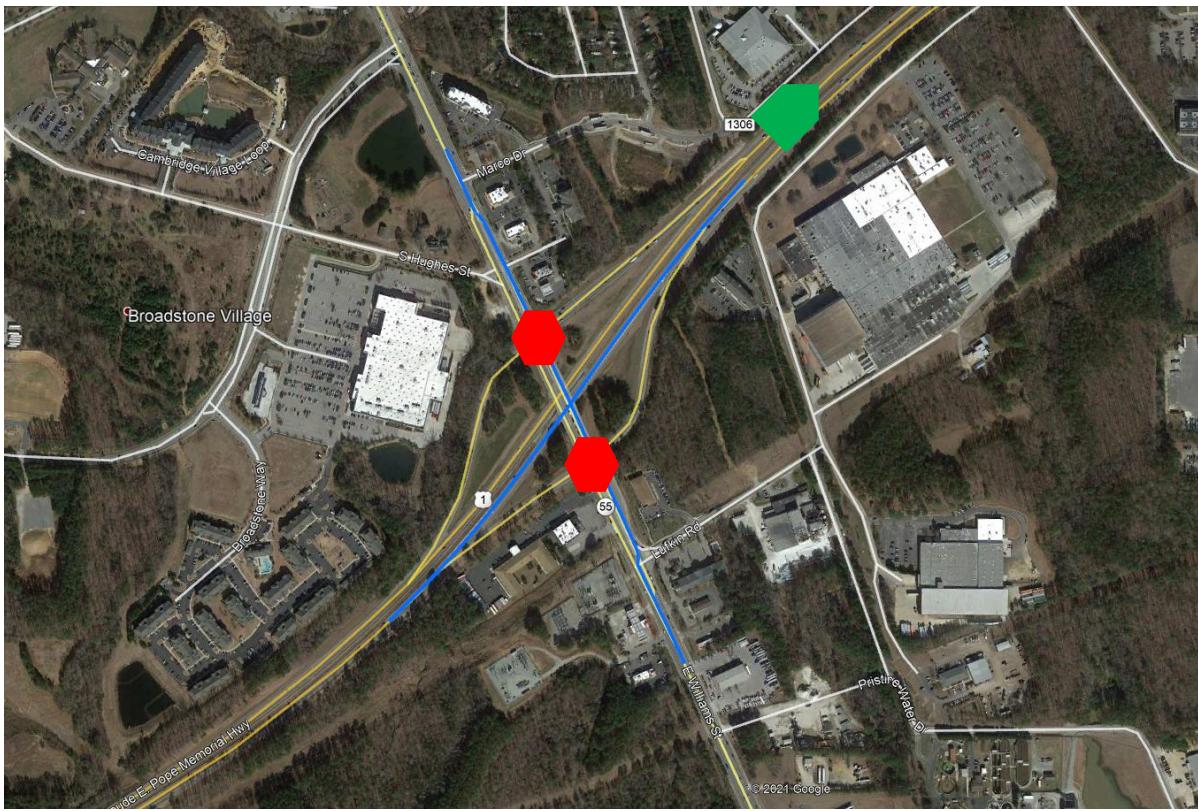


## **ATTACHMENT G: MIXED DATA – COMPLEX JUNCTION (ORIGINATION/DESTINATION)**

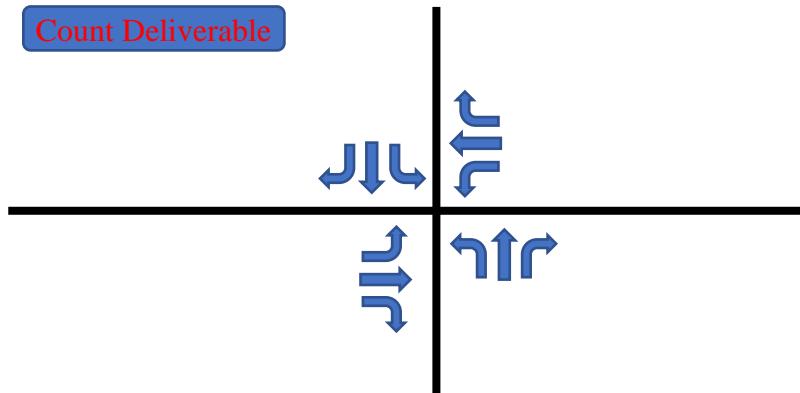
The following pages include examples of count locations where this type of count would be collected. We also have included typical locations for the following count types that are utilized in developing the complex junction counts:

-  13-hour turning movement count
-  14-hour manual classification count
-  48-hour Volume/Speed/Class count

In addition to the typical counts collected we have included a generalized schematic of what the count deliverable would look like. You can see several of these include a deliverable that is actually multiple intersections. These schematics with multiple intersections tend to be counter to the O-D designation of the count. We also include a brief description of the challenges for each location.



#### H184312 – US 1 at NC 55 Interchange (Wake County)



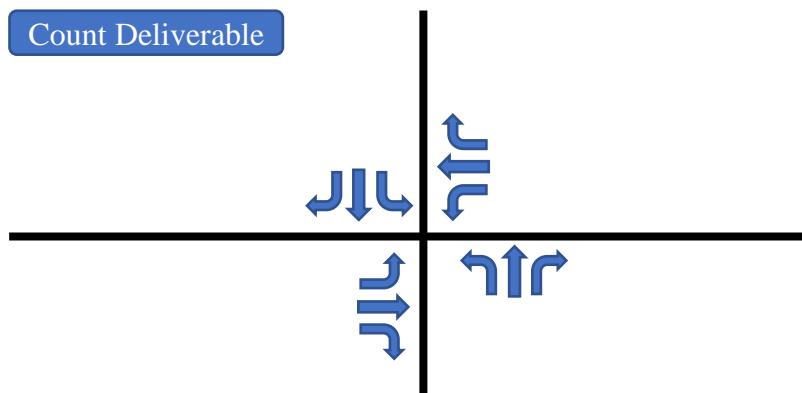
This mixed data count combines the movements at a diamond interchange into a single intersection. It typically includes two 13-hour TMCs (one at each ramp terminal) and a 14-hour manual classification count. The data is then combined to create the single intersection.

Challenges: This count doesn't require the collection of O-D data as the counts can be combined into a single intersection. However, the combination of data is not as clean as there are variations in the volumes between the three individual counts. There are about 8 different ways that the individual counts can be

combined that provide slightly different results. Larger variations in count data between locations can exacerbate the effect to the point that the differences change design factors for forecasting.



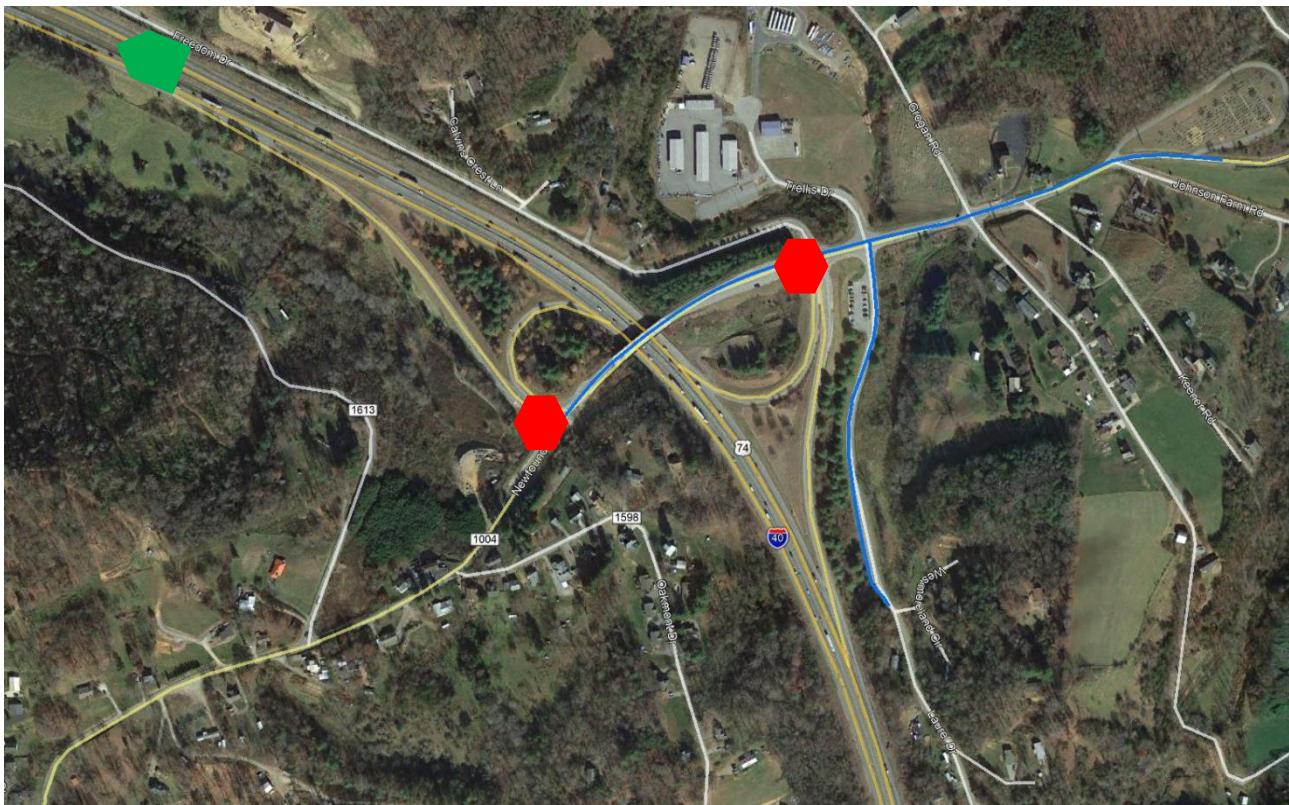
#### H150248 – I-40 at US 52 Interchange (Forsyth County)



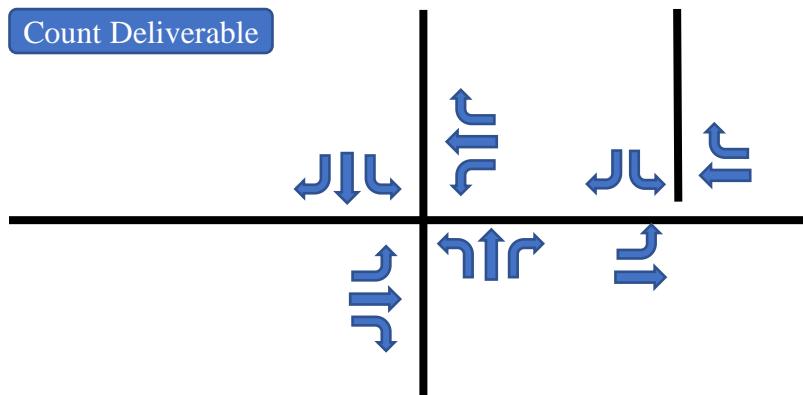
This mixed data count combines the movements at a cloverleaf freeway-to-freeway interchange into a single intersection. It typically includes eight 48-hour volume/speed/classification counts and two 14-hour manual classification counts. The data is combined to create the single intersection.

Challenges: This count doesn't require the collection of O-D data as the counts can be combined into a single intersection. However, this is similar to the previous location except we now have 10 counts (or possibly 12 as some firms count each freeway approach instead of just two). There are numerous ways to

combine these into a single count and we have seen large variations especially due to the potential reduction in accuracy of tube counters. It is frequent to see substantial variations in volume depending on how the counts are combined.



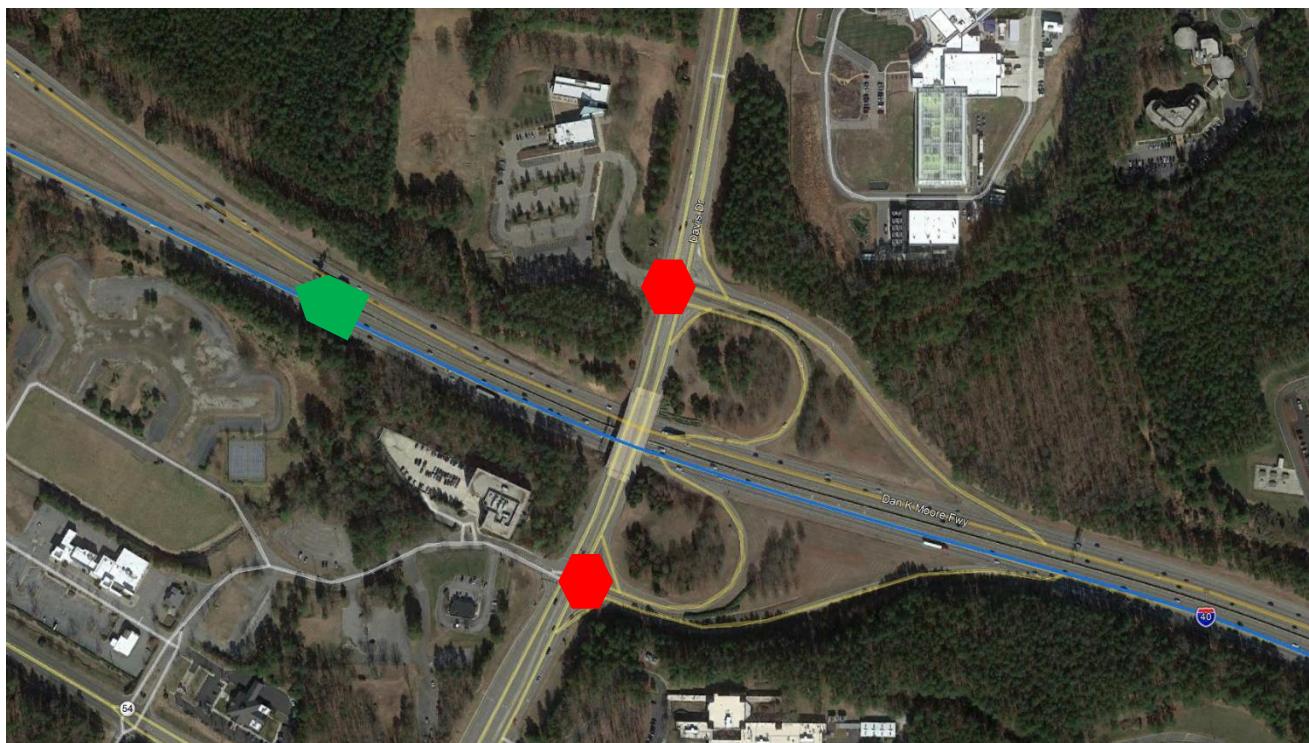
#### **H184421 – I-40 at Newfound Road Interchange (Haywood County)**



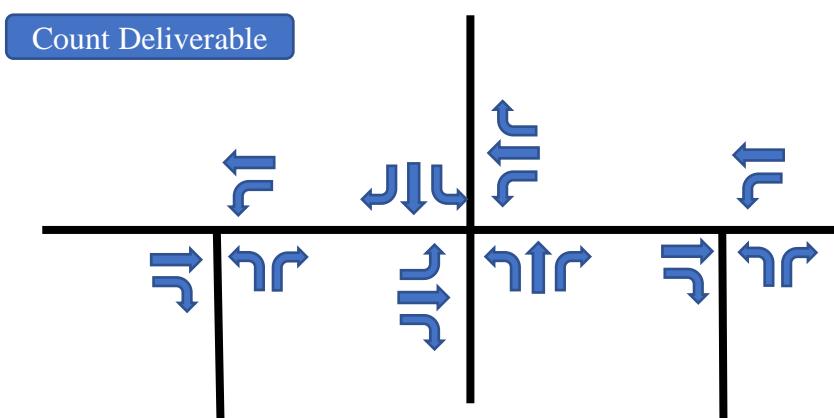
This mixed data count combines the movements at a partial cloverleaf interchange with a side streets opposite one of the ramp terminal into a two-intersection count. It typically includes two 13-hour turning movement counts and one 14-hour manual classification counts similar to the diamond interchange.

Challenges: This count does require the collection of O-D data as the counts can't be combined into a single intersection. This location essentially is a five-leg intersection; therefore, the side street is split out from the main interchange as a three-leg intersection on the side. When this is done there is no longer any O-D data as you have more movements than can be determined based on standard mathematical

equations. Therefore, the data provided does not actually include the data based on origin-destination and the assumptions made to create the delivered count are numerous and never documented.



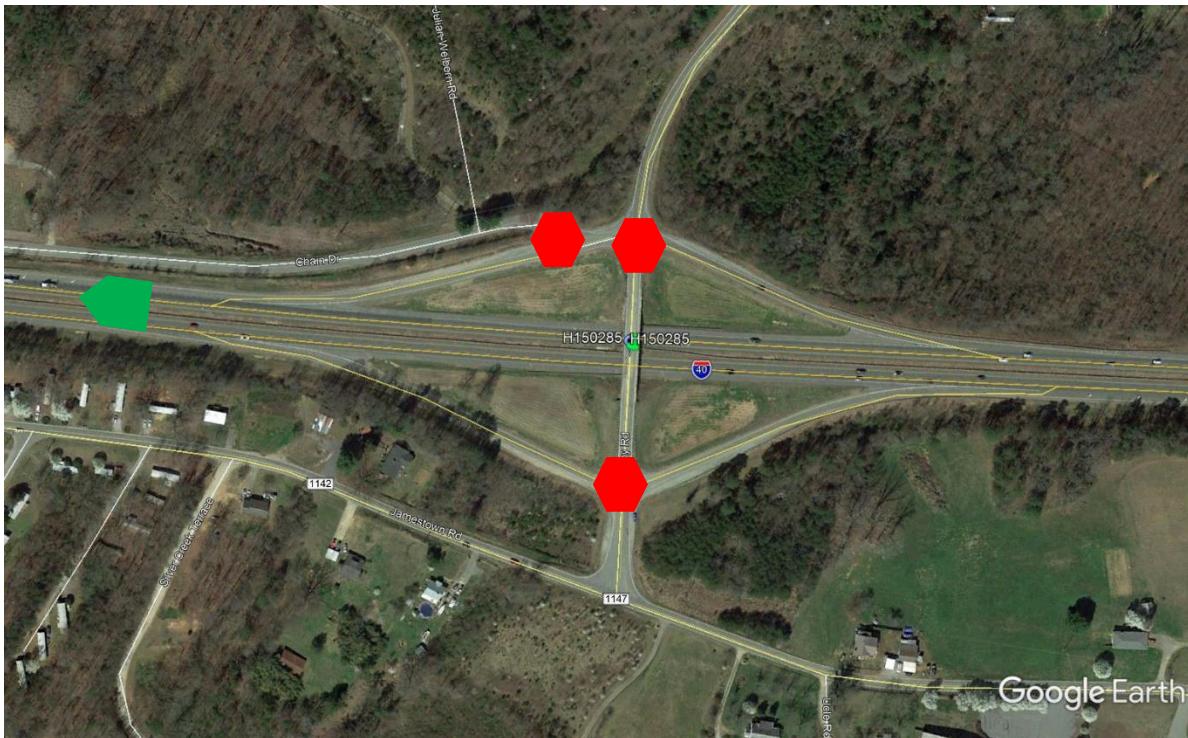
#### H184316 – I-40 at Davis Drive Interchange (Durham County)



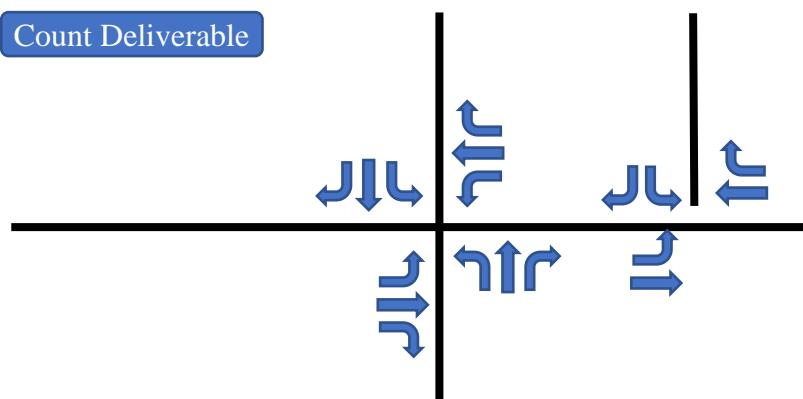
This mixed data count combines the movements at a partial cloverleaf interchange with side streets opposite the ramp terminal into a three-intersection count. It typically includes two 13-hour turning movement counts and one 14-hour manual classification counts similar to the diamond interchange.

Challenges: This count does require the collection of O-D data as the counts can't be combined into a single intersection. This location essentially is a six-leg intersection; therefore, the two side streets are split

out from the main interchange as three-leg intersections on each side. When this is done there is no longer any O-D data as you have more movements than can be determined based on standard mathematical equations. For example, the left turn from the I-40 WB ramp shows up in the TMC but it has two potential destinations, Davis Drive to the south or Park Drive as a right at the southern ramp terminal. Therefore, the data provided does not actually include the data based on origin-destination and the assumptions made to create the count are numerous and nearly ever documented.



#### H150285 – I-40 at Causby Road Interchange (Burke County)

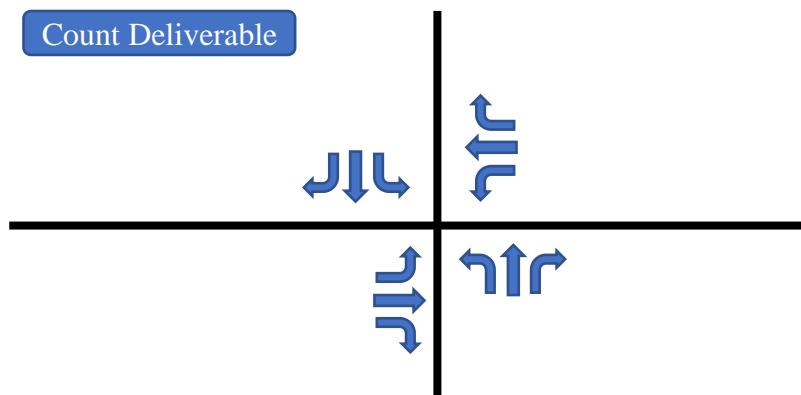


This mixed data count combines the movements at a diamond interchange with a side street connecting to the ramp into a two-intersection count. It typically includes three 13-hour turning movement counts and one 14-hour manual classification counts similar to the diamond interchange.

Challenges: This count does require the collection of O-D data as the counts can't be combined into a single intersection. This location essentially is a five-leg intersection; therefore, the side street is split out from the main interchange as a three-leg intersections on the side. When this is done there is no longer any O-D data as you have more movements than can be determined based on standard mathematical equations. Therefore, the data provided does not actually include the data based on origin-destination and the assumptions made to create the delivered count are numerous and never documented.



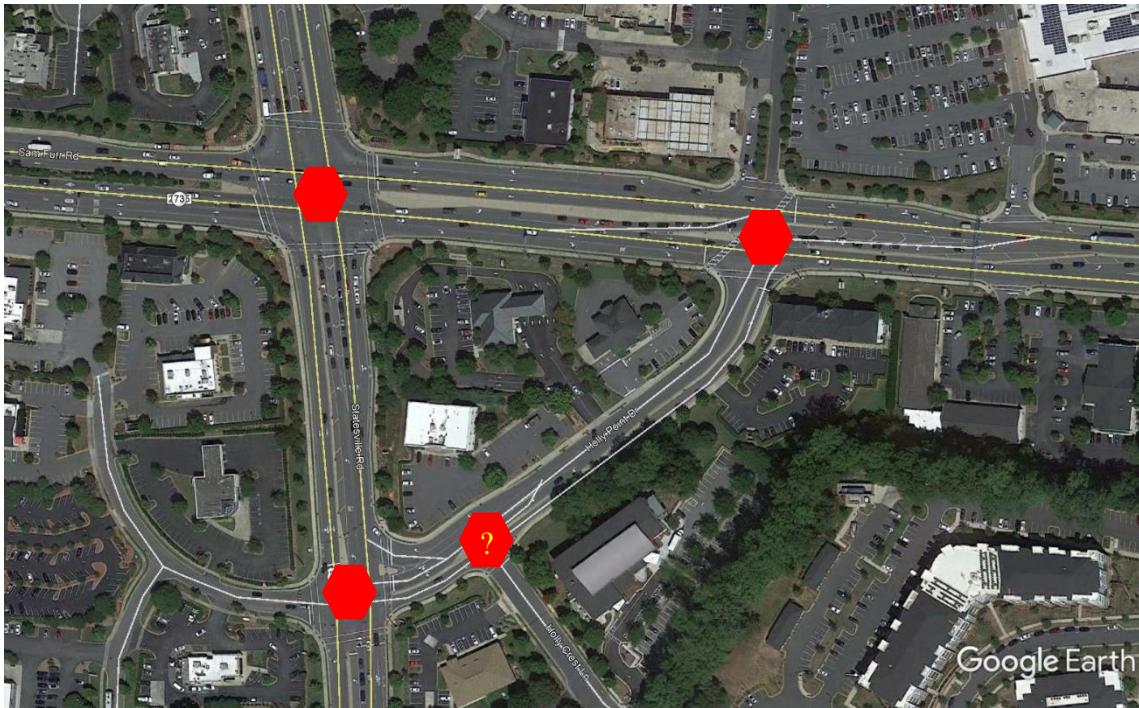
### NC 24 at Plantation Drive RCI (Harnett County)



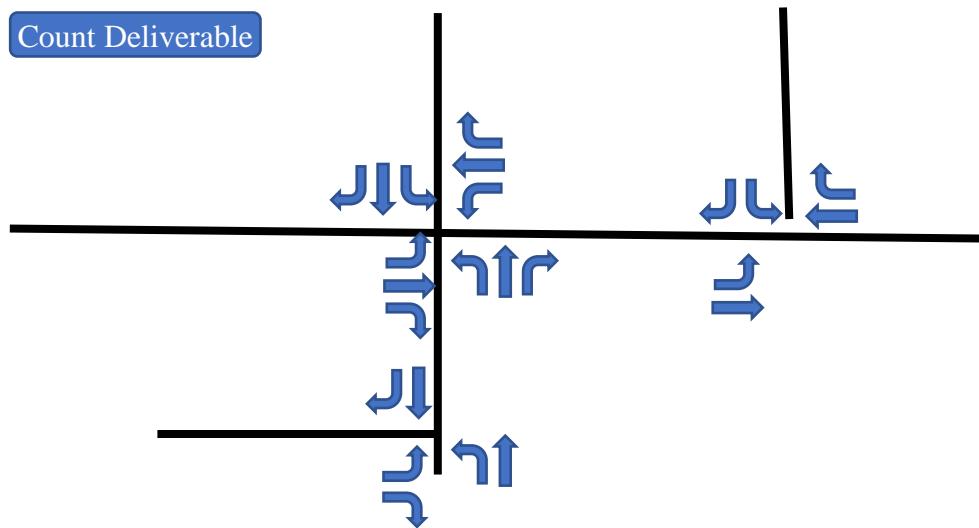
This mixed data count combines the movements at an RCI (superstreet) intersection into a single intersection. It typically includes three 13-hour turning movement counts. The data is combined to create the single intersection.

Challenges: This is a location that Patriot requested as a mixed data count but was told that it couldn't be provided as requested and we had to request it as three separate counts. This type of count required origin-destination tracking to do correctly. The right turn from Plantation Drive can be for vehicles going right, left

or through. There currently is no method for accurately collecting this data and substantial assumptions are needed to create this as a single intersection as is needed.



**NC 73 at US 21 Quadrant Intersection (Mecklenburg County)**

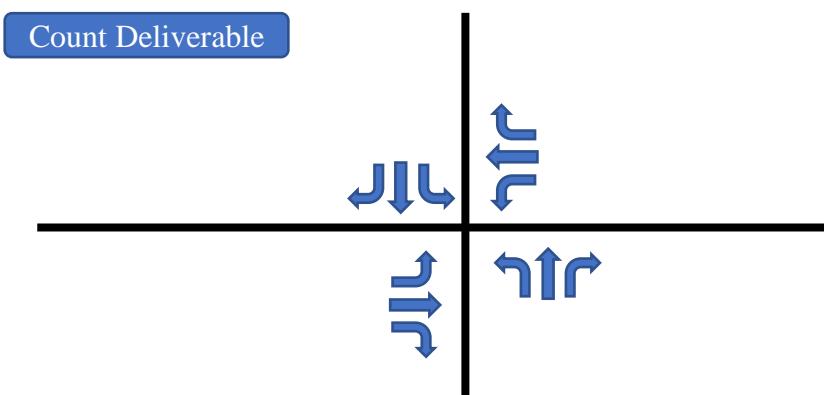


This mixed data count combines the movements at a quadrant intersection into at least three intersections. It typically includes three or four 13-hour turning movement counts. The data is combined to create the individual intersections.

Challenges: This is a location where it is nearly impossible to collect a count with traditional techniques. The displaced EB left to the quadrant will be included in three separate counts and the fourth legs at each end of the quadrant make it even more difficult. Additionally, the Holly Crest Lane intersection on the quadrant roadway expands the difficulty further. If this location were requested, I don't know how the count would be delivered and I doubt it would be O-D based.



**Griffith Street at Jetton St (Mecklenburg County)**



This mixed data count is for a multi-lane roundabout and is delivered as a standard single intersection. The data collection is typically a camera based turning movement count that allows for a view of the entire roundabout to track the vehicles; however, it is becoming more frequent to count the volumes on each approach and then estimate the turns as this can be done with tubes.

Challenge: the challenge with roundabouts are that they require O-D to accurately measure the turn volumes accurately. This is typically done with a camera and then requires multiple people to review the video and track each vehicle from its entry to its exit. Firms have found this to be very labor intensive and we have heard of count firms just putting down tubes at each entry and exit and then proportioning the turn volumes based on the magnitude of the downstream exit volumes.



I-85 and NC 87 one  
loop interchange.pdf



1184 diamond  
interchange.pdf



2011 interchange  
with side street at r



1288 parclo AB  
interchange.pdf