```
library(tidyverse)
library(ggraph)
library(sf)
library(sfnetworks)
```

```
bk_name <- "Brooklyn"
bk_county_code <- "047"
bk_parks <- "BK99"
```

Graph desire lines

Places nodes and edges in data frame

```
nta_trips <- readr::read_csv('./data/nta-trip-network.csv')
nta_trip_nodes <- sf::st_read('./data/nyc_2010_nta_borders.geojson') %>%
  dplyr::filter(BoroName == bk_name)  %>%
  dplyr::filter(NTACode != bk_parks) %>%
  select("NTACode") %>%
  mutate(geometry = sf::st_point_on_surface(geometry))
```

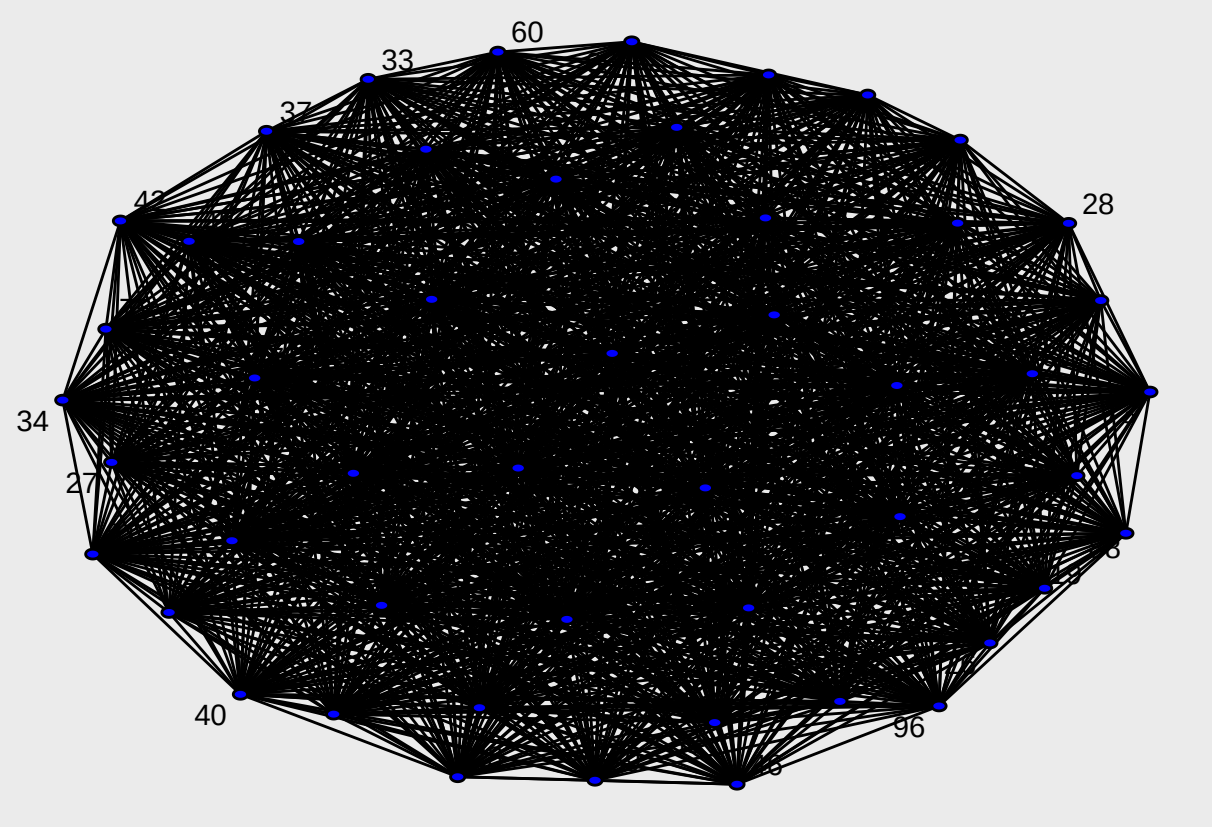
```
## Reading layer `nyc_2010_nta_borders' from data source
##   `/home/miller/GeoI/fall-2022/gtech_705-spatial_anlysis/triboro-line/brooklyn-lodes/data/nyc_2010_nt
##   using driver `GeoJSON'
## Simple feature collection with 195 features and 8 fields
## Geometry type: MULTIPOLYGON
## Dimension:     XY
## Bounding box:  xmin: -74.25559 ymin: 40.49614 xmax: -73.70001 ymax: 40.91554
## Geodetic CRS:  WGS 84
```

```
## Warning in st_point_on_surface.sfc(geometry): st_point_on_surface may not give
## correct results for longitude/latitude data
```

```
nta_trip_edges <- tibble::tibble(from = nta_trips$nta_code_one, to = nta_trips$nta_code_two, weight = nt
nta_trip_graph <- sfnetworks::sfnetwork(nodes = nta_trip_nodes, edges = nta_trip_edges, node_key = 'NTAC
```

```
ggraph::ggraph(nta_trip_graph, layout="stress") +
  geom_edge_link() +
  geom_node_circle(aes(r = 0.01), fill = "blue") +
  geom_node_text(aes(label = stringr::str_sub(NTACode, 3,4)), repel = TRUE)
```

```
## Warning: Using the `size` aesthetic in this geom was deprecated in ggplot2 3.4.0.
## i Please use `linewidth` in the `default_aes` field and elsewhere instead.
```



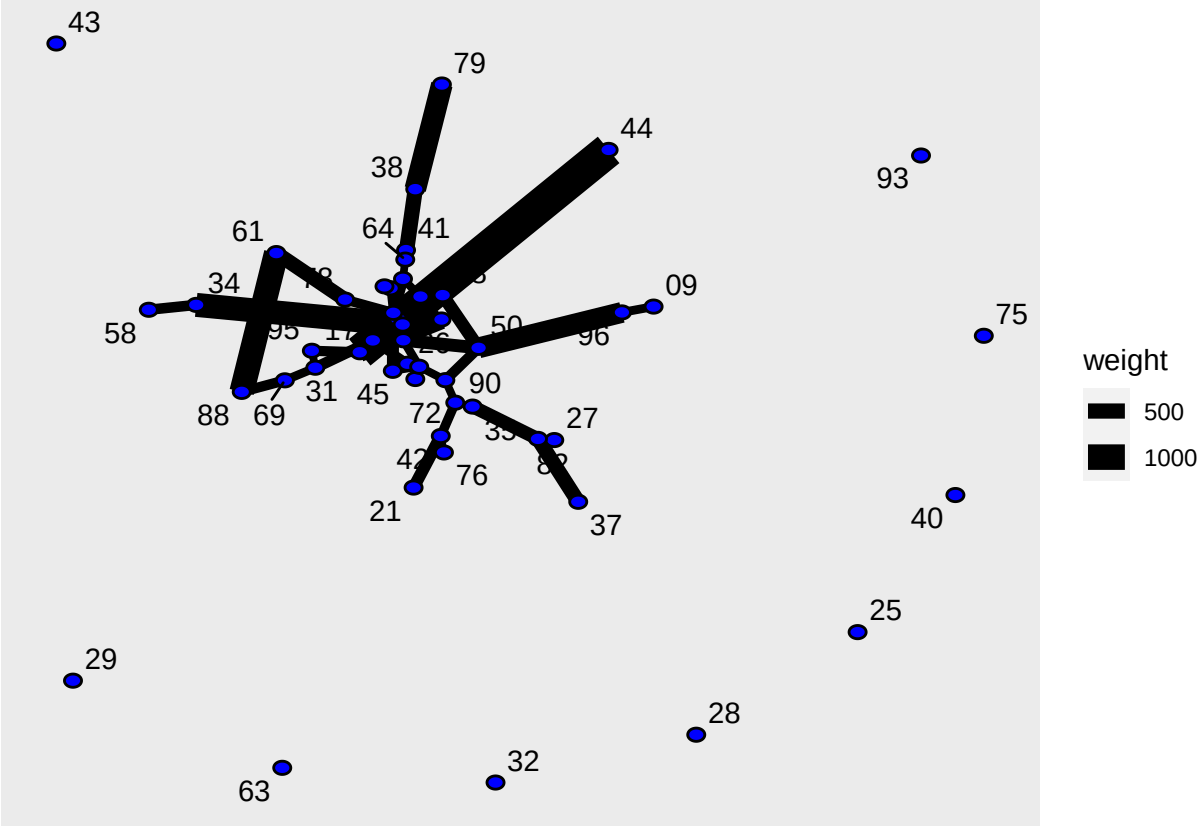
Subgraph

Random Sample

```
nta_trip_edges_rand <- nta_trip_edges %>%
  dplyr::slice_sample(n = 50)
nta_trip_graph_rand <- sfnetworks::sfnetwork(nodes = nta_trip_nodes, edges = nta_trip_edges_rand, node_
```

```
ggraph::ggraph(nta_trip_graph_rand, layout="kk") +
  geom_edge_link(mapping = aes(edge_width = weight)) +
  geom_node_circle(aes(r = 0.1), fill = "blue") +
  geom_node_text(aes(label = stringr::str_sub(NTACode, 3,4)), repel = TRUE)
```

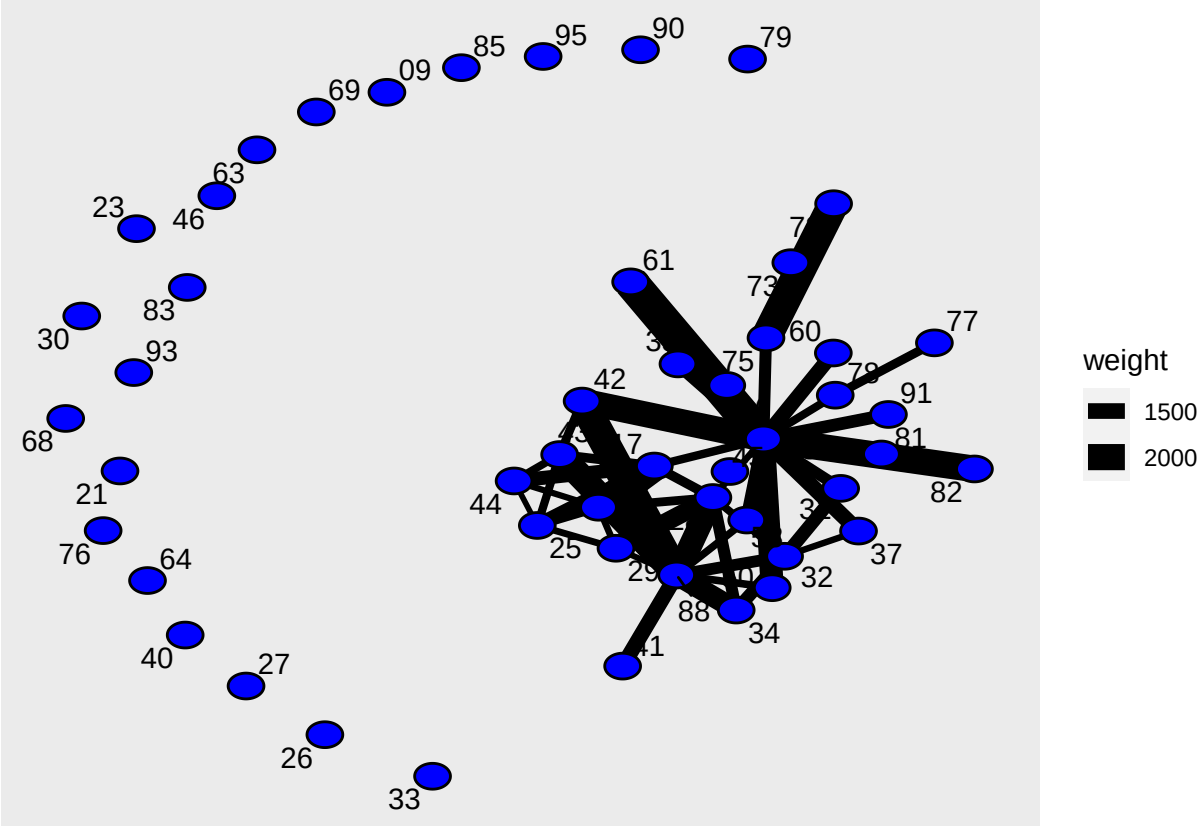
```
## Warning: ggrepel: 12 unlabeled data points (too many overlaps). Consider
## increasing max.overlaps
```



Most popular commutes

```
nta_trip_edges_top <- nta_trip_edges %>%
  dplyr::slice_max(order_by = weight, n = 50)
nta_trip_graph_top <- sfnetworks::sfnetwork(nodes = nta_trip_nodes, edges = nta_trip_edges_top, node_ke
```

```
ggraph::ggraph(nta_trip_graph_top, layout="kk") +
  geom_edge_link(mapping = aes(edge_width = weight)) +
  geom_node_circle(aes(r = 0.2), fill = "blue") +
  geom_node_text(aes(label = stringr::str_sub(NTACode, 3,4)), repel = TRUE)
```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