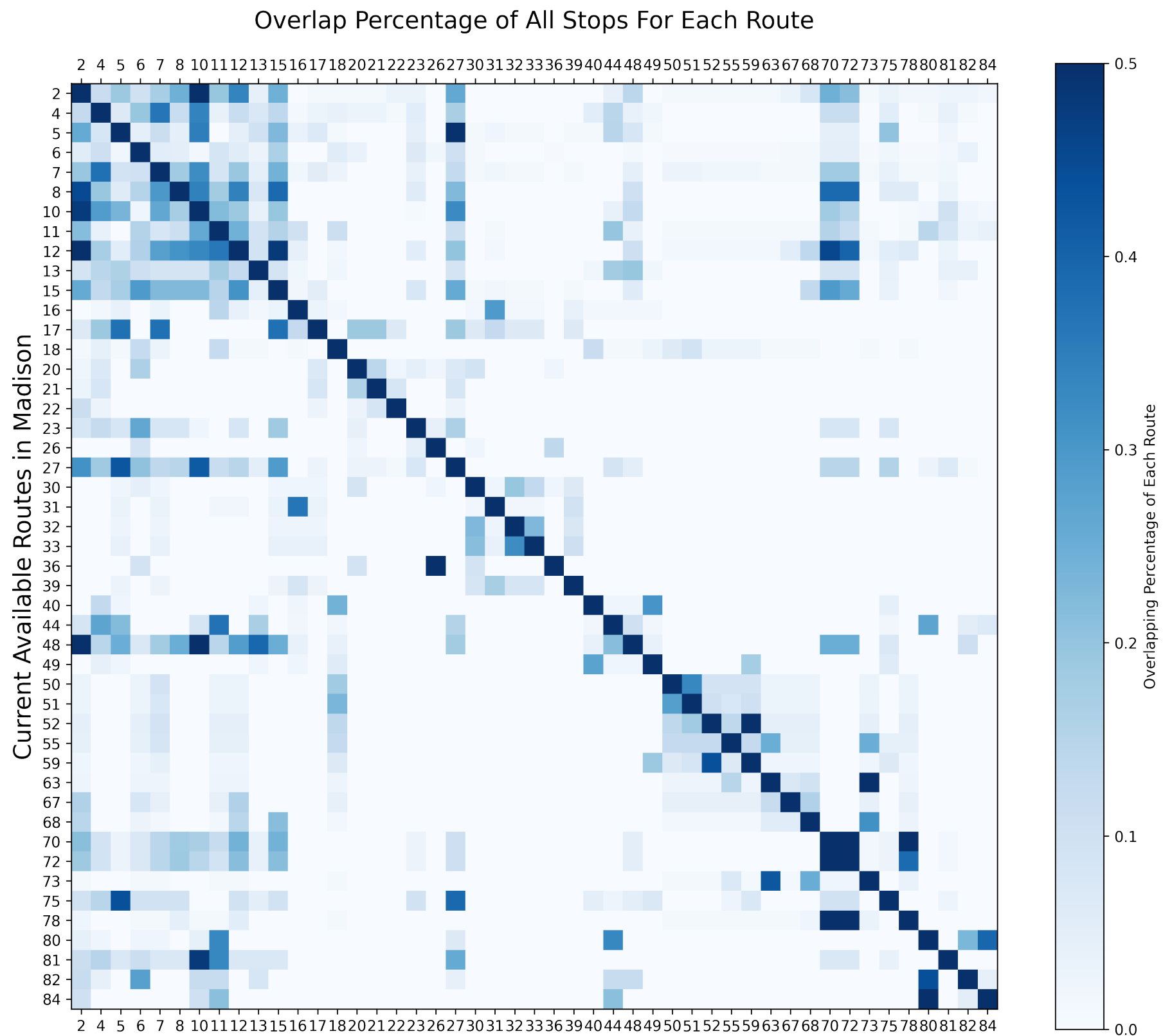


Madison Metro Transit Group

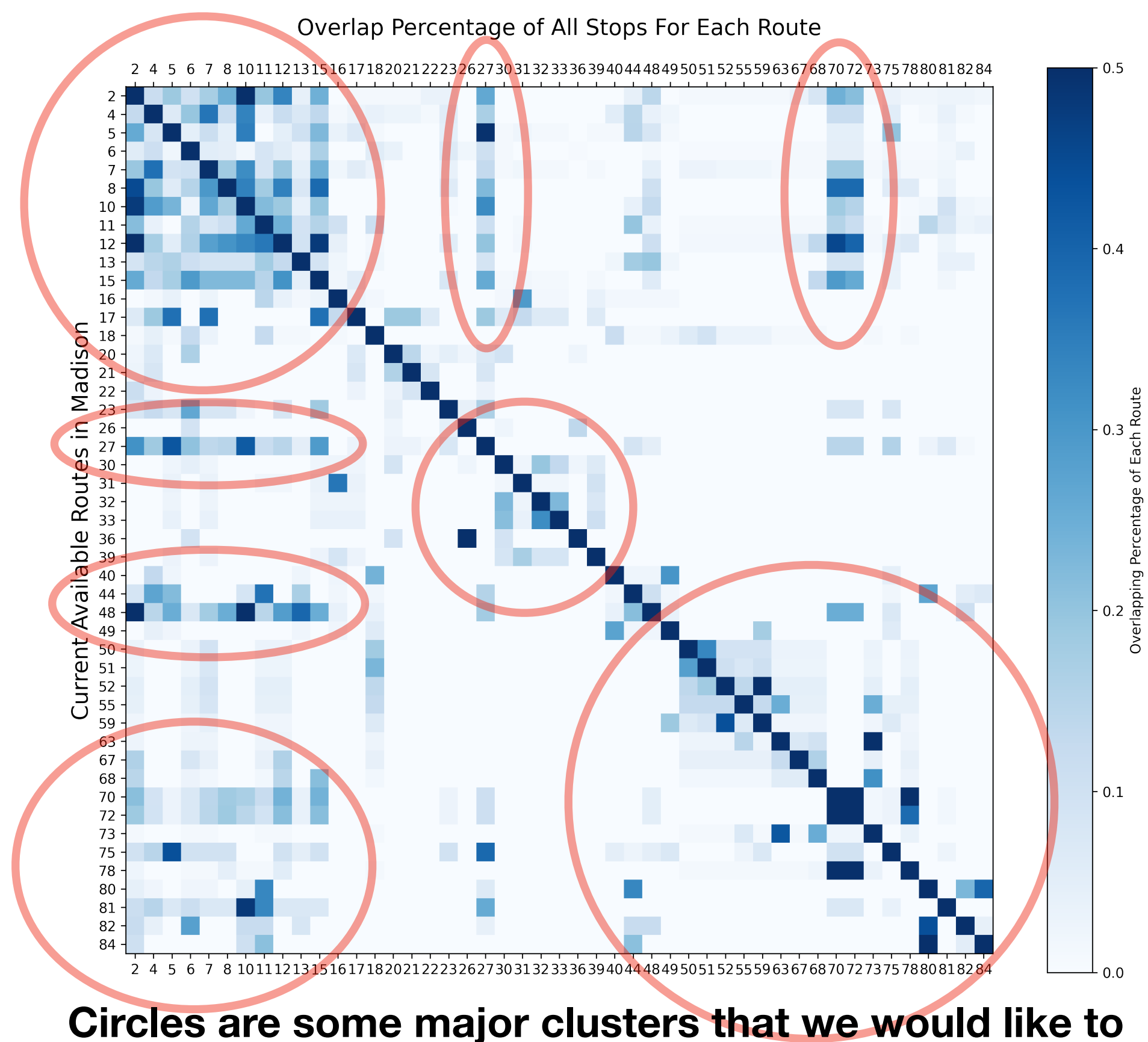
Oct 5th Report

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The colormap gives an overall picture of the percentages of each route overlapping on another.

Here, we set the threshold to be **0.5**, meaning that the percentage of any route overlapping with other routes will have the darkest blue



Circles are some major clusters that we would like to look into details with the percentage exceeding the threshold.

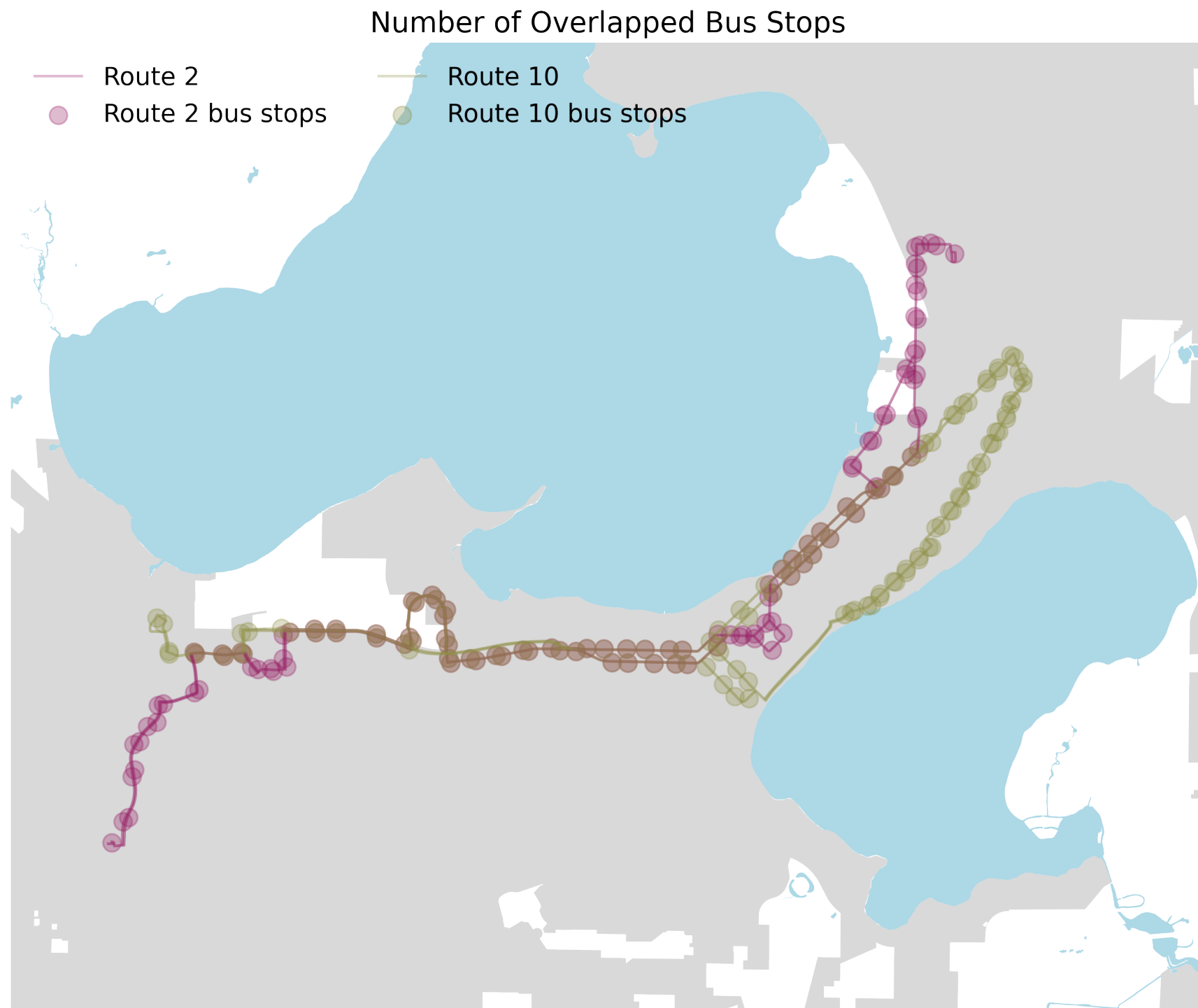
Quick Note:

Why is the overlap colormap not symmetric?

Although the **number** of overlaps between route 2 and route 10 is the same, but the **percentage** of route 2 overlapping route 10 \neq route 10 overlapping route 2, because:

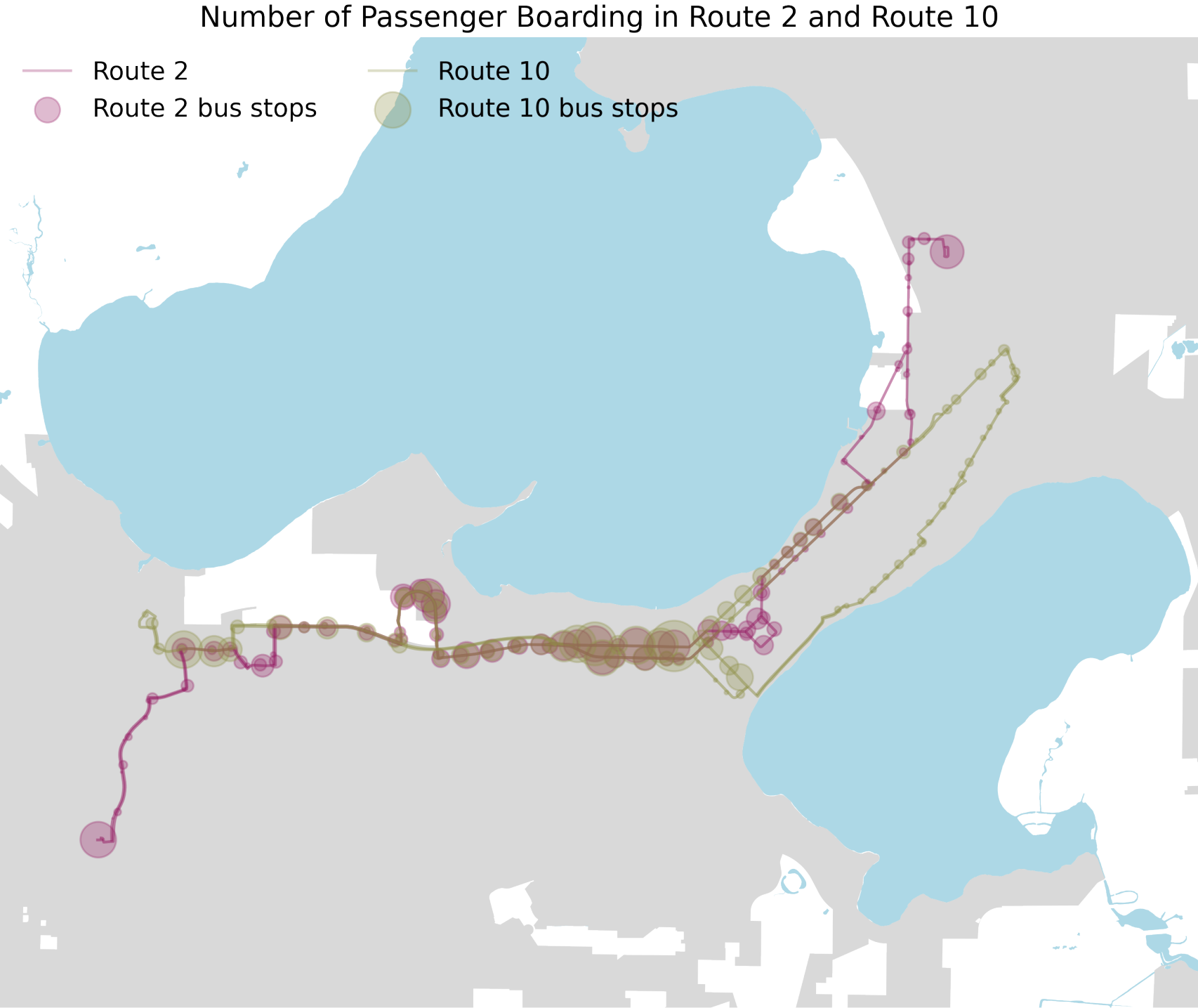
- Route 2 has 122 stops in total, and route 10 has 132
- There are 63 bus overlapped bus stops between them.
- Percentage of route 2 overlapping route 10 = $63/122 \approx 51.63\%$
- Percentage of route 10 overlapping route 2 = $63/132 \approx 47.73\%$

We start by looking at the overlaps between route 2 and route 10



The brownish colors are overlaps, and some overlaps that overlap with others are bus stops that are on the same street but different direction.

The larger scatters are stops that have a higher number of passenger boarding



Difficulties Encountered

My first aim was to find bus routes that have a larger percentage of overlapped stops with others, and see if it's possible to consolidate them in order to reduce the number of buses of different routes to run on an overlapped section; however, I found it to be challenging without first knowing some information about a specific route.

Therefore, my plan for next week is to look at each individual route and calculate the distance and boarding number between stops.

Question is that there are too many stops to be displayed all at once, so I'm thinking I'll split the bus stops first from opposite direction, then split the locations of them to be West/East or North/South. This way I could do better at visualizing the differences.

My Plan for Next Week:

A part of all stops. / improve travel time
of one route. for a section of the route.

