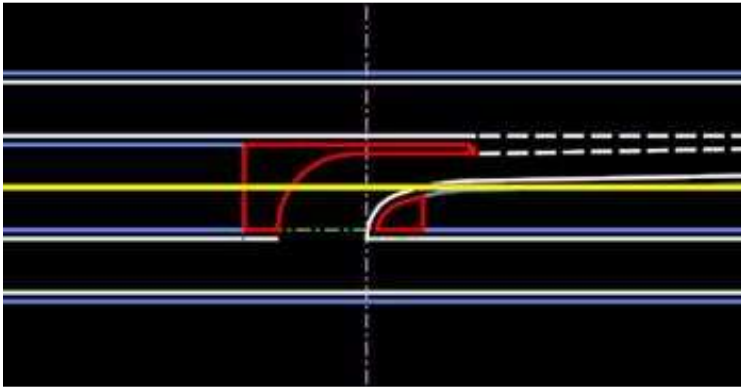


Reversible Left or Right of Centerline

References Sequence (order of selection on-screen):

- U-Turn Locator (1/3)
- Road Outside Paved Shoulder (2/3)
- Road Outside Edge of Travel (3/3)

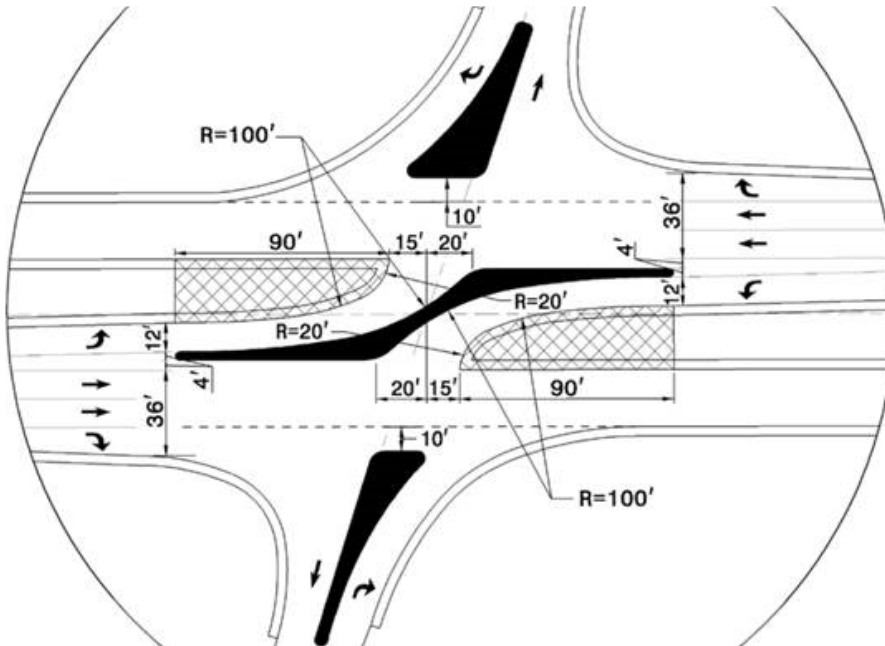
## SuperStreet U-Turn



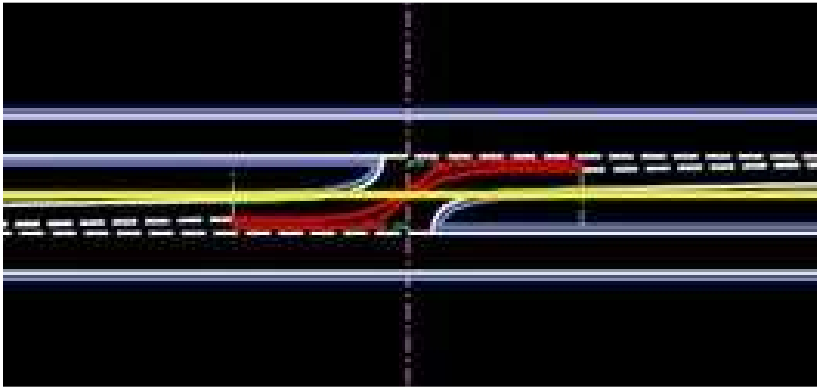
Reversible Left or Right of Centerline  
575' Min Left Turn Lane (includes 100' taper)

References Sequence (order of selection on-screen):

- U-Turn Locator (1/6)
- Road Centerline Main (2/6)
- Road Near Inside Edge of Travel (3/6)
- Road Near Inside Paved Shoulder (4/6)
- Road Far Inside Paved Shoulder (5/6)
- Road Far Inside Edge of Travel (6/6)



### SuperStreet Median Crossover

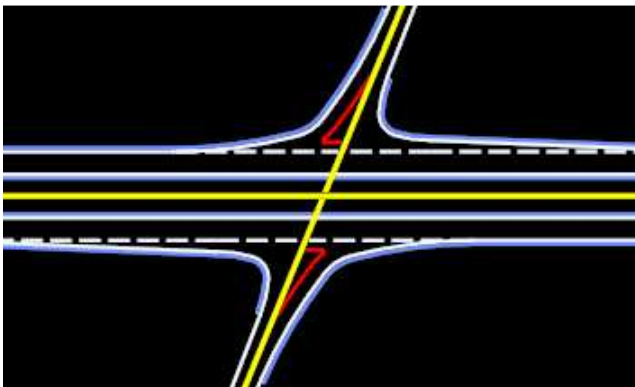


575' Min Left Turn Lane (includes 100' taper)

References Sequence (order of selection on-screen):

- U-Turn Locator (1/6)
- Road Centerline Main (2/6)
- Road Right Inside Edge of Travel (3/6)
- Road Right Inside Paved Shoulder (4/6)
- Road Left Inside Paved Shoulder (5/6)
- Road Left Inside Edge of Travel (6/6)

### SuperStreet Crossroad



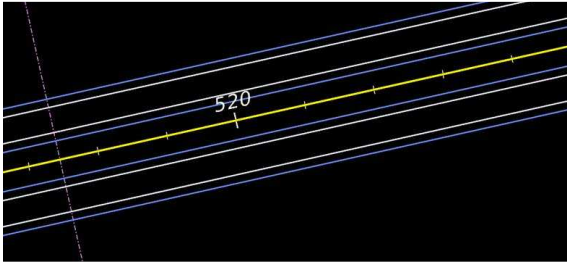
300' Right Turn Taper Lane

Updated for WB-62 Three Centered Curves

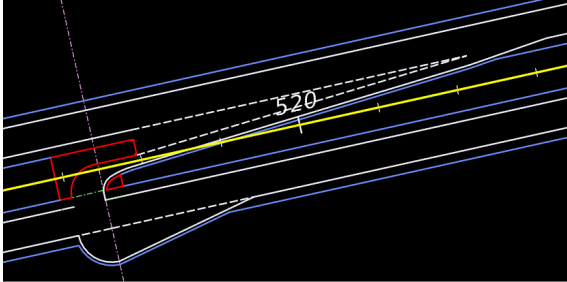
References Sequence (order of selection on-screen):

- Road Centerline Crossing (1/5)
- Road Right Outside Paved Shoulder (2/5)
- Road Right Outside Edge of Travel (3/5)
- Road Left Outside Edge of Travel (4/5)
- Road Left Outside Paved Shoulder (5/5)

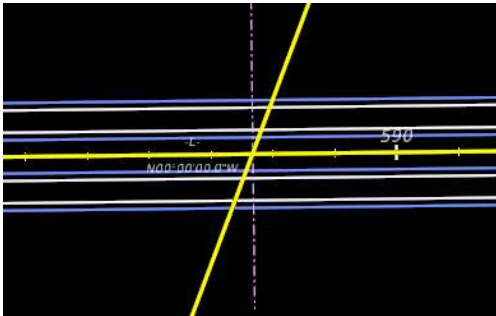
When these civil cells are placed properly, in seconds, change this:



To this:



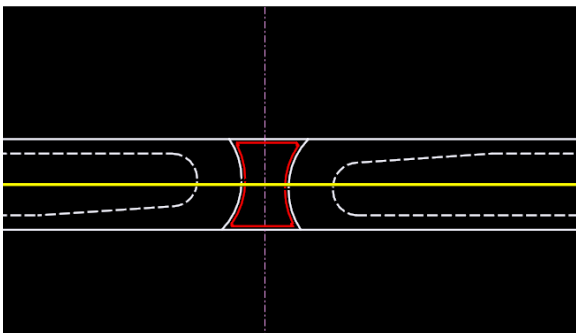
Change this:



To this:



### **Median U-Turn**



Note that these civil cells may receive periodic updates for fine-tuning.