

# Trash Can Analysis October 2017

## Data processing

The trash can data was collected in Fall 2017 from an AGOL collector app and used “as is” and run through network analyst. The total number of cans (records) is 1875, after removing private and deleted cans (167) leaves 1708 trash, recycling and RPCA cans for route analysis.

The dataset was then parsed into the differing scenarios. Recycling (327) and RCPA (171) were removed from the main routing scenarios.

## Routing and Order Information

The street network contains regional networked streets with speeds and road types. All routes started and ended at Business Center drive and no depots were added for the waste facilities. All cans had a service time of 1 minute, probably more than needed but adds a good baseline processing factor. The total time of orders and driving were calculated and routes that were longer than 480 minutes (8 hours) were flagged as excessive and require re-evaluation.

Six scenarios were proposed and evaluated for feasibility. Each of those are evaluated below. A seventh scenario was created by GIS and evaluated to address some of chronic issues with the proposed routes.

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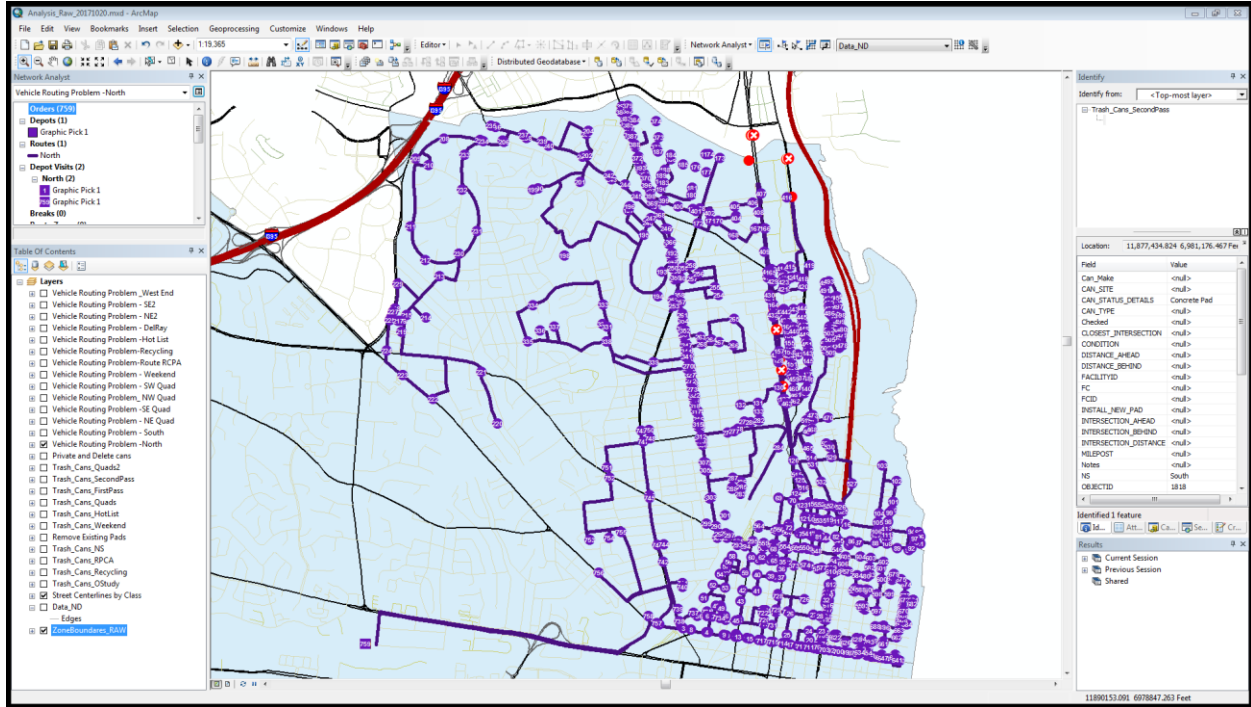
### Proposal 1: North South

*“divide the city north and south of King St. All street box and parks cans would be collected by one route truck on the north and one on the south. We’d like a can count for each route”*

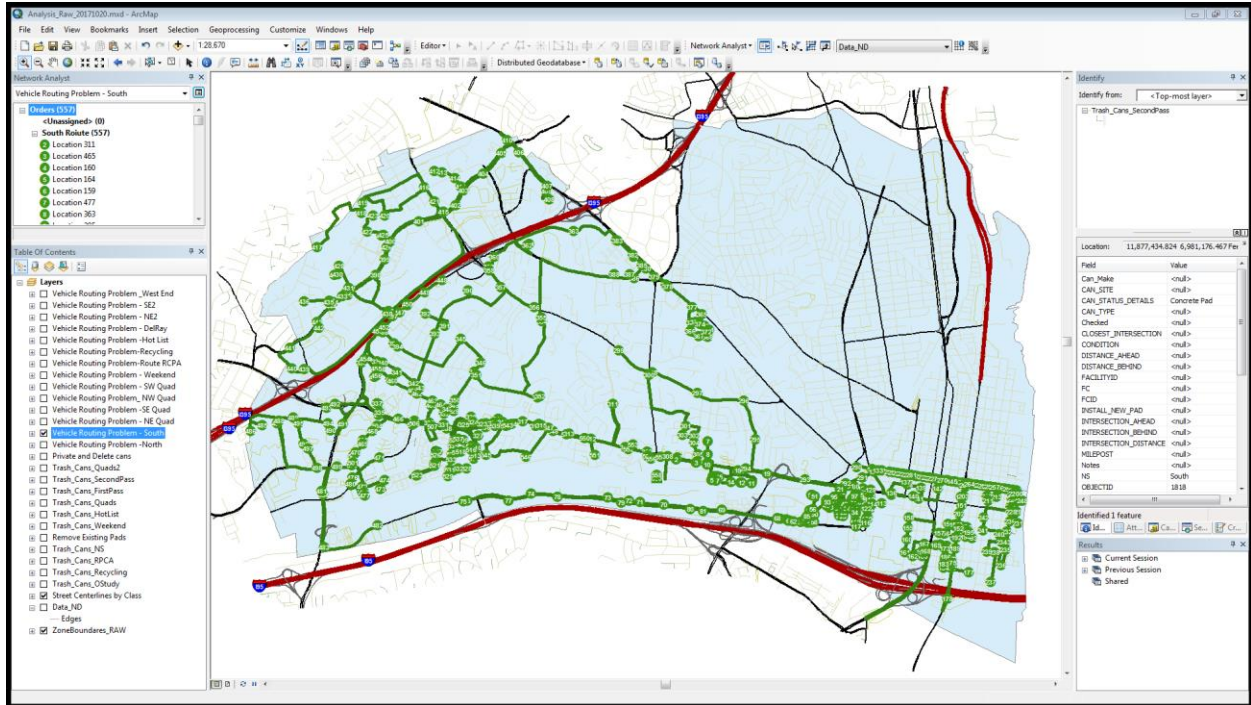
Route Name	Number of Cans	Distance	TravelTime*
North	759	59.9 miles	912 min
South	557	75.5 miles	733 min

Assessment: This route is too large for a collection effort and unbalanced. Two city routes are probably unfeasible. Please see scenario 7: Quadrants

# North



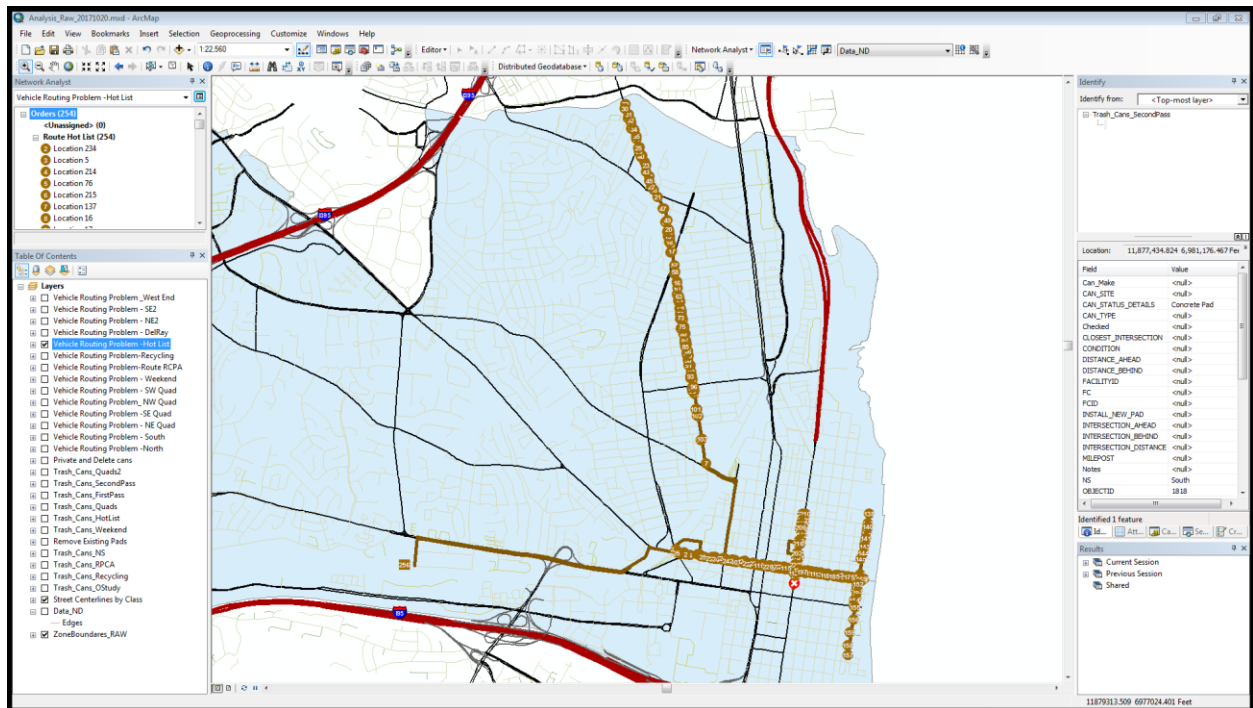
# South



## Proposal 2: Hot List

*“all cans on King St, Union St, Washington St, Mt Vernon Ave to go every day. All cans West of Quaker Ln to be scheduled Tuesday and Thursday. All cans east of Quaker Ln Monday, Wednesday and Friday”*

Route Name	Number of Cans	Distance	TravelTime*
Hot List	254	14.2 miles	286 min

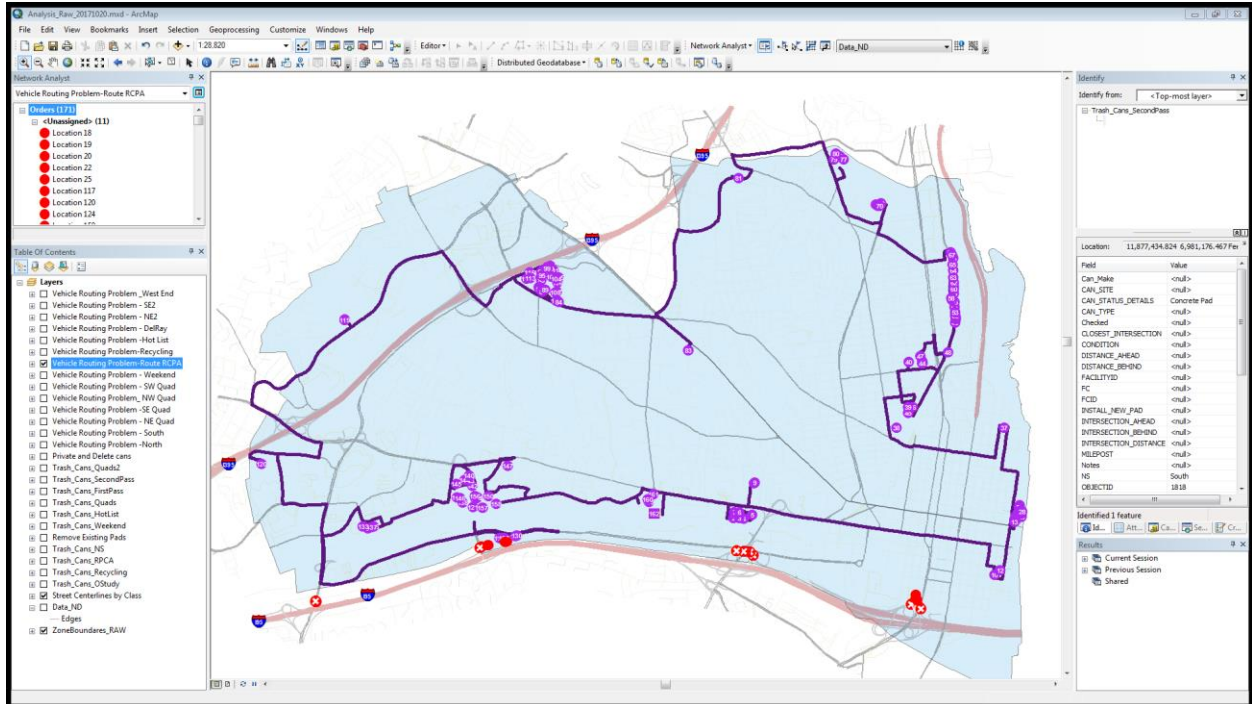


Assessment: The daily hot list is a viable routing scenario. The collection basically moves down King St and circles back to Mount Vernon Ave. The west of Quaker and East of Quaker scenario is basically the North south route from Proposal one which is too large for a collection effort and unbalanced. Two city routes are probably unfeasible. Please see scenario 7: Quadrants

### Proposal 3: RPCA

*“sequence all parks cans for a daily route to be run 7 days a week”*

Route Name	Number of Cans	Distance	TravelTime*
RPCA	171	35.8 miles	259 min



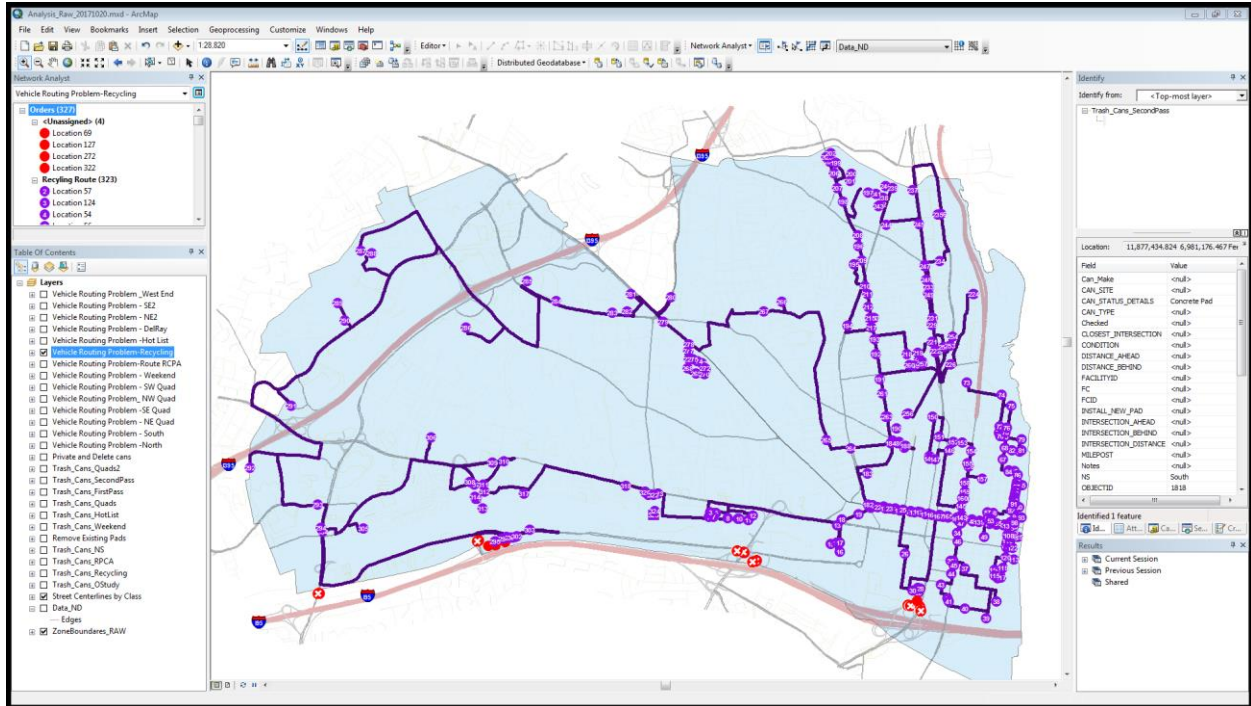
Assessment: The RPCA route is a viable scenario. The collection basically circumnavigates the city in a SE to NE to NW to SW direction.

Proposal 4: Given the numbers from the north south scenario, the whole city scenario is not a viable route, see Proposal 1.

### Proposal 5: Recycling

*“sequence all public space recycling cans to be run MWF”*

Route Name	Number of Cans	Distance	TravelTime*
Recycle	327	56.9 miles	463 min

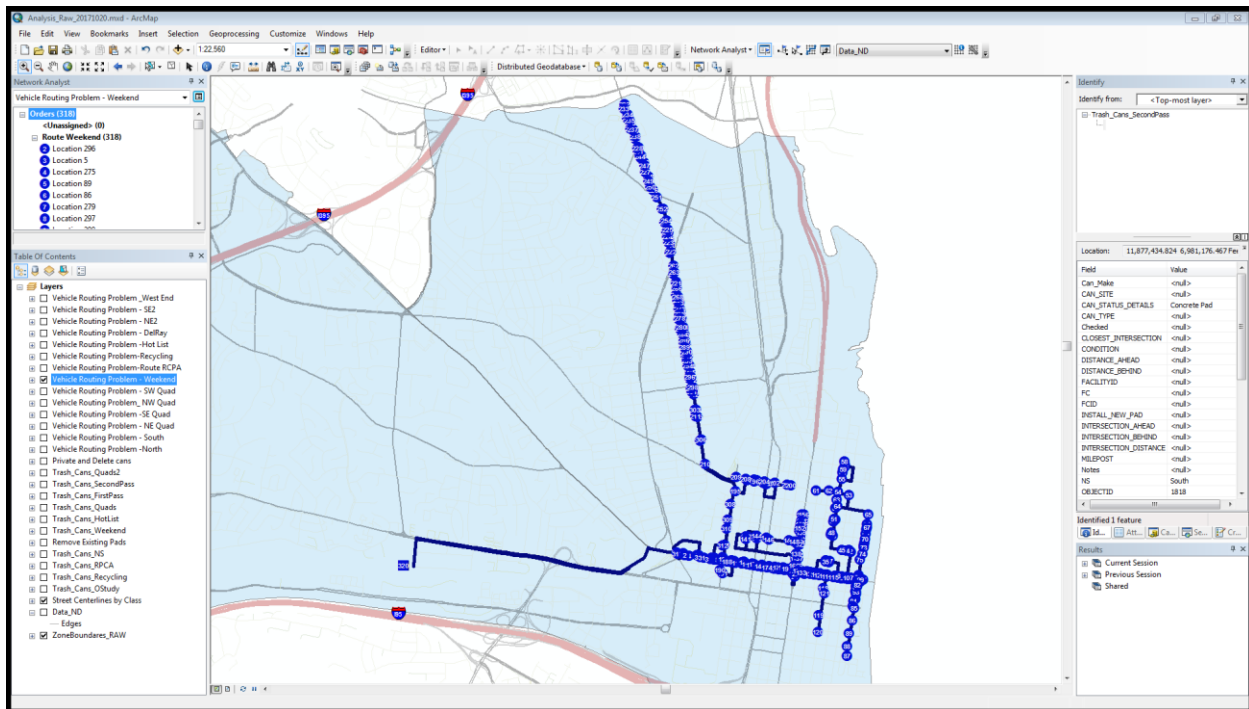


Assessment: The Recycling route is a viable scenario. The collection basically circumnavigates the city in a SE to NE to NW to SW direction.

### Proposal 6: Weekend

*“sequence a weekend route for Street box that would include King St, Union St, Washington St, Mt Vernon Ave, Queen St, Royal St, Wythe St and West St”*

Route Name	Number of Cans	Distance	TravelTime*
Weekend	318	18.4 miles	361 min



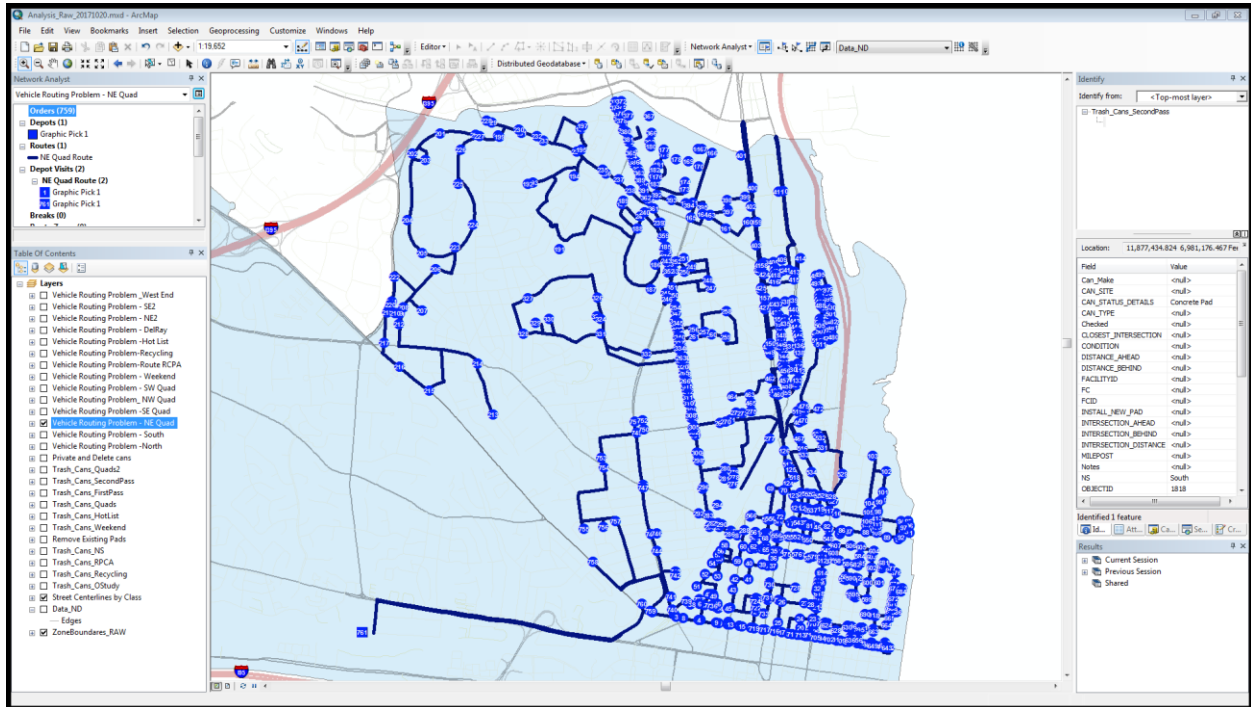
Assessment: The Weekend route is a viable scenario. The collection basically the collection basically moves down King St and circles back to Mount Vernon Ave.

### Proposal 7: Quadrants

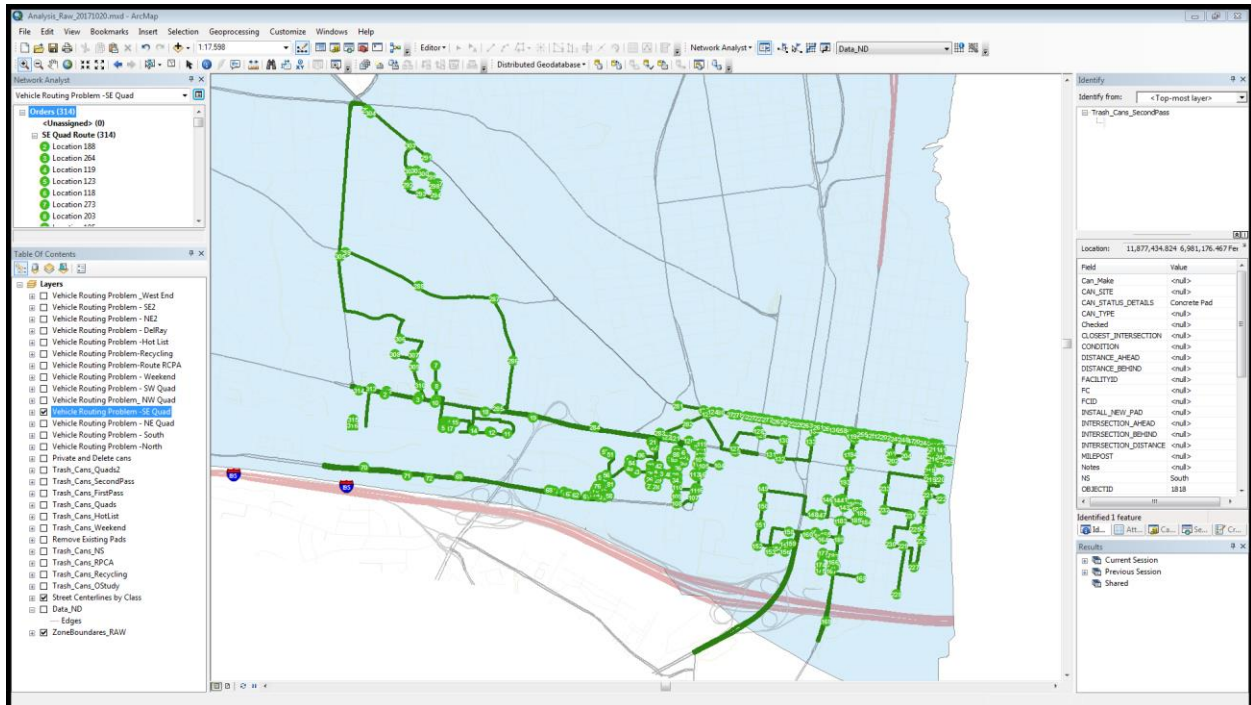
The city was divided into quadrant based on King street as the north south divider and Quaker lane as the east west divider.

Route Name	Number of Cans	Distance	TravelTime*
NE Quad King	759	61.0 miles	916 min
NW Quad King	81	23.7 miles	130 min
SE Quad King	314	27.8 miles	386 min
SW Quad King	221	33.9 miles	238 min

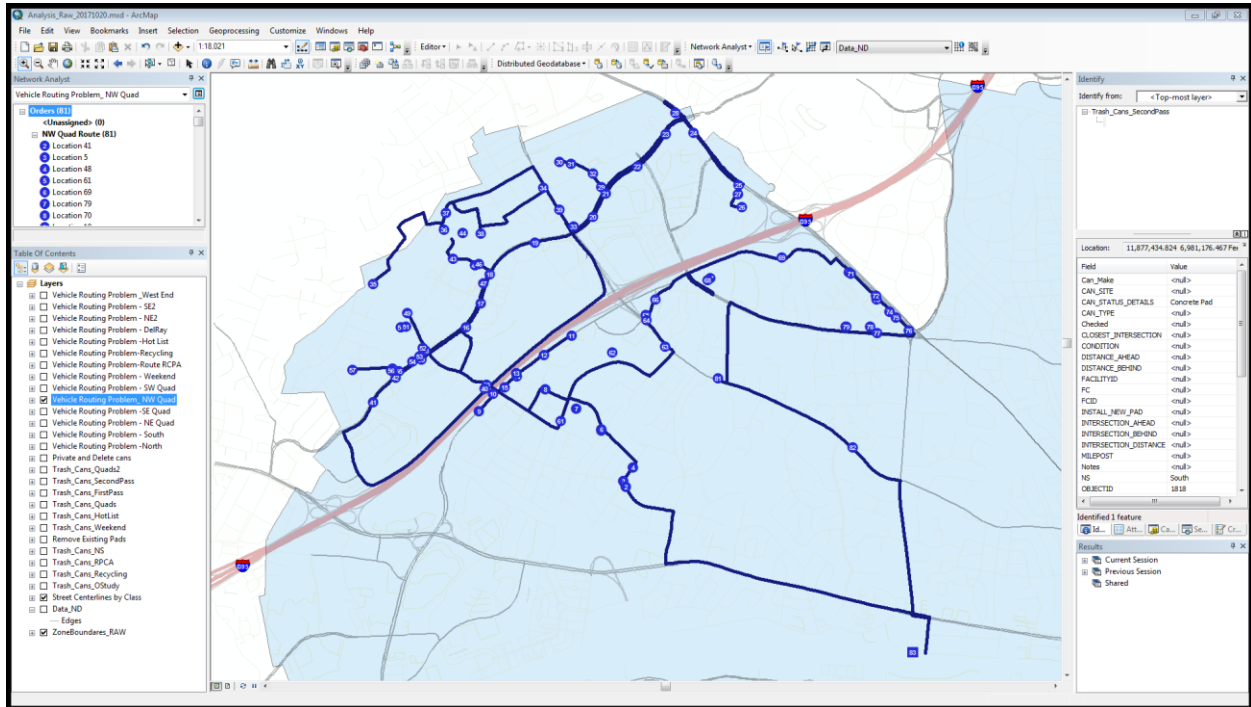
NE



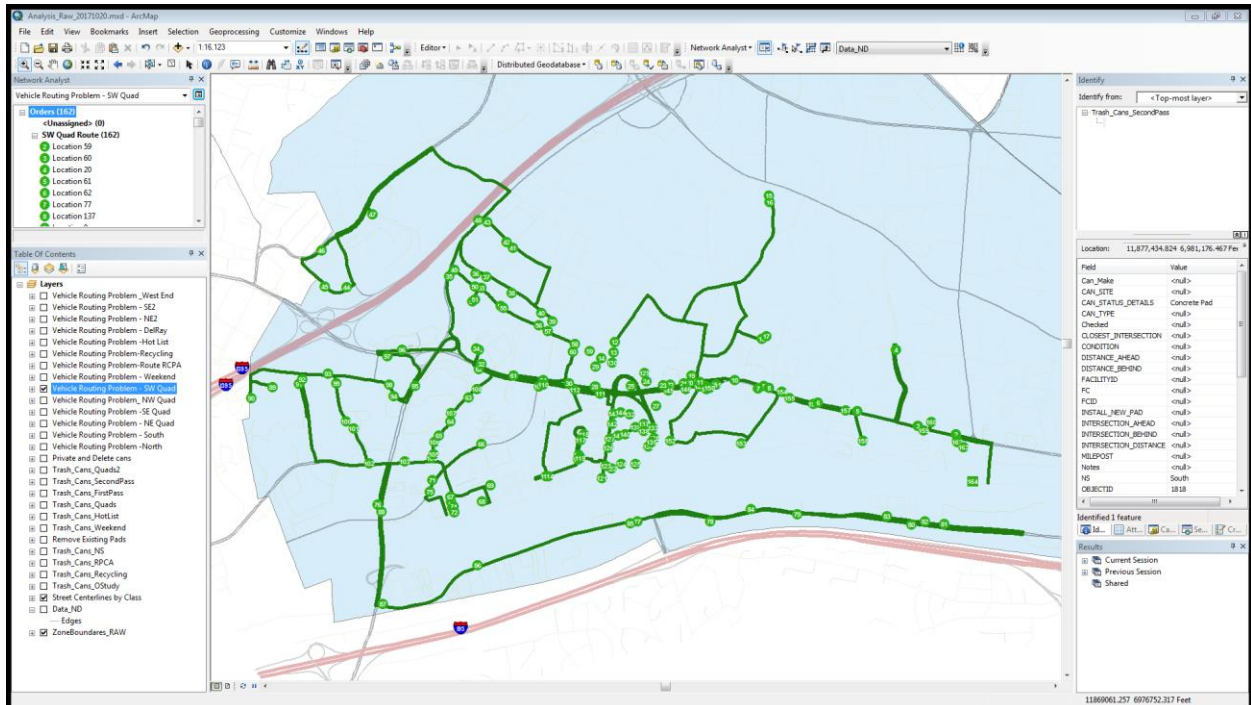
SE



NW



SW



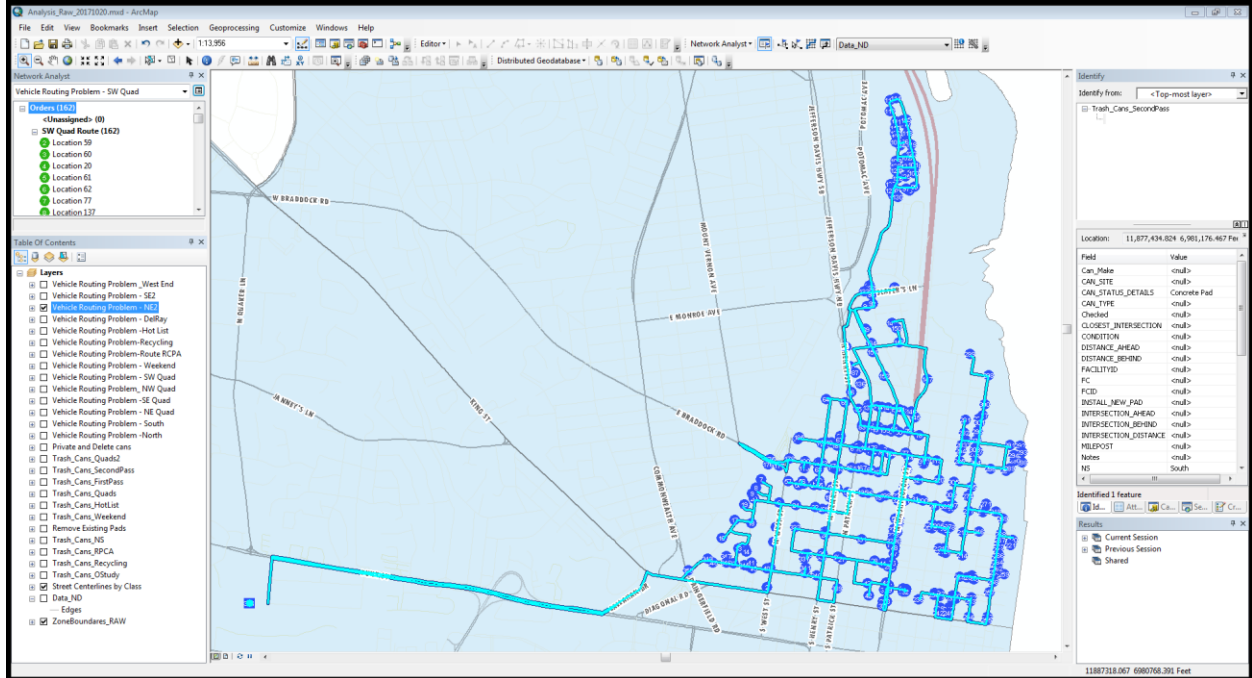
Assessment: The Quadrant routes are not recommended due to the time violations and the unbalanced collection numbers. Based on the routing the and the geography and the desire to balance out the number of cans along 4 routes the data was reassessed



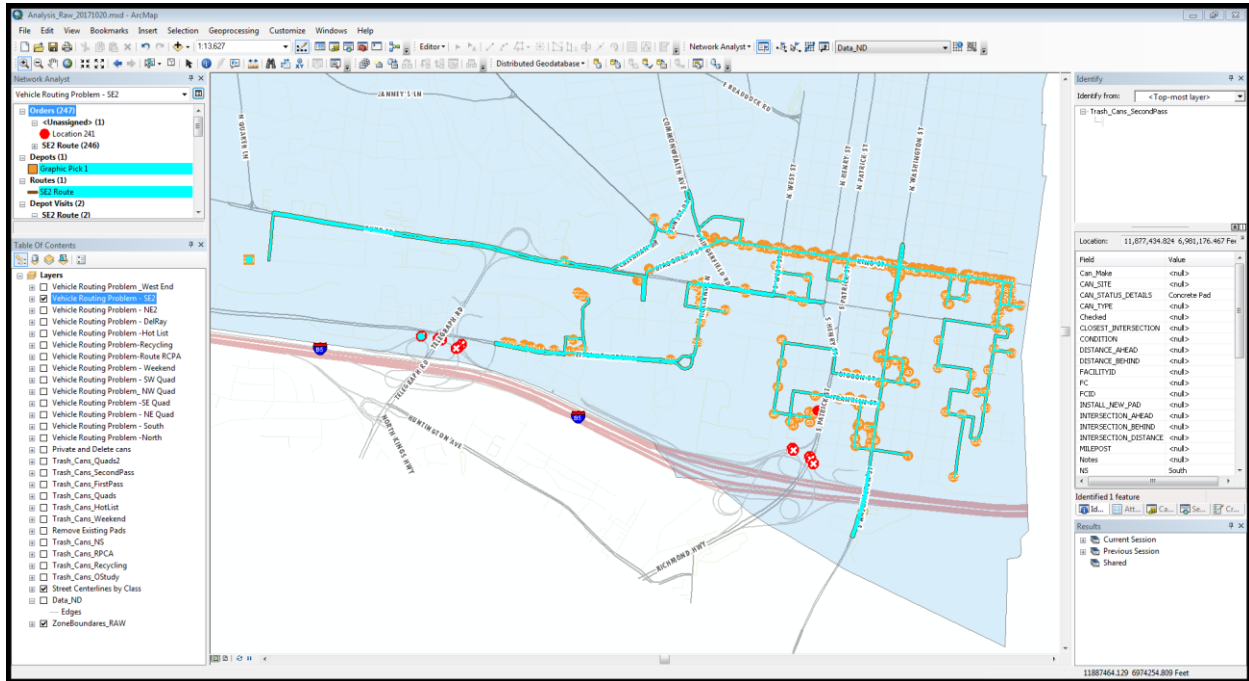
## Reevaluation Proposal 7:

Route Name	Number of Cans	Distance	TravelTime*
Del Ray Quad	351	37.8 miles	448 min
NE2 Quad	349	23.5 miles	408 min
SE2 Quad	247	17.4 miles	289 min
West End	272	61.0 miles	407 min

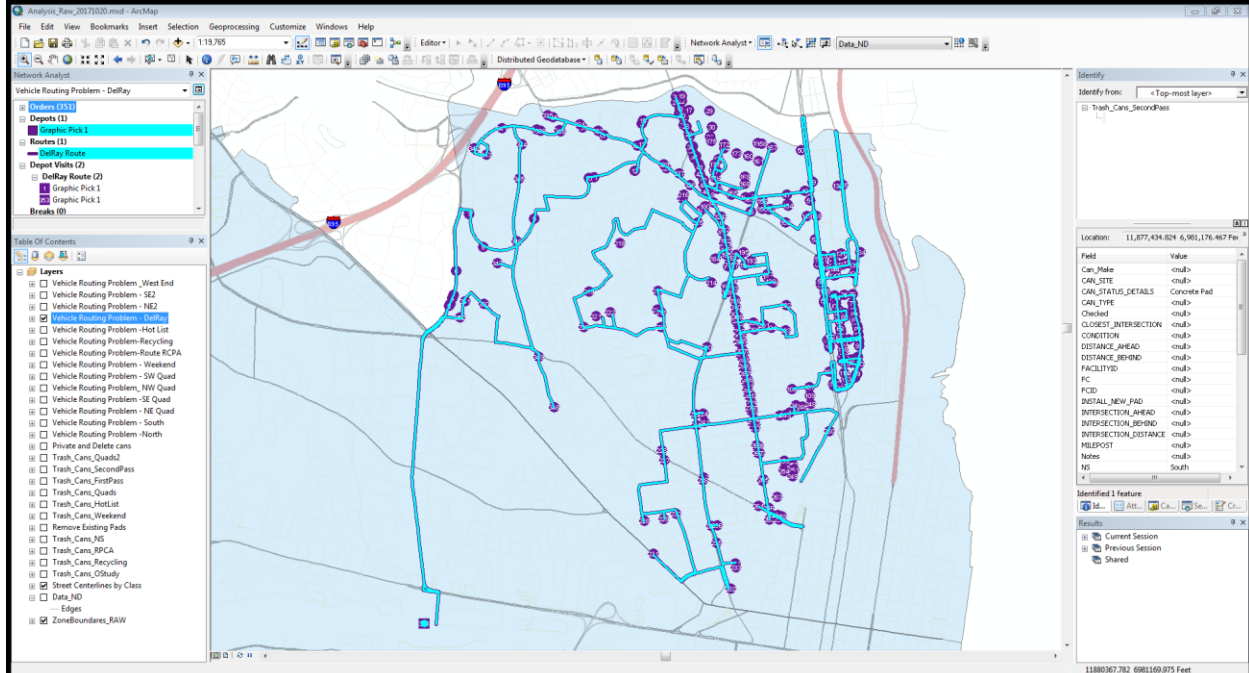
## NE2



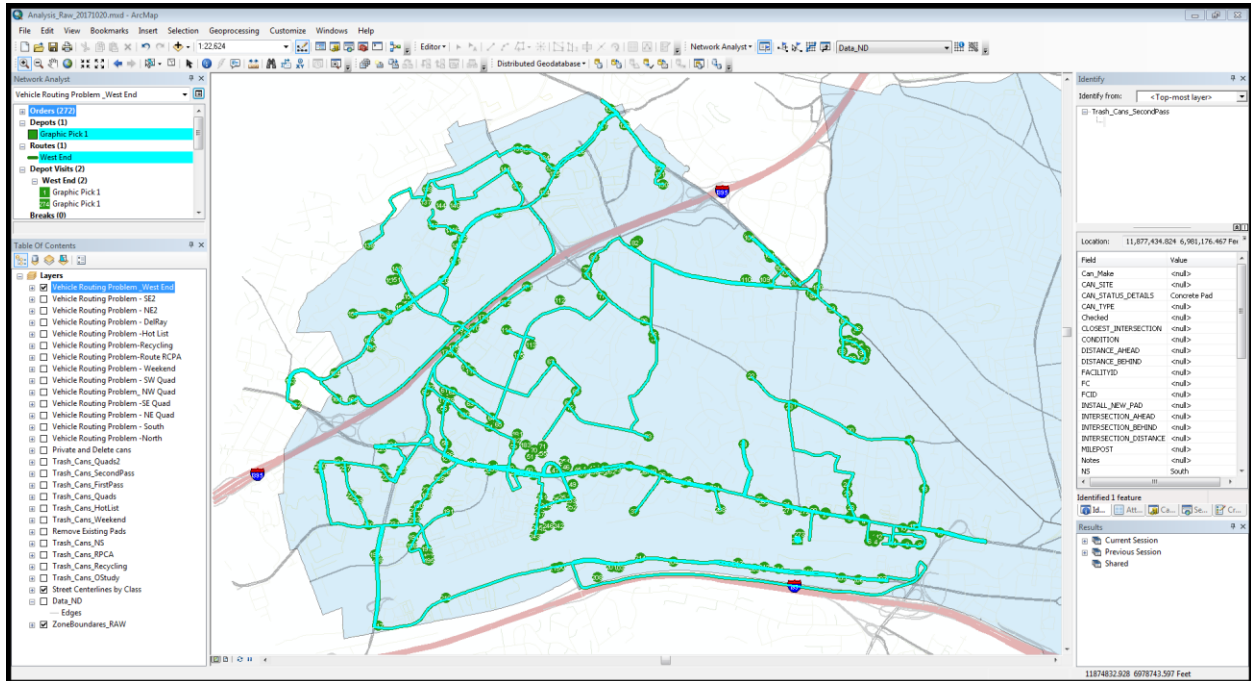
# SE2



# Del Ray



# West End



Assessment: The reevaluated Quadrant routes are viable routes.

Conclusion Raw Numbers First Pass

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Conclusion Reevaluated Routes

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