

Mini Project #1

Fiscal Characteristics of Major US Public Transit Systems

In this project, we will be analyzing the data of major public transit systems around the US. Specifically we are looking for ways to measure which transit systems perform well and which do not. Which modes of transport provide the most revenue? What was the impact of the COVID-19 pandemic on the performance of American Public Transit Systems? Using the official government data, we will dig deep into it and find out.

Downloading and Cleaning the Data

```
library(tidyverse)
FARES <- readxl::read_xlsx("2022_fare_revenue.xlsx") |>
  select(-`State/Parent NTD ID`,
         -`Reporter Type`,
         -`Reporting Module`,
         -`TOS`,
         -`Passenger Paid Fares`,
         -`Organization Paid Fares`) |>
  filter(`Expense Type` == "Funds Earned During Period") |>
  select(-`Expense Type`) |>
  group_by(`NTD ID`,          # Sum over different `TOS` for the same `Mo
         `Agency Name`,     # These are direct operated and sub-contract
         `Mode`) |>         # of the same transit modality
  # Not a big effect in most munis (significant DO
  # tends to get rid of sub-contractors), but we'll sum
  # to unify different passenger experiences
  summarize(`Total Fares` = sum(`Total Fares`)) |>
  ungroup()
EXPENSES <- readr::read_csv("2022_expenses.csv") |>
  select(`NTD ID`,
         `Agency`,
```

```
      `Total`,
      `Mode`) |>
mutate(`NTD ID` = as.integer(`NTD ID`)) |>
rename(Expenses = Total) |>
group_by(`NTD ID`, `Mode`) |>
summarize(Expenses = sum(Expenses)) |>
ungroup()
FINANCIALS <- inner_join(FARES, EXPENSES, join_by(`NTD ID`, `Mode`))
TRIPS <- readxl::read_xlsx("ridership.xlsx", sheet="UPT") |>
  filter(`Mode/Type of Service Status` == "Active") |>
  select(-`Legacy NTD ID`,
        -`Reporter Type`,
        -`Mode/Type of Service Status`,
        -`UACE CD`,
        -`TOS`) |>
  pivot_longer(-c(`NTD ID`:`3 Mode`),
               names_to="month",
               values_to="UPT") |>
  drop_na() |>
  mutate(month=my(month)) # Parse _m_onth _y_ear date specs
MILES <- readxl::read_xlsx("ridership.xlsx", sheet="VRM") |>
  filter(`Mode/Type of Service Status` == "Active") |>
  select(-`Legacy NTD ID`,
        -`Reporter Type`,
        -`Mode/Type of Service Status`,
        -`UACE CD`,
        -`TOS`) |>
  pivot_longer(-c(`NTD ID`:`3 Mode`),
               names_to="month",
               values_to="VRM") |>
  drop_na() |>
  group_by(`NTD ID`, `Agency`, `UZA Name`,
          `Mode`, `3 Mode`, month) |>
  summarize(VRM = sum(VRM)) |>
  ungroup() |>
  mutate(month=my(month)) # Parse _m_onth _y_ear date specs
USAGE <- inner_join(TRIPS, MILES) |>
  mutate(`NTD ID` = as.integer(`NTD ID`))
```

```
if(!require("DT")) install.packages("DT")
library(DT)
```

Initial Look at the Data

```
sample_n(USAGE, 1000) |>
  mutate(month=as.character(month)) |>
  DT::datatable()
```

Show

10 ▼

 entries

Search:

	NTD ID	Agency	UZA Name	Mode	3 Mode	month
1	50209	Central Indiana Regional Transportation Authority	Indianapolis, IN	MB	Bus	2022-11-01
2	30006	Greater Richmond Transit Company	Richmond, VA	DR	Bus	2004-01-01
3	50096	City of Waukesha	Milwaukee, WI	MB	Bus	2015-08-01
4	40180	University of Georgia	Athens-Clarke County, GA	DR	Bus	2016-05-01
5	50017	Greater Dayton Regional	Dayton, OH	DR	Bus	2011-06-01

	NTD ID	Agency	UZA Name	Mode	3 Mode	month
		Transit Authority				
6	30001	Kanawha Valley Regional Transportation Authority	Charleston, WV	MB	Bus	2023-04-01
7	30075	Delaware Transit Corporation	Philadelphia, PA--NJ--DE--MD	DR	Bus	2017-12-01
8	90087	City of Santa Maria	Santa Maria, CA	DR	Bus	2021-04-01
9	30103	Martz Group, National Coach Works of Virginia	Washington--Arlington, DC--VA--MD	CB	Bus	2013-11-01
10	90019	Sacramento Regional Transit District	Sacramento, CA	MB	Bus	2017-07-01

Showing 1 to 10 of 1,000 entries

Task 1

If we look at the data, we see the column *UZA NAME*, which is an unclear name for this factor. Looking closer we will notice that what its really describing is the

metro area the transit system is located. So let's rename said column.

```
USAGE <- rename(USAGE, metro_area = `UZA Name`)
```

Task 2

If we take a look at the modes, we see two letter codes but they are unclear what they stand for. We can find what different kind of modes the data lists quite easily.

```
distinct(USAGE, Mode)
```

```
# A tibble: 18 × 1
```

```
  Mode
```

```
  <chr>
```

```
1 DR
2 FB
3 MB
4 SR
5 TB
6 VP
7 CB
8 RB
9 LR
10 YR
11 MG
12 CR
13 AR
14 TR
15 HR
16 IP
17 PB
18 CC
```

Now we can find the interpretations of the codes on the NTD website and rename them in our data so it can be better understood. While we are at it we might as well rename the UPT and VRM columns to expand off of an unclear acronym. **3 Mode** won't be used either so we might as well drop that.

```
USAGE <- USAGE |>
  mutate(Mode=case_when(
    Mode == "HR" ~ "Heavy Rail",
    Mode == "LR" ~ "Light Rail",
    Mode == "AR" ~ "Alaska Railroad",
    Mode == "CB" ~ "Commuter Bus",
    Mode == "CR" ~ "Commuter Rail",
    Mode == "DR" ~ "Demand Response",
    Mode == "FB" ~ "Ferryboat",
    Mode == "IP" ~ "Inclined Plane",
    Mode == "MB" ~ "Bus",
    Mode == "MG" ~ "Monorail/Automated Guideway",
    Mode == "RB" ~ "Bus Rapid Transit",
    Mode == "SR" ~ "Streetcar Rail",
    Mode == "TB" ~ "Trolleybus",
    Mode == "VP" ~ "Vanpool",
    Mode == "YR" ~ "Hybrid Rail",
    Mode == "CC" ~ "Cable Car",
    Mode == "TR" ~ "Aerial Tramway",
    Mode == "PB" ~ "Publico",
    TRUE ~ "Unknown"))

USAGE <- USAGE |>
  select(-`3 Mode`) |>
  rename(`Unlinked Passenger Trips` = UPT,
        `Vehicle Revenue Miles` = VRM)

sample_n(USAGE, 1000) |>
  mutate(month=as.character(month)) |>
  DT::datatable()
```

Show  entriesSearch:

	NTD ID	Agency	metro_area	Mode	month	Ur Pas
1	40159	Regional Transportation Authority	Nashville-Davidson, TN	Commuter Rail	2013-10-01	
2	80007	City of Pueblo	Pueblo, CO	Demand Response	2002-06-01	
3	44	Skagit Transit	Mount Vernon, WA	Bus	2022-10-01	
4	10004	Brockton Area Transit Authority	Boston, MA--NH	Bus	2019-01-01	
5	40035	Central Florida Regional Transportation Authority	Orlando, FL	Demand Response	2023-06-01	
6	90014	Alameda-Contra Costa Transit District	San Francisco--Oakland, CA	Bus	2015-08-01	
7	60008	Metropolitan Transit Authority of Harris County, Texas	Houston, TX	Vanpool	2020-02-01	

	NTD ID	Agency	metro_area	Mode	month	Ur Pas
8	50149	Michiana Area Council of Governments	Elkhart, IN--MI	Demand Response	2009-06-01	
9	90090	Yolo County Transportation District	Sacramento, CA	Demand Response	2020-08-01	
10	70019	University of Iowa	Iowa City, IA	Demand Response	2003-02-01	

Showing 1 to 10 of 1,000 entries

Now we can see our new and improved data set.

Task 3

Now that the data is cleaned and is more readable, we can now go in and analyze and answer some questions about the data.

1. What transit agency had the most total VRM in our data set?

```
USAGE |>
  group_by(Agency) |>
  summarize(Total_Miles = sum(`Vehicle Revenue Miles`)) |>
  arrange(desc(Total_Miles))
```

```
# A tibble: 677 × 2
  Agency
Total_Miles
<chr>
```



```

<dbl>
  1 MTA New York City Transit
10832855350
  2 New Jersey Transit Corporation
5645525525
  3 Los Angeles County Metropolitan Transportation Authority
4354016659
  4 Washington Metropolitan Area Transit Authority
2821950701
  5 Chicago Transit Authority
2806202144
  6 Southeastern Pennsylvania Transportation Authority
2672630410
  7 Massachusetts Bay Transportation Authority
2383967378
  8 Pace, the Suburban Bus Division of the Regional Transportation
A... 2379409930
  9 Metropolitan Transit Authority of Harris County, Texas
2272940948
 10 Denver Regional Transportation District
1991411970
# i 667 more rows

```

Should come as no surprise that the MTA has the most VRM or Vehicle Revenue Miles in our data set.

2. What transit mode had the most total VRM in our data set?

```

USAGE |>
  group_by(Mode) |>
  summarize(Total_Miles = sum(`Vehicle Revenue Miles`)) |>
  arrange(desc(Total_Miles))

```

```
# A tibble: 18 × 2
```

Mode	Total_Miles
<chr>	<dbl>
1 Bus	49444494088
2 Demand Response	17955073508
3 Heavy Rail	14620362107
4 Commuter Rail	6970644241

5 Vanpool	3015783362
6 Light Rail	2090094714
7 Commuter Bus	1380948975
8 Publico	1021270808
9 Trolleybus	236840288
10 Bus Rapid Transit	118425283
11 Ferryboat	65589783
12 Streetcar Rail	63389725
13 Monorail/Automated Guideway	37879729
14 Hybrid Rail	37787608
15 Alaska Railroad	13833261
16 Cable Car	7386019
17 Inclined Plane	705904
18 Aerial Tramway	292860

As we see here, Bus is the mode of transport with the greatest Revenue Miles by quite a large margin.

3. How many trips were taken on the NYC Subway (Heavy Rail) in May 2024?

```
USAGE |>
  filter(Agency == "MTA New York City Transit", Mode == "Heavy Rail")
  select(`Unlinked Passenger Trips`)
```

```
# A tibble: 1 × 1
  `Unlinked Passenger Trips`
      <dbl>
1      180458819
```

A whopping 180,458,819 trips in one month!

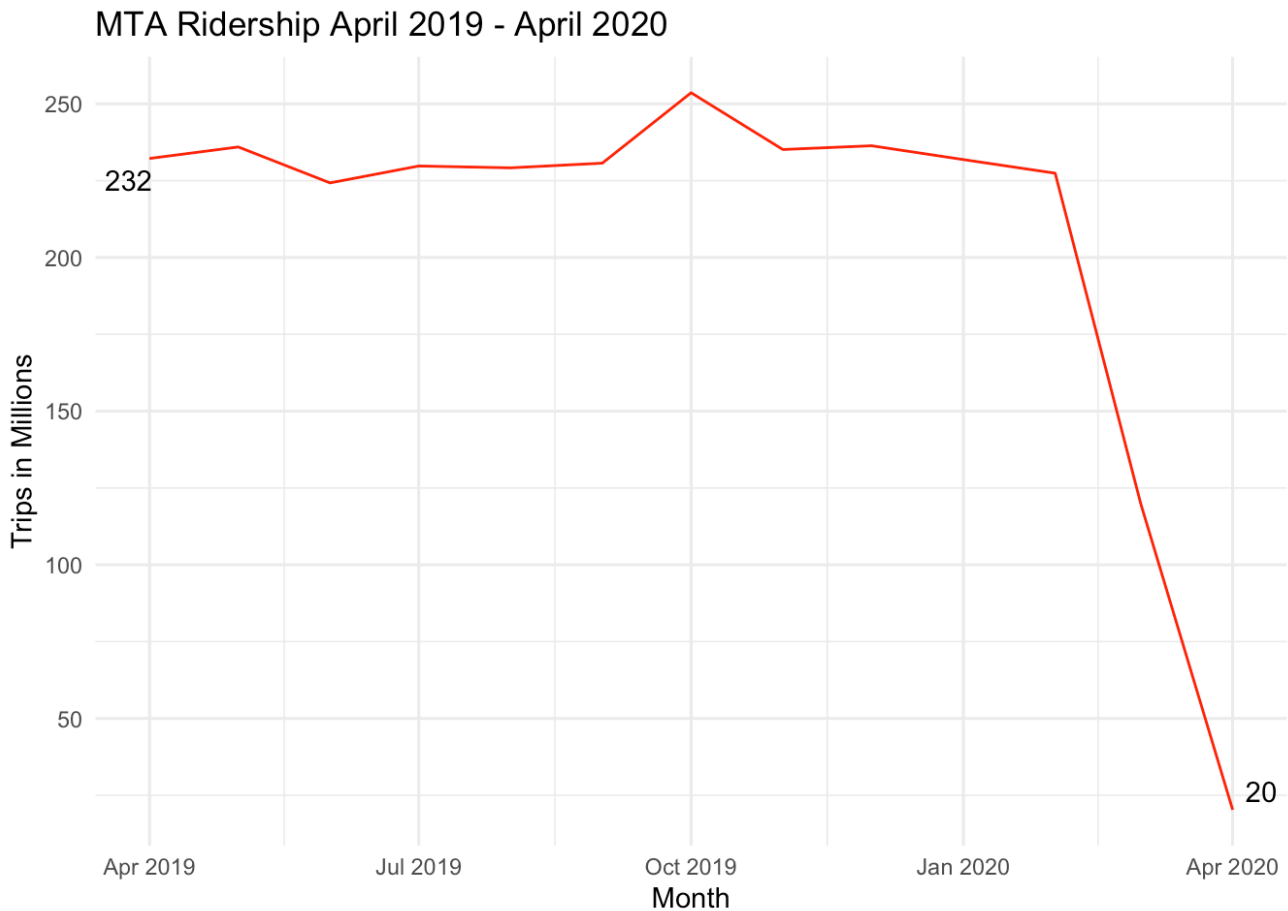
5. How much did NYC subway ridership fall between April 2019 and April 2020?

```
library(ggplot2)
April2019 <- USAGE |>
  filter(Agency == "MTA New York City Transit", Mode == "Heavy Rail")
April2020 <- USAGE |>
  filter(Agency == "MTA New York City Transit", Mode == "Heavy Rail")
USAGE |>
  filter(Agency == "MTA New York City Transit", Mode == "Heavy Rail")
```

```

month <= as.Date("2020-04-01")) |>
ggplot(aes(month, `Unlinked Passenger Trips`/1000000, label = ro
geom_line(color = "red") +
geom_text_repel(data = April2019) +
geom_text_repel(data = April2020) +
labs(title = "MTA Ridership April 2019 - April 2020", x = "Month

```



As we can see by the graph, the subway ridership fell by a staggering **212 million** trips when comparing between April 2019 to a year later in April 2020.

Task 4

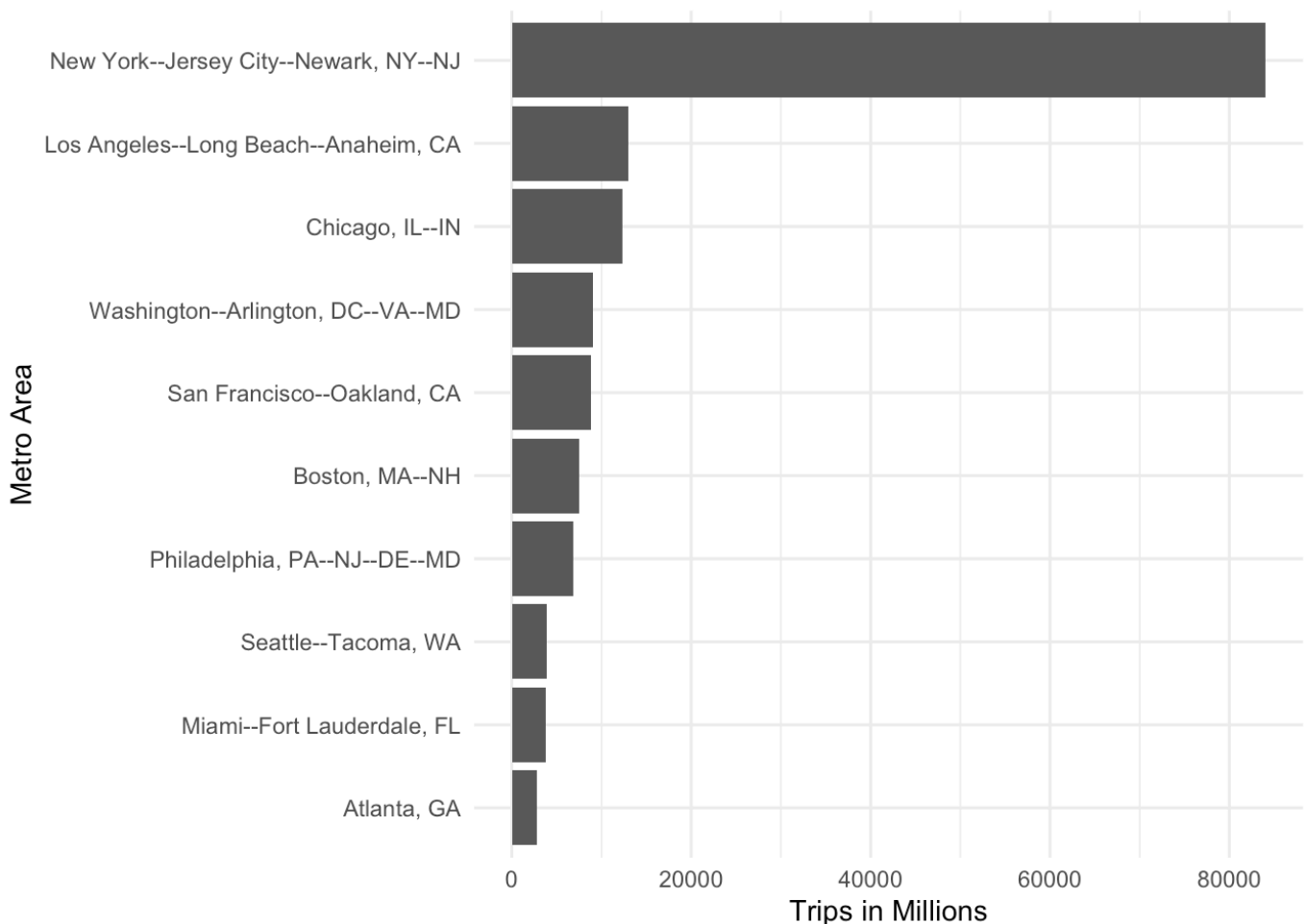
Given free reign, here are a few more interesting facts I found while exploring this data set.

Most Used Transit Systems

```

USAGE |>
  group_by(metro_area) |>
  summarise(Trips = sum(`Unlinked Passenger Trips`)/1000000) |>
  arrange(desc(Trips)) |>
  slice_head(n = 10) |>
  ggplot(aes(Trips, reorder(factor(metro_area, levels = metro_area), T
  geom_bar(stat = "identity") +
  labs(x = "Trips in Millions", y = "Metro Area") +
  theme_minimal()

```

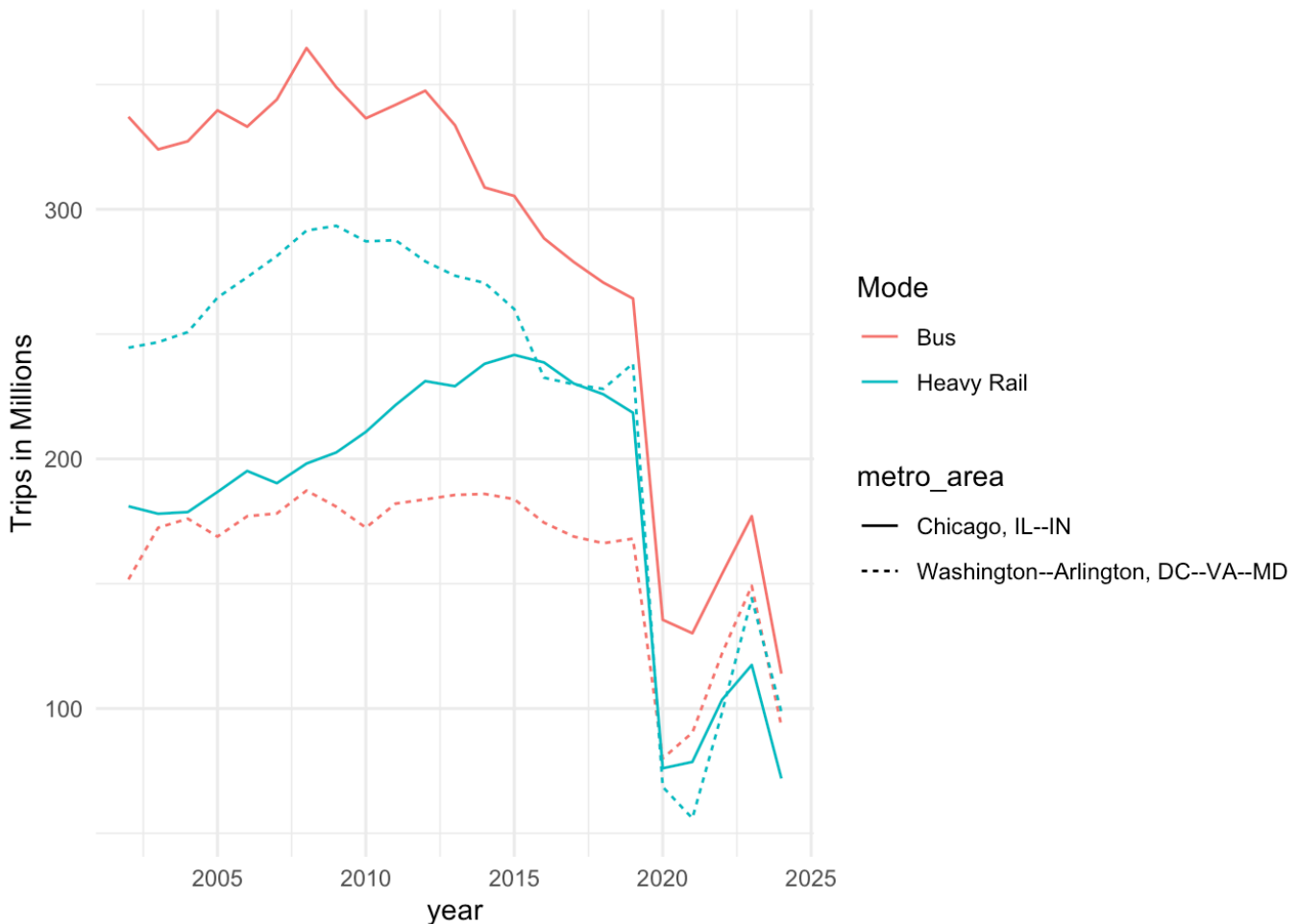


While looking at the top transit systems in the country by number of trips, it is interesting to note that it doesn't necessarily scale to the population of the city. While NYC, LA and Chicago are in fact the 3 biggest cities in the country, number 4 and 5 are nowhere to be seen! That being Houston and Phoenix respectively. Surely one would think these massive cities would be somewhere in the top 10 in terms of ridership? Washington, D.C. the 4th spot on our list is only the 22nd

biggest city in the US! This tells us a lot about which cities have significant investment in public transport and which do not.

Comparing Pre and Post Pandemic Ridership

```
options(dplyr.summarise.inform = FALSE)
USAGE |>
  filter(metro_area == "Chicago, IL--IN" | metro_area == "Washington--Arlington, DC--VA--MD") |>
  filter(Mode == "Bus" | Mode == "Heavy Rail") |>
  mutate(year = year(month)) |>
  group_by(Mode, year, metro_area) |>
  summarise(Trips = sum(`Unlinked Passenger Trips`)/1000000) |>
  arrange(desc(Trips)) |>
  ggplot(aes(year, Trips)) +
  geom_line(aes(color = Mode, linetype = metro_area)) +
  labs(y = "Trips in Millions") +
  theme_minimal()
```



It was really interesting to see here that despite subway ridership far exceeding bus ridership pre-pandemic, post-pandemic those numbers have reached essentially equality. Even after the pandemic recovery, the subway ridership is nowhere near what it used to be pre-pandemic.

Top Ferry-goers

```
USAGE |>
  filter(Mode == "Ferryboat") |>
  group_by(metro_area) |>
  summarise(Trips = sum(`Unlinked Passenger Trips`)) |>
  arrange(desc(Trips))
```

```
# A tibble: 19 × 2
  metro_area      Trips
  <chr>          <dbl>
1 New York--Jersey City--Newark, NY--NJ 556020462
2 Seattle--Tacoma, WA                    512558671
3 San Francisco--Oakland, CA             67933567
4 Barnstable Town, MA                    31625549
5 Boston, MA--NH                         28553164
6 Portland, ME                           20815497
7 Savannah, GA                           11115339
8 New Orleans, LA                        10284200
9 Virginia Beach--Norfolk, VA            6816200
10 San Juan, PR                           4532294
11 Bremerton, WA                          4289795
12 Jacksonville, FL                       3361916
13 Atlantic City--Ocean City--Villas, NJ 2538572
14 Baltimore, MD                          2197974
15 Chicago, IL--IN                       1843467
16 Miami--Fort Lauderdale, FL             629692
17 Davenport, IA--IL                     447079
18 Providence, RI--MA                     257323
19 Oklahoma City, OK                      81291
```

I thought it would be interesting to take a look at which cities have the most ferry trips. Ferries are an often forgotten mode of transport so I was curious as to which cities might show up. Surprisingly, some much smaller cities that I never

would have thought of make it really high on the list like my personal favorite Portland, Maine (way better than Portland, Oregon). And I don't know about you but I have never heard of Barnstable Town, MA before. (Sorry if you are from there)

Task 5

Finally we are ready to combine our table with the corresponding financial data.

Specifically we will be looking at the revenue and expense data of 2022.

```
USAGE <- inner_join(TRIPS, MILES) |>
  mutate(`NTD ID` = as.integer(`NTD ID`))
```

Joining with `by = join_by(`NTD ID`, Agency, `UZA Name`, Mode, `3
Mode`,
month)`

```
USAGE <- rename(USAGE, metro_area = `UZA Name`)
USAGE_2022_ANNUAL <- USAGE |>
  mutate(year = year(month)) |>
  group_by(year, `NTD ID`, Agency, metro_area, Mode) |>
  summarize(UPT = sum(UPT), VRM = sum(VRM)) |>
  ungroup() |>
  filter(year == 2022) |>
  select(-year)
USAGE_AND_FINANCIALS <- left_join(USAGE_2022_ANNUAL,
                                FINANCIALS,
                                join_by(`NTD ID`, Mode)) |>
  drop_na()
```

Task 6

Now we are ready to answer our initial questions about which transit systems perform the best.

We will only take a look at systems with a significant enough amount of trips, so only systems with 400,000 trips or more will be considered.

1. Which transit system (agency and mode) had the most UPT in 2022?

```
USAGE_AND_FINANCIALS <- filter(USAGE_AND_FINANCIALS, UPT >= 400000
  arrange(USAGE_AND_FINANCIALS, desc(UPT))|>
  DT::datatable())
```

Show10▼entries

Search:

	NTD ID	Agency	metro_area	Mode	UPT
1	20008	MTA New York City Transit	New York-- Jersey City-- Newark, NY-- NJ	HR	1793073801
2	20008	MTA New York City Transit	New York-- Jersey City-- Newark, NY-- NJ	MB	458602305
3	90154	Los Angeles County Metropolitan Transportation Authority	Los Angeles-- Long Beach-- Anaheim, CA	MB	193637448
4	50066	Chicago Transit Authority	Chicago, IL-- IN	MB	140013945
5	20080	New Jersey Transit Corporation	New York-- Jersey City--	MB	112739990

	NTD ID	Agency	metro_area	Mode	UPT
			Newark, NY--NJ		
6	50066	Chicago Transit Authority	Chicago, IL--IN	HR	103524858
7	20188	MTA Bus Company	New York--Jersey City--Newark, NY--NJ	MB	100411771
8	30030	Washington Metropolitan Area Transit Authority	Washington--Arlington, DC--VA--MD	HR	98367576
9	30019	Southeastern Pennsylvania Transportation Authority	Philadelphia, PA--NJ--DE--MD	MB	96554641
10	30030	Washington Metropolitan Area Transit Authority	Washington--Arlington, DC--VA--MD	MB	89880435

Showing 1 to 10 of 496 entries

The MTA Subway (Heavy Rail) had the most UPT in 2022.

2. Which transit system (agency and mode) had the highest *farebox recovery*, defined as the highest ratio of Total Fares to Expenses?

```
USAGE_AND_FINANCIALS |>
  mutate(Farebox_recovery = `Total Fares`/Expenses) |>
  arrange(desc(Farebox_recovery)) |>
  DT::datatable()
```

Show

10

 entries

Search:

	NTD ID	Agency	metro_area	Mode	UPT	
1	20190	Port Imperial Ferry Corporation	New York-- Jersey City-- Newark, NY-- NJ	FB	3757873	
2	11239	Hyannis Harbor Tours, Inc.	Barnstable Town, MA	FB	878728	
3	20169	Trans-Bridge Lines, Inc.	New York-- Jersey City-- Newark, NY-- NJ	CB	403646	1
4	40001	Chattanooga Area Regional Transportation Authority	Chattanooga, TN--GA	IP	481957	

	NTD ID	Agency	metro_area	Mode	UPT	
5	90001	Regional Transportation Commission of Washoe County	Reno, NV--CA	VP	725712	5
6	20217	Hampton Jitney, Inc.	New York--Jersey City--Newark, NY--NJ	CB	521577	2
7	90094	Metropolitan Transportation Commission	San Francisco--Oakland, CA	VP	1024804	12
8	99422	San Joaquin Council	Stockton, CA	VP	819111	9
9	90095	San Diego Association of Governments	San Diego, CA	VP	989804	9
10	30070	Potomac and Rappahannock Transportation Commission	Washington--Arlington, DC--VA--MD	VP	539793	1

Showing 1 to 10 of 496 entries

The Port Imperial Ferry Corporation Ferryboat had the highest *farebox recovery* in 2022.

3. Which transit system (agency and mode) has the lowest expenses per UPT?

```
USAGE_AND_FINANCIALS |>
  mutate(Expenses_PerUPT = Expenses/UPT) |>
  arrange(Expenses_PerUPT) |>
  DT::datatable()
```

Show

10 ▾

 entries

Search:

	NTD ID	Agency	metro_area	Mode	UPT	
1	40147	North Carolina State University	Raleigh, NC	MB	2313091	!
2	90211	Anaheim Transportation Network	Los Angeles--Long Beach--Anaheim, CA	MB	7635011	8
3	70019	University of Iowa	Iowa City, IA	MB	2437750	5
4	40025	Chatham Area Transit Authority	Savannah, GA	FB	582988	
5	60269	Texas State University	San Marcos, TX	MB	2348943	:
6	40180	University of Georgia	Athens-Clarke County, GA	MB	2714941	4
7	40041	Hillsborough Area Regional Transit Authority	Tampa--St. Petersburg, FL	SR	1137177	.

	NTD ID	Agency	metro_area	Mode	UPT	
8	50158	University of Michigan Parking and Transportation Services	Ann Arbor, MI	MB	4754836	1
9	50015	The Greater Cleveland Regional Transit Authority	Cleveland, OH	RB	1538423	4
10	30091	Town of Blacksburg	Blacksburg-- Christiansburg, VA	MB	3322582	8

Showing 1 to 10 of 496 entries

The Bus system of North Carolina State University had the lowest expenses per UPT

4. Which transit system (agency and mode) has the highest total fares per UPT?

```
USAGE_AND_FINANCIALS |>
  mutate(Fares_PerUPT = `Total Fares`/UPT) |>
  arrange(desc(Fares_PerUPT)) |>
  DT::datatable()
```

	NTD ID	Agency	metro_area	Mode	UPT	
1	20217	Hampton Jitney, Inc.	New York-- Jersey City-- Newark, NY-- NJ	CB	521577	20
2	30057	Pennsylvania Department of Transportation	Philadelphia, PA--NJ--DE-- MD	CR	452034	19
3	11239	Hyannis Harbor Tours, Inc.	Barnstable Town, MA	FB	878728	1
4	20169	Trans-Bridge Lines, Inc.	New York-- Jersey City-- Newark, NY-- NJ	CB	403646	12
5	20226	SeaStreak, LLC	New York-- Jersey City-- Newark, NY-- NJ	FB	750392	1
6	10115	Northern New England Passenger Rail Authority	Portland, ME	CR	477367	25
7	20122	Academy Lines, Inc.	New York-- Jersey City-- Newark, NY-- NJ	CB	940697	27

	NTD ID	Agency	metro_area	Mode	UPT	
8	20128	Suburban Transit Corporation	New York-- Jersey City-- Newark, NY-- NJ	CB	634497	11
9	20126	Hudson Transit Lines, Inc.	New York-- Jersey City-- Newark, NY-- NJ	CB	1571923	39
10	8	Tri-County Metropolitan Transportation District of Oregon	Portland, OR-- WA	DR	490120	84

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Next

The CommuterBus of Altoona Hampton Jitney, Inc. had the highest total fares per UPT.

5. Which transit system (agency and mode) has the lowest expenses per VRM?

```
USAGE_AND_FINANCIALS |>
  mutate(Expenses_PerVRM = Expenses/VRM) |>
  arrange(Expenses_PerVRM) |>
  DT::datatable()
```

Show

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entries

Search:

	NTD ID	Agency	metro_area	Mode	UPT	
1	90094	Metropolitan Transportation Commission	San Francisco--Oakland, CA	VP	1024804	1
2	99422	San Joaquin Council	Stockton, CA	VP	819111	9
3	90095	San Diego Association of Governments	San Diego, CA	VP	989804	9
4	90001	Regional Transportation Commission of Washoe County	Reno, NV--CA	VP	725712	5
5	90154	Los Angeles County Metropolitan Transportation Authority	Los Angeles--Long Beach--Anaheim, CA	VP	1350335	1
6	90148	Victor Valley Transit Authority	Victorville--Hesperia--Apple Valley, CA	VP	443290	
7	30070	Potomac and Rappahannock Transportation Commission	Washington--Arlington, DC--VA--MD	VP	539793	

	NTD ID	Agency	metro_area	Mode	UPT	
8	90136	Regional Public Transportation Authority	Phoenix--Mesa--Scottsdale, AZ	VP	461668	3
9	60041	City of Arlington	Dallas--Fort Worth--Arlington, TX	DR	818016	1
10	90230	California Vanpool Authority	Hanford, CA	VP	3649996	9

Showing 1 to 10 of 496 entries

The VanPool of Metropolitan Transportation Commission had the lowest expenses per VRM.

6. Which transit system (agency and mode) has the highest total fares per VRM?

```
USAGE_AND_FINANCIALS |>
  mutate(Fares_PerVRM = `Total Fares`/VRM) |>
  arrange(desc(Fares_PerVRM)) |>
  DT::datatable()
```

Show

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entries

Search:

	NTD ID	Agency	metro_area	Mode	UPT	V
1	40040	Jacksonville Transportation Authority	Jacksonville, FL	FB	416129	
2	40001	Chattanooga Area Regional Transportation Authority	Chattanooga, TN--GA	IP	481957	
3	11239	Hyannis Harbor Tours, Inc.	Barnstable Town, MA	FB	878728	18
4	20226	SeaStreak, LLC	New York--Jersey City--Newark, NY--NJ	FB	750392	1
5	20223	Cape May Lewes Ferry	Atlantic City--Ocean City--Villas, NJ	FB	721923	
6	10183	Woods Hole, Martha's Vineyard and Nantucket Steamship Authority	Barnstable Town, MA	FB	2903528	3
7	35	Washington State Ferries	Seattle--Tacoma, WA	FB	17374185	7

	NTD ID	Agency	metro_area	Mode	UPT	V
8	28	County of Pierce	Seattle--Tacoma, WA	FB	438385	4
9	20190	Port Imperial Ferry Corporation	New York--Jersey City--Newark, NY--NJ	FB	3757873	5
10	40025	Chatham Area Transit Authority	Savannah, GA	FB	582988	

Showing 1 to 10 of 496 entries

The Ferryboat mode of the Jacksonville Transportation Authority had the highest fares per VRM.

Final Thoughts

Based on all of these metrics we have just taken a look at there isn't necessarily one right answer as to which transit system could be characterized as the most "efficient" in the country. In my opinion, I would pick the system with the best farebox recovery which would be the Port Imperial Ferry Corporation Ferryboat in New York. Ultimately even if a system outclasses it in Fares per UPT or VRM, if its not turning a profit, which is what farebox recovery essentially measures, then it can't really be considered an effective and sustainable mode of transport.