

DC WMATA Metro Analysis

Justice MacDonell, Braxton Woodson, Pedro Castellon





Our Goal

Our goal for this challenge was to dive into the data of daily entries of each metro station during the summer of 2024. Our group took the average entries of the metro stations while also analyzing holidays and special events in DC to compare against the average of a “regular” day. We took the top metro stations and see all factors that would support the reasons for the amount of entries. We also took the least used metro stations and incorporated factors that made sense for the small amount of entries. With the least used metro stations, we decided to make a plan on how they could be incorporated better to increase volume of usage or even seeing if the stop is vital to the different metro lines.

A map showing the proposed rail line route. The main line runs from Arlington, VA in the northwest, through Loudoun County, then east through the Innovation Center, Herndon, Reston Town Center, and finally to Washington, DC. A branch line connects the main line to Dulles Airport.

- [illegible]

WASHINGTON D.C.

Chalkleyville Station

Van Dorn

Purple Line (Light Rail)

Proposed extension (Light Rail)

Potomac River

Metrorail

Purple Line (Light Rail) (under construction)

Light Rail

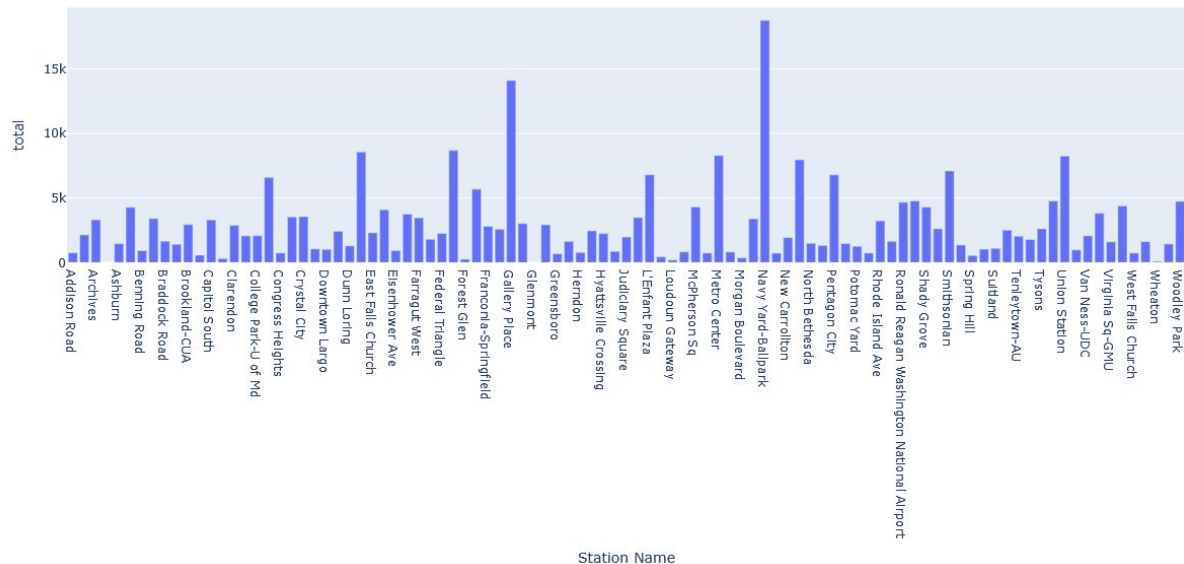
Streetcar

2023 © UrbanRail.net (R. Schwanke)

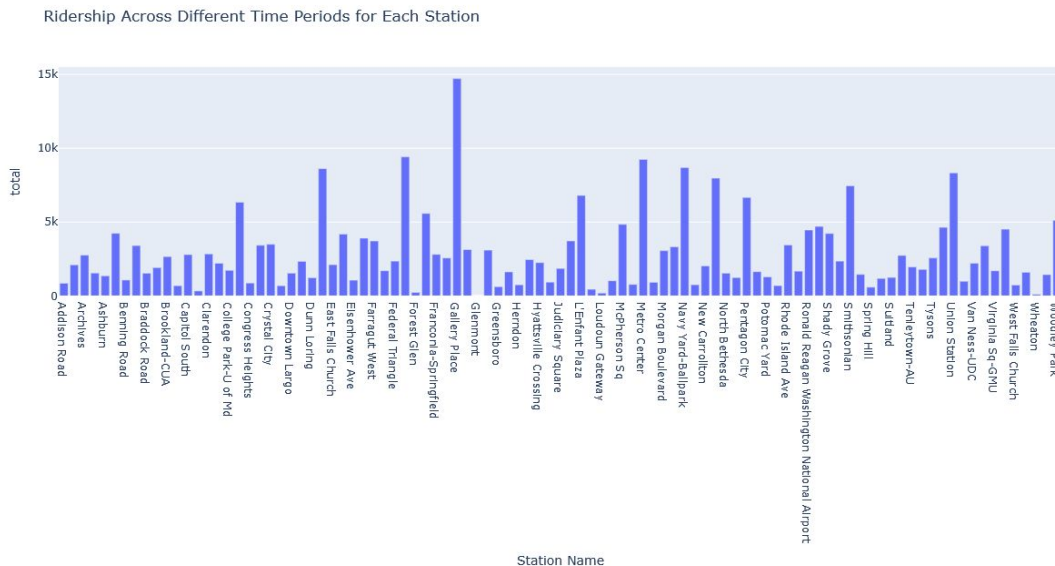
- Francisco Espinosa
Richmond

Father's Day

Ridership Across Different Time Periods for Each Station



July 27th (Normal Day)



Factors



Union Station - Home to a lot of major tourist attractions including the Smithsonian, U.S. Capitol, Library of Congress and more.

Metro Center - Is the major hub for all service lines used within the DC metro and very convenient for travel in the DC area as it's in the downtown area.

Foggy Bottom-GWU - Takes you directly to the campus of George Washington University, also a point to many museums nearby.

Navy Yard-Ballpark - Home to the Washington Nationals, a huge hot spot in the summer as baseball season is in full swing.

Gallery Place - Near Capital One Arena which serves many purposes including sporting events, concerts, and other live events. It is also close by to the Smithsonian American Art Museum.



Special Events/Holiday Effect

Navy Yard-Ballpark saw a high usage rate during the days of Juneteenth, Father's day and 4th of July. With special events and holidays people are always looking for events to do and while Navy Yard-Ballpark is already a high used metro station during summer time, it's not surprise of the spike on these days.

Gallery Place saw a spike during the special events of the Olivia Rodrigo concert and the smithsonian's pollination events. As concerts of world wide known artists come in it makes sense for the massive spike in usage.

Metro Center was at a high usage as the White House hosted a Juneteenth concert on the yard. As the white house is already a tourist attraction it makes sense for more people to come for any of that significance.



Least Used Metro Station

Amongst summer average:

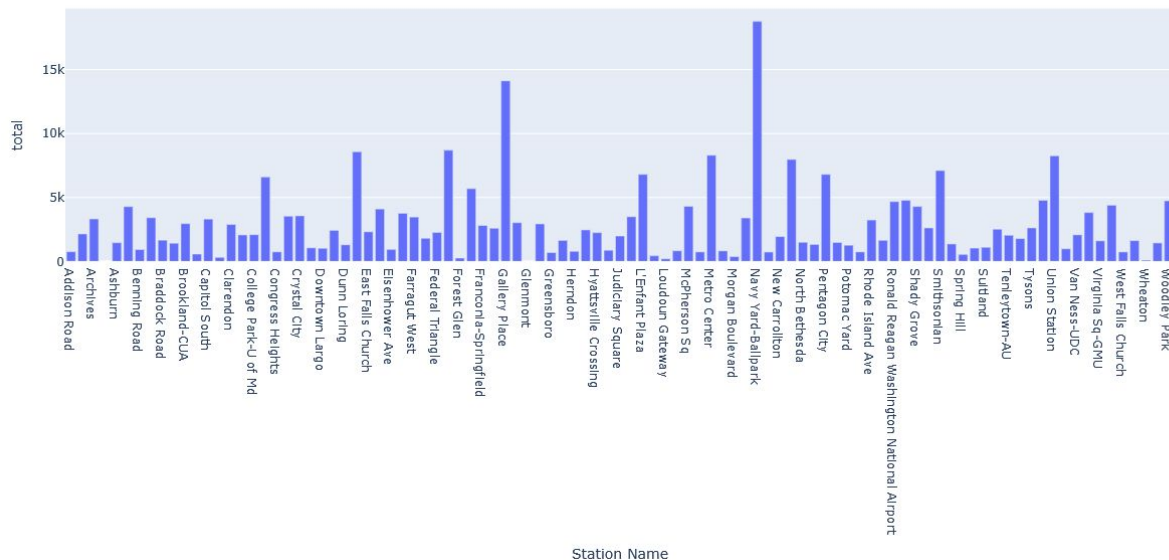
- Takoma
- Loudoun Gateway
- Forest Glen

Holidays and special events:

- Takoma
- Loudoun Gateway
- Glenmont

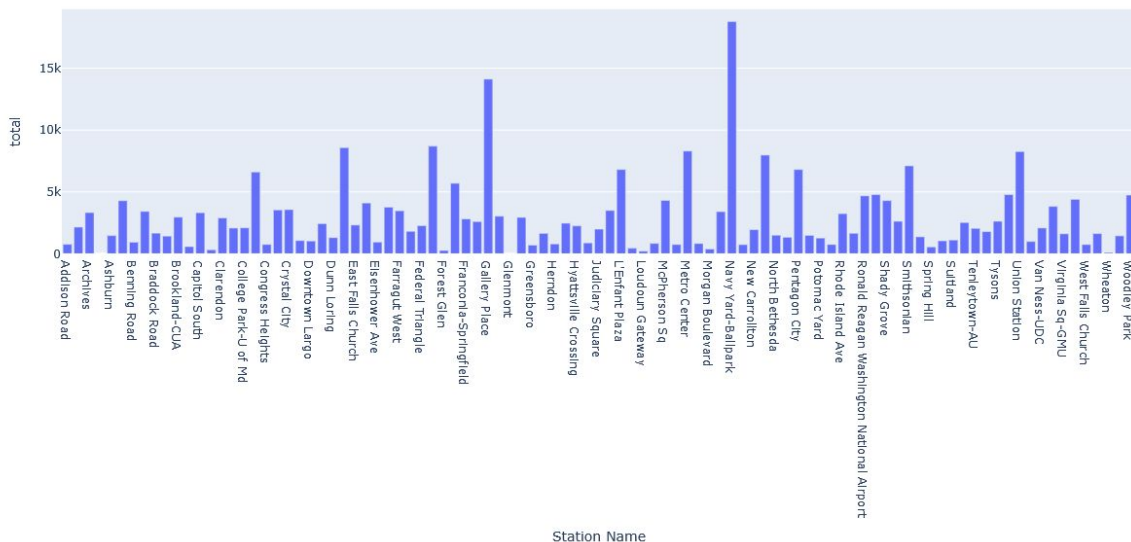
July 20th (Olivia Rodrigo Concert)

Ridership Across Different Time Periods for Each Station



June 5th (Normal Day)

Ridership Across Different Time Periods for Each Station



Factors



Takoma - A very small town with a population of 17,000, also not many things to do in the area.

Loudoun Gateway - Very secluded area that has zoning issues not allowing any residential areas to be built. Very limited parking that is pricey.

Glenmont - Very little things to do in the area, pricey parking and there's a free shuttle that serves the same purpose as the train.

Forest Glen - Was closed most of the summer as the construction of the Purple line was being done.



How can these be more useful? Are they useful?

A very common theme in the analysis of these stations is that there's very little to do in the area surrounding. As it isn't easy as just building a convention center everywhere, the area could start innovating smaller ideas like recreational centers, movie theaters or host something to attract tourists. We also think the decrease in parking price would help as the stations aren't near many things so there isn't an incentive for the price they are set at now. We do think these stations serve a purpose as they are service points for residents of these small towns. With Tacoma specifically, we think the city should try and review the zoning issues so the previous plan of establishing more residential areas can be done and hopefully increase number of entries.



Sources

Station Data: <https://www.wmata.com/initiatives/ridership-portal/Metrorail-Ridership-Summary.cfm>

Baseball schedule: <https://www.mlb.com/nationals/schedule/2024/fullseason>

Concerts at the time:

<https://dcist.com/story/24/01/05/2024-concerts-dc-bad-bunny-bruce-springsteen-nicki-minaj-green-day/>



Code: <https://github.com/bruhsimulator33/DC-metro/tree/main/infochallenge>