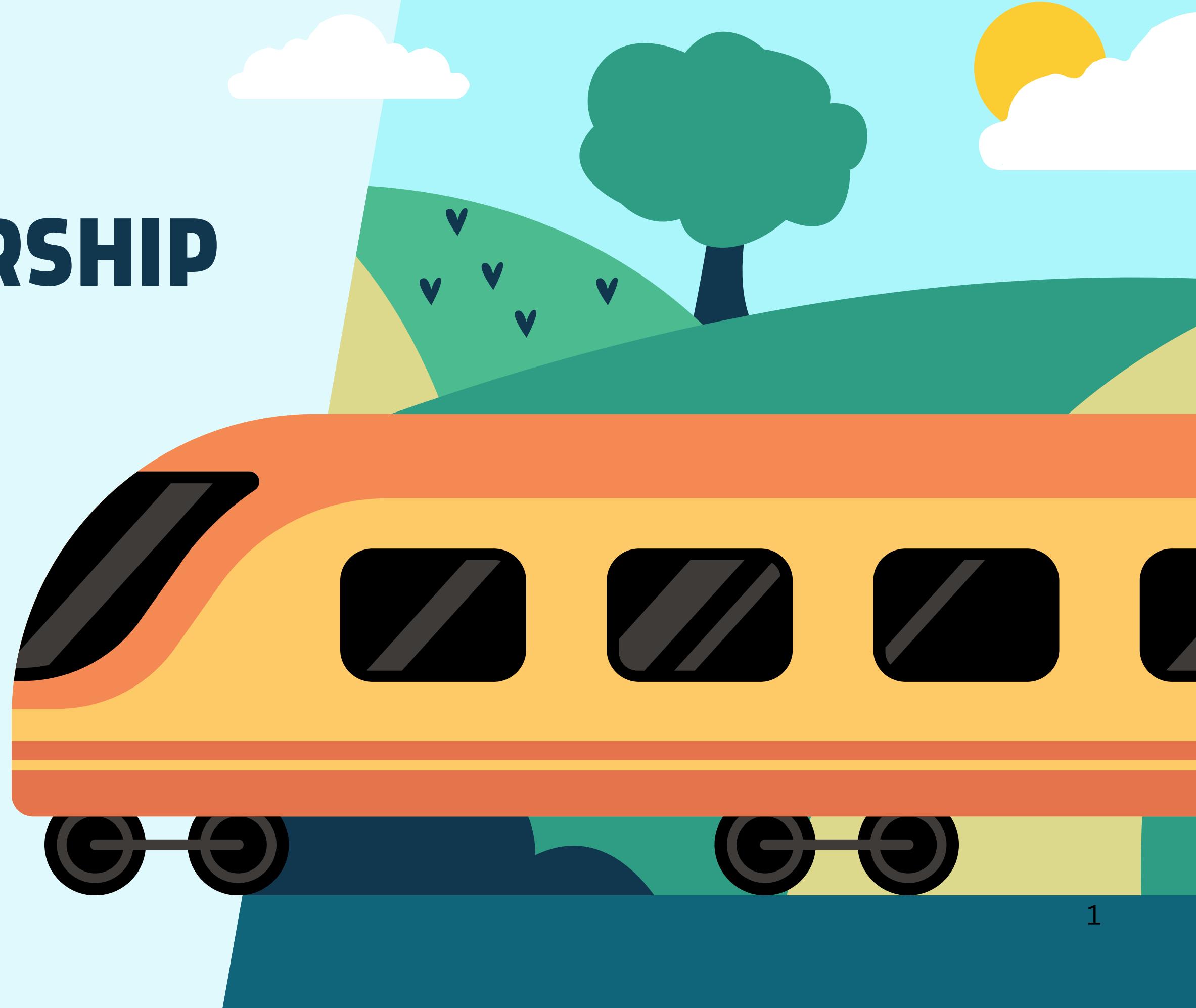


# **WMATA RIDERSHIP TRENDS**



# TABLE OF CONTENTS

- Background
- Dataset and Limitations
- Seasonal effects on ridership
- Crime effect on ridership
- Purple line construction effect on ridership

# **DATASET**

- **WMATA Ridership Summary Data**
- **WMATA Crime Statistics**
- **Open Data DC- Metro Stations Regional**



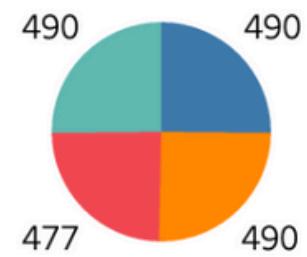
# DATA LIMITATIONS

We have entry data from individual stations, but we can't fully conclude if those were the only lines used by passengers since there is no accompanying exit data.

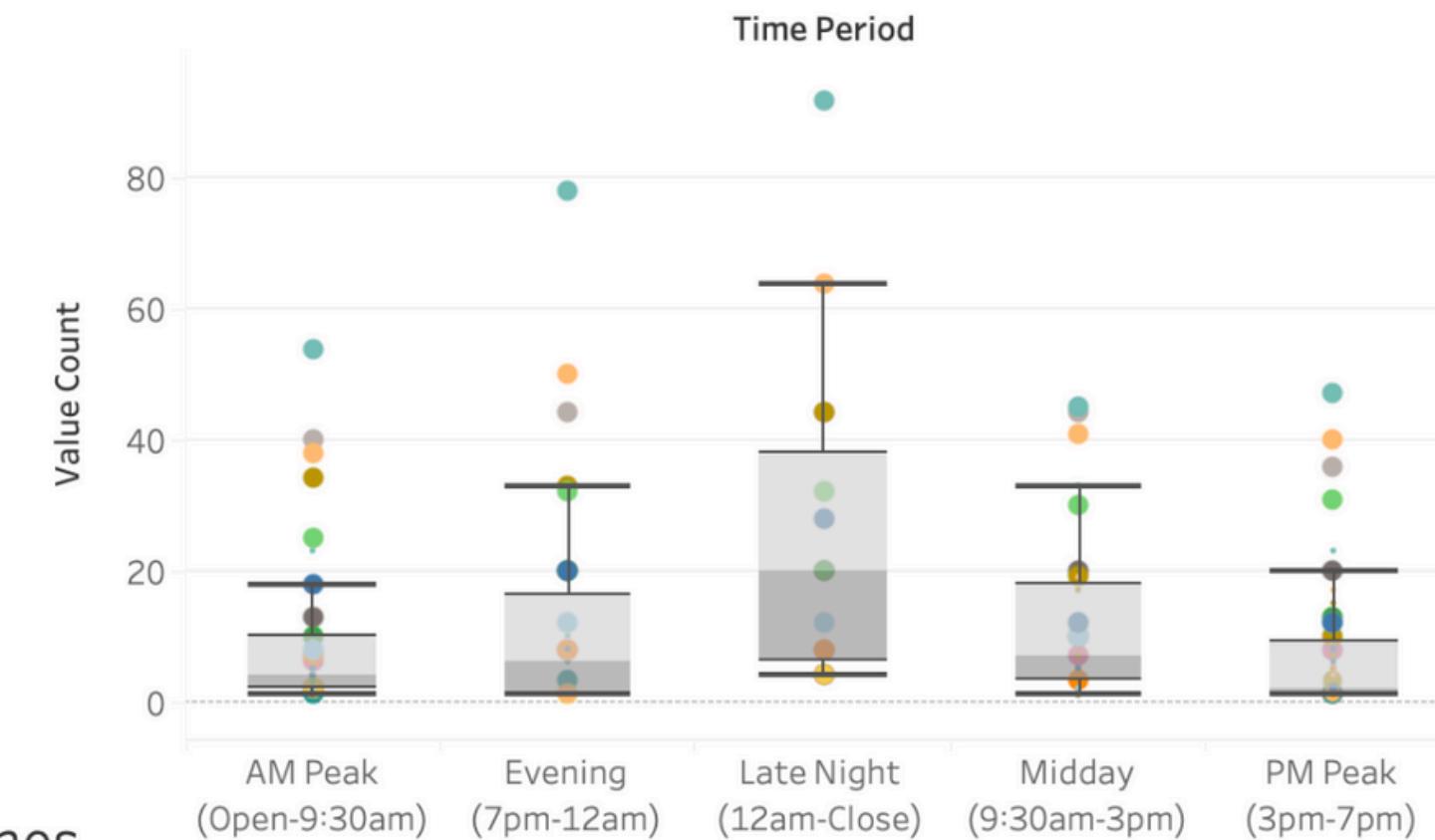
For example, Union Station on the red line connects to the MARC train, Amtrak, and buses going to Georgetown, which is quite popular.



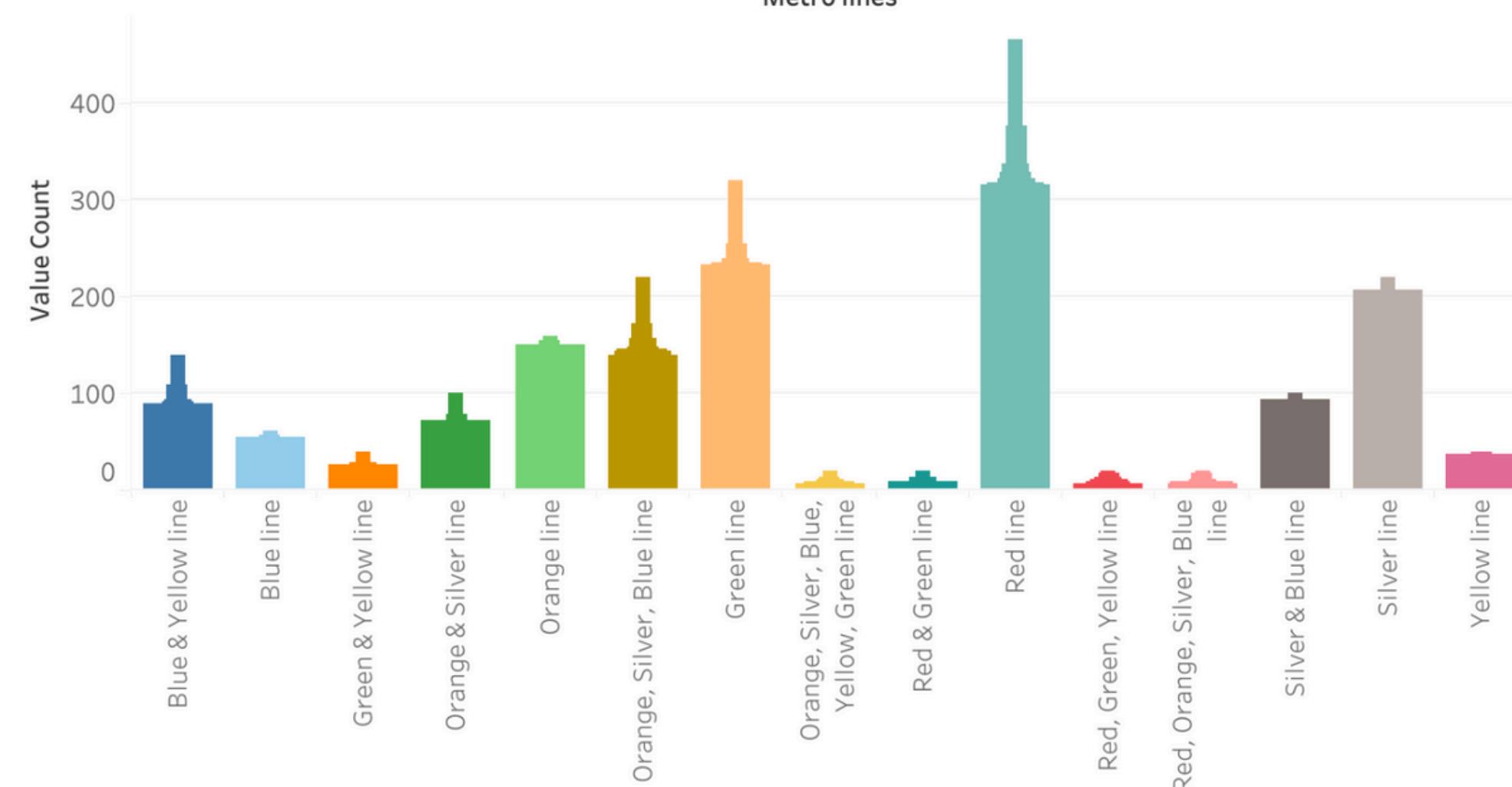
### Seasonal Travel



### Most Popular Travel Time



### Most Used Metro Lines



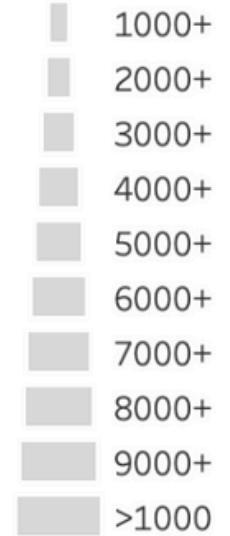
### Seasons

- Fall
- Spring
- Summer
- Winter

### Metro lines

- Blue & Yellow line
- Blue line
- Green & Yellow line
- Orange & Silver line
- Orange line
- Orange, Silver, Blue line
- Green line
- Orange, Silver, Blue, Y..
- Red & Green line
- Red line
- Red, Green, Yellow line
- Red, Orange, Silver, Bl..
- Silver & Blue line
- Silver line
- Yellow line

### Avg Daily Entries (grouped)

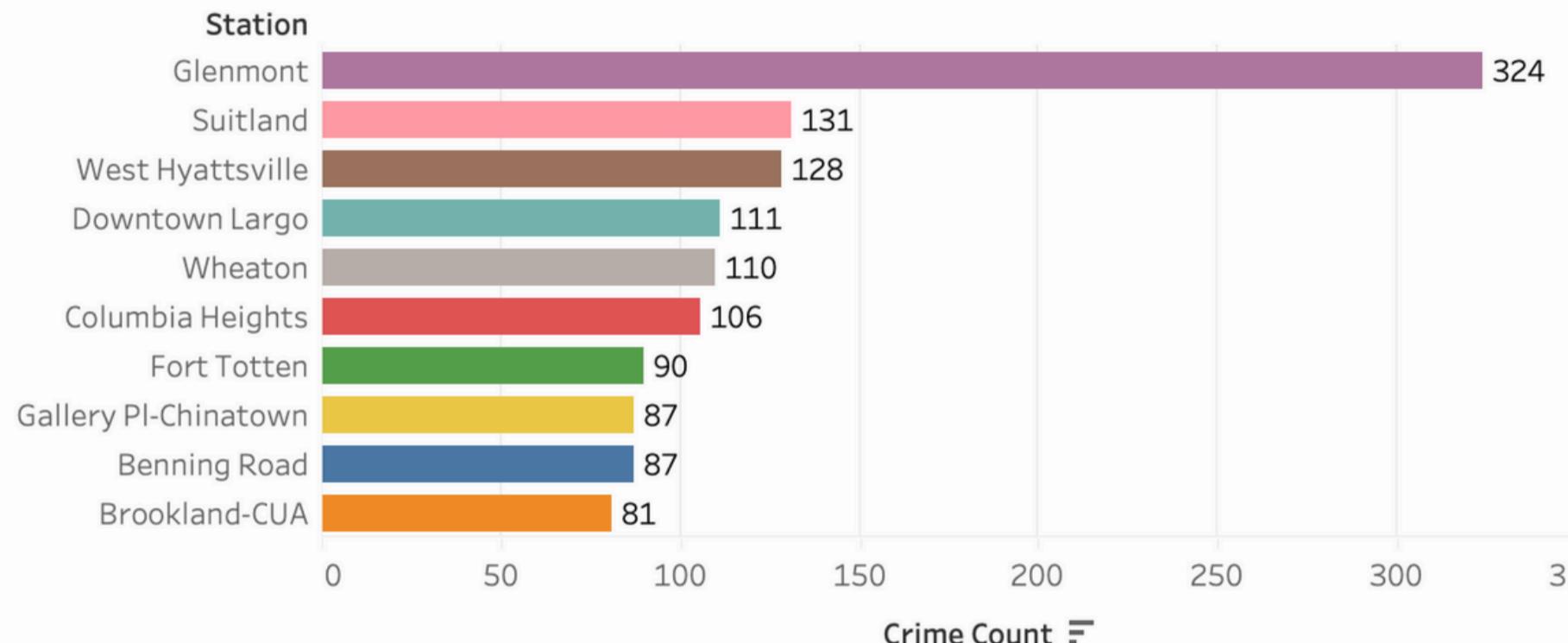


# CRIME AND RIDERSHIP

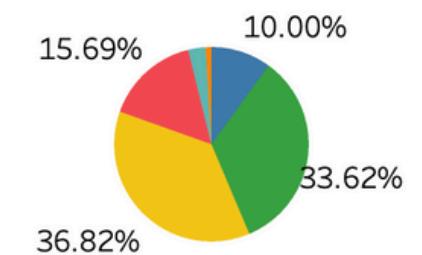


**By analyzing crime trends within the WMATA Metro system, we aim to identify patterns that can inform security improvements and enhance commuter safety.**

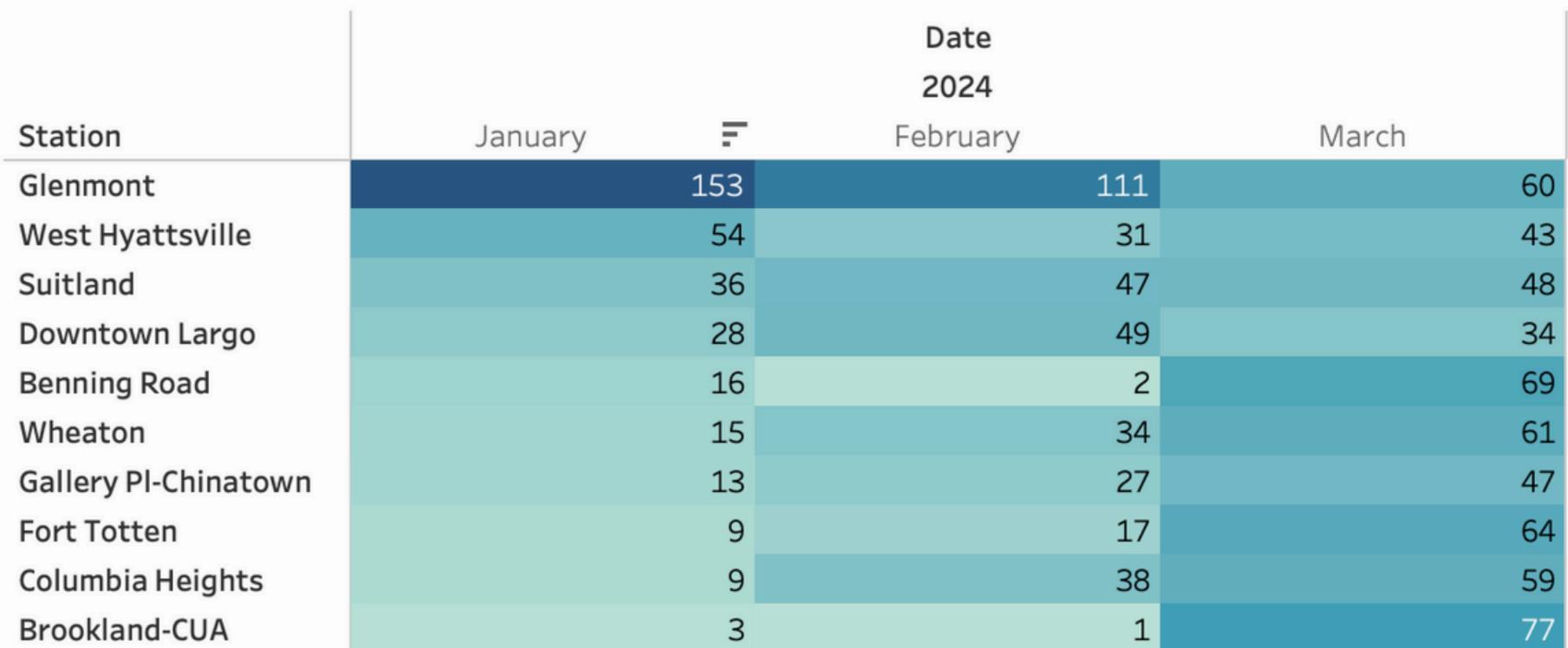
## 2024 Crime Hotspots: Top Metro Stations (Jan-Mar)



## Peak Crime Hours



## Monthly Crime Breakdown: Top Stations

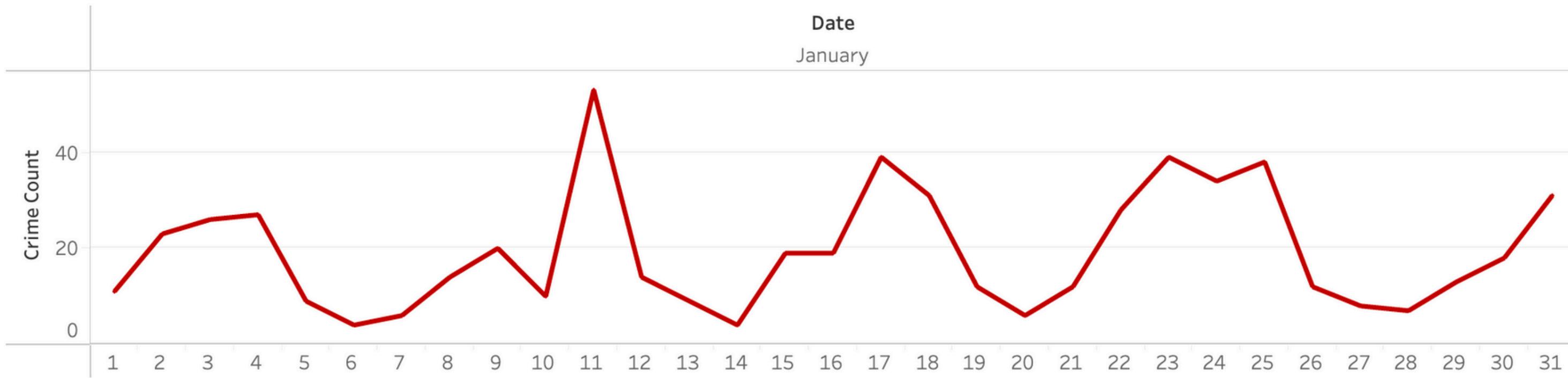


## Crime Count

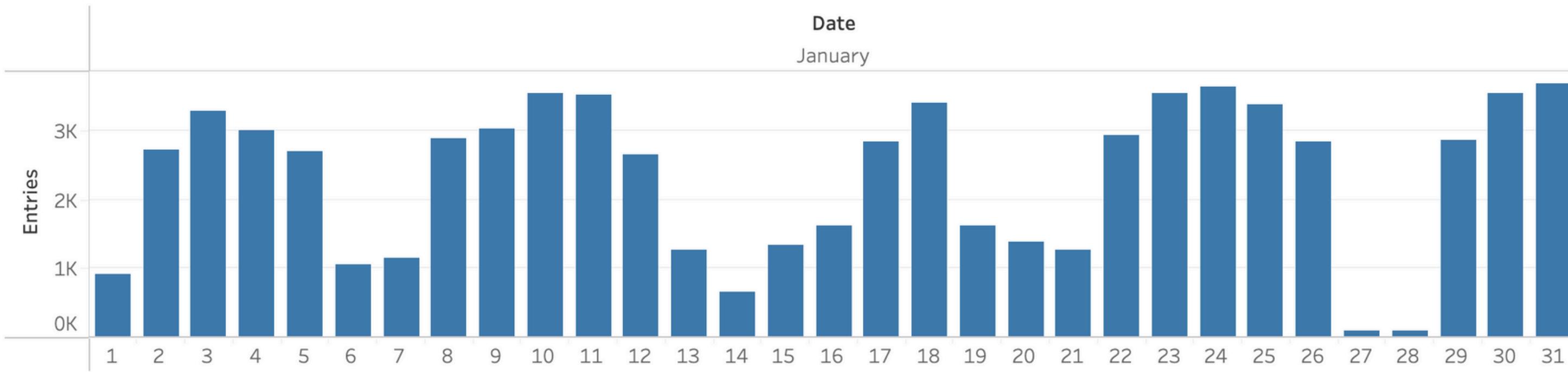


# GLENMONT JAN

Glenmont Crime

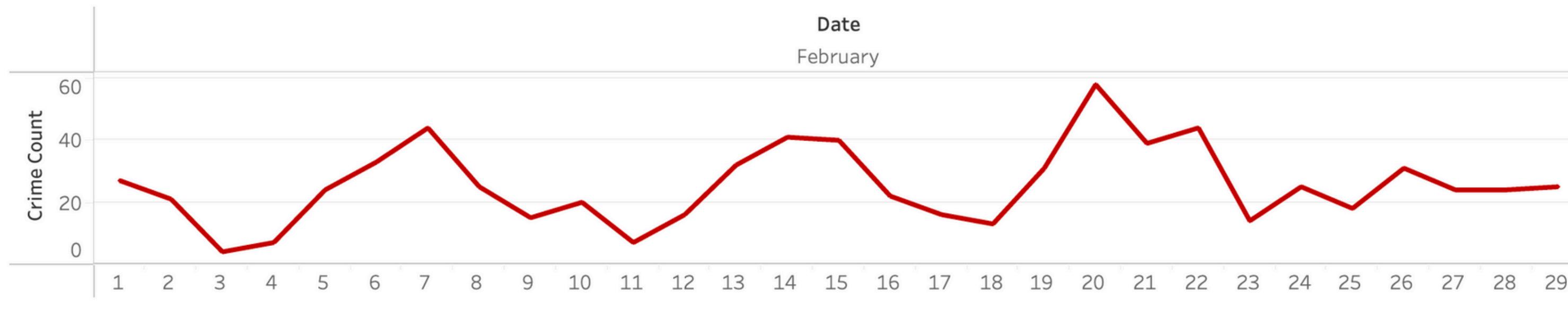


Glenmont Entries

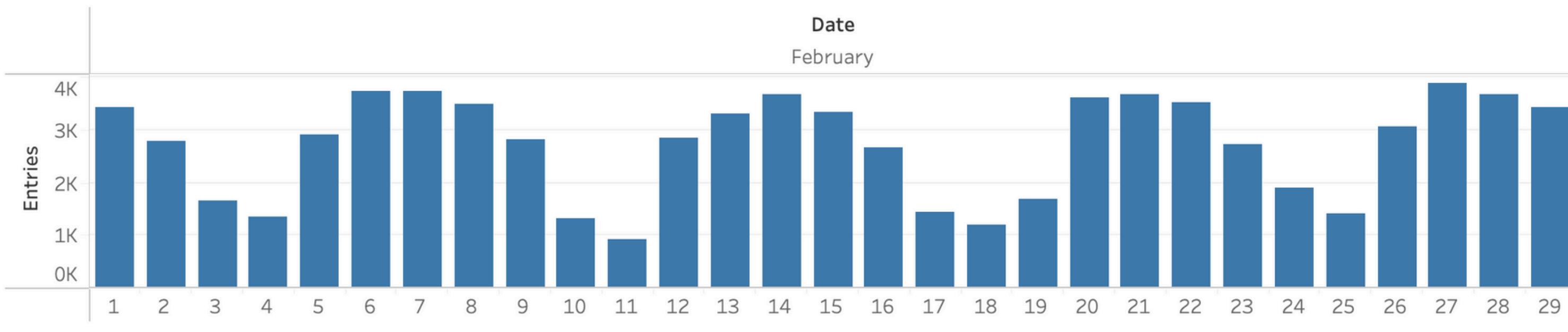


# GLENMONT FEB

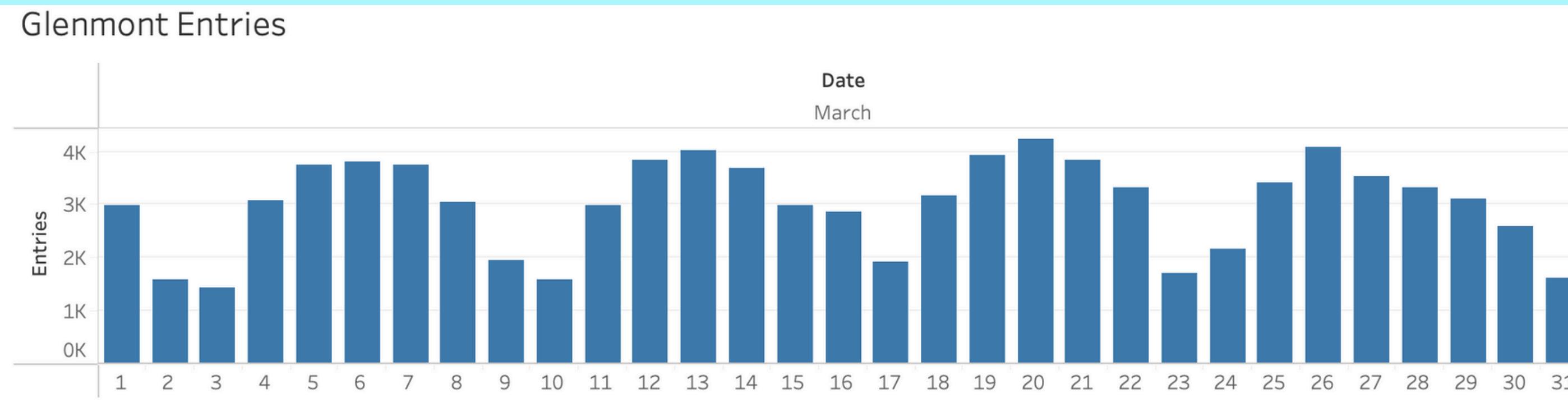
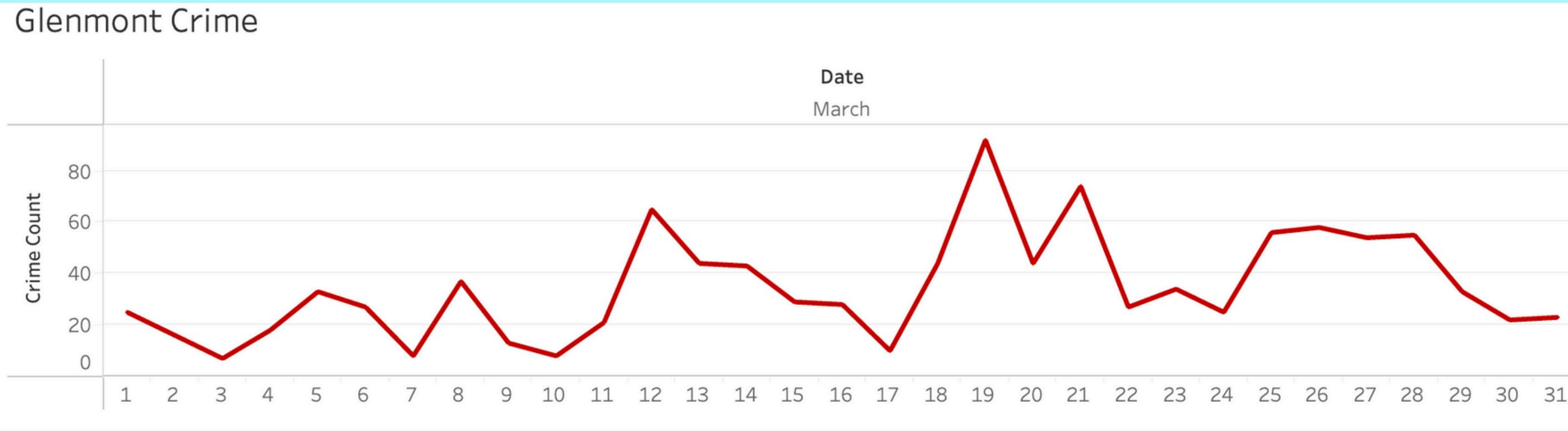
Glenmont Crime

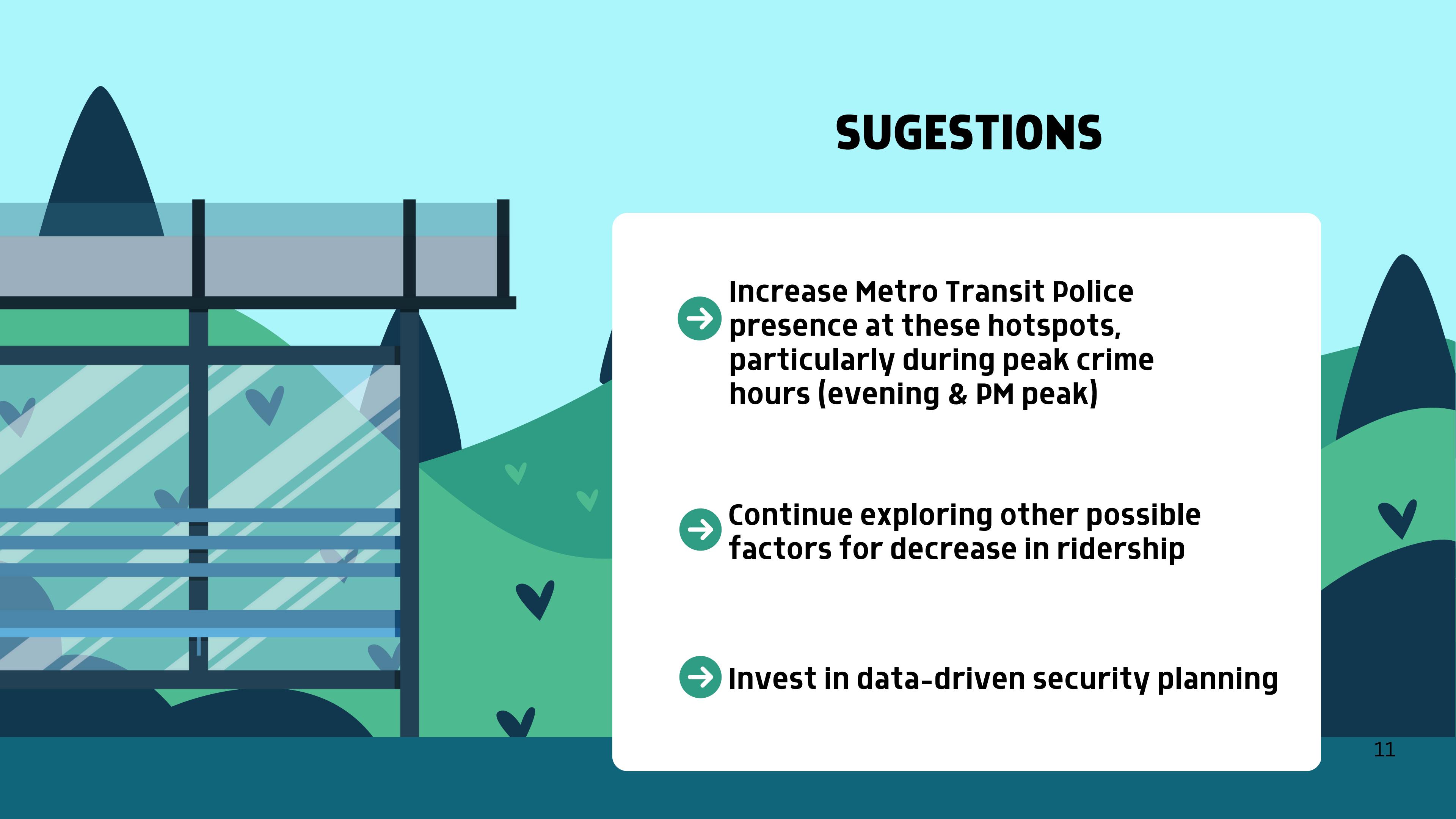


Glenmont Entries



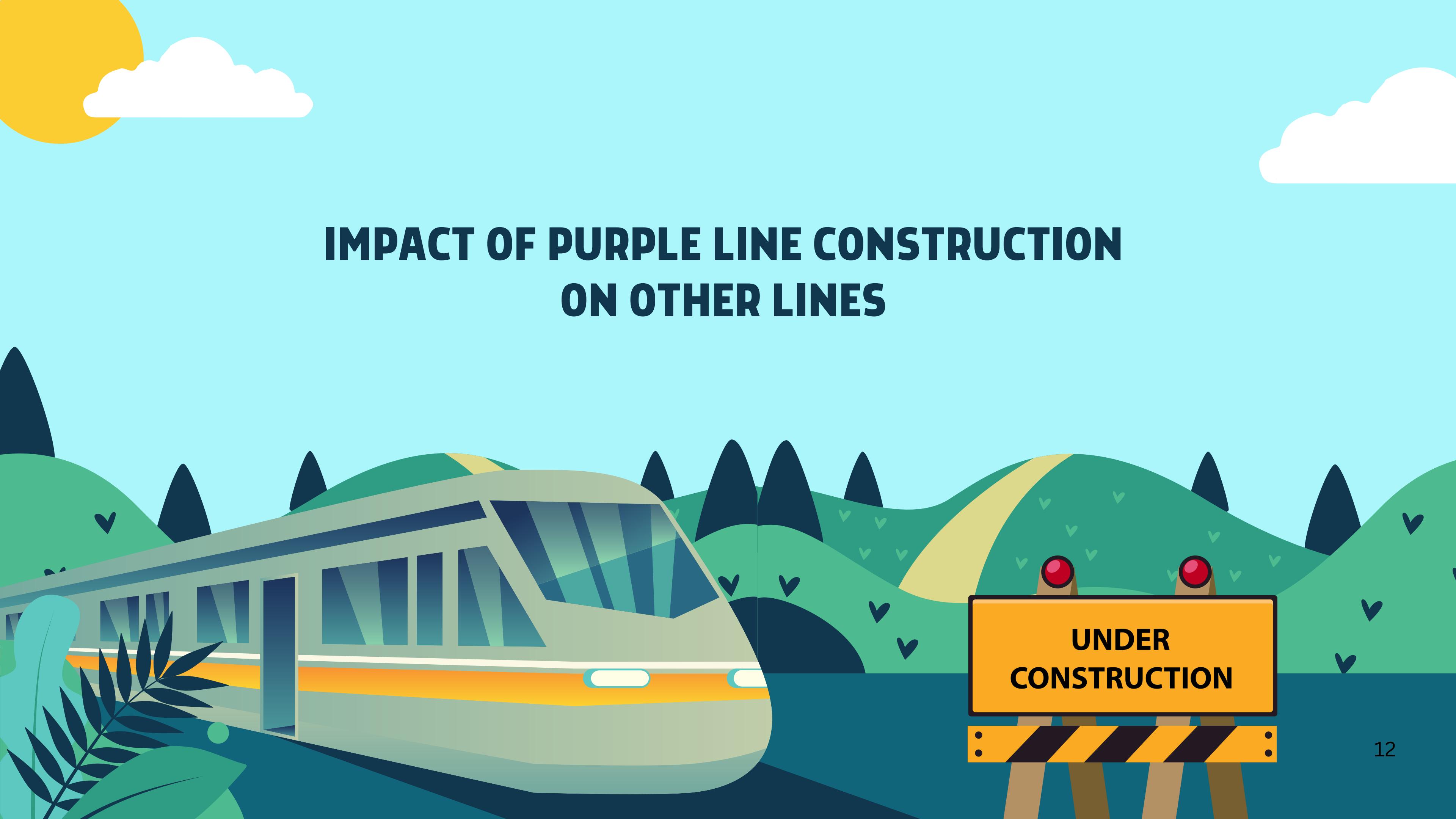
# GLENMONT MAR





# SUGESTIONS

- Increase Metro Transit Police presence at these hotspots, particularly during peak crime hours (evening & PM peak)
- Continue exploring other possible factors for decrease in ridership
- Invest in data-driven security planning



# **IMPACT OF PURPLE LINE CONSTRUCTION ON OTHER LINES**

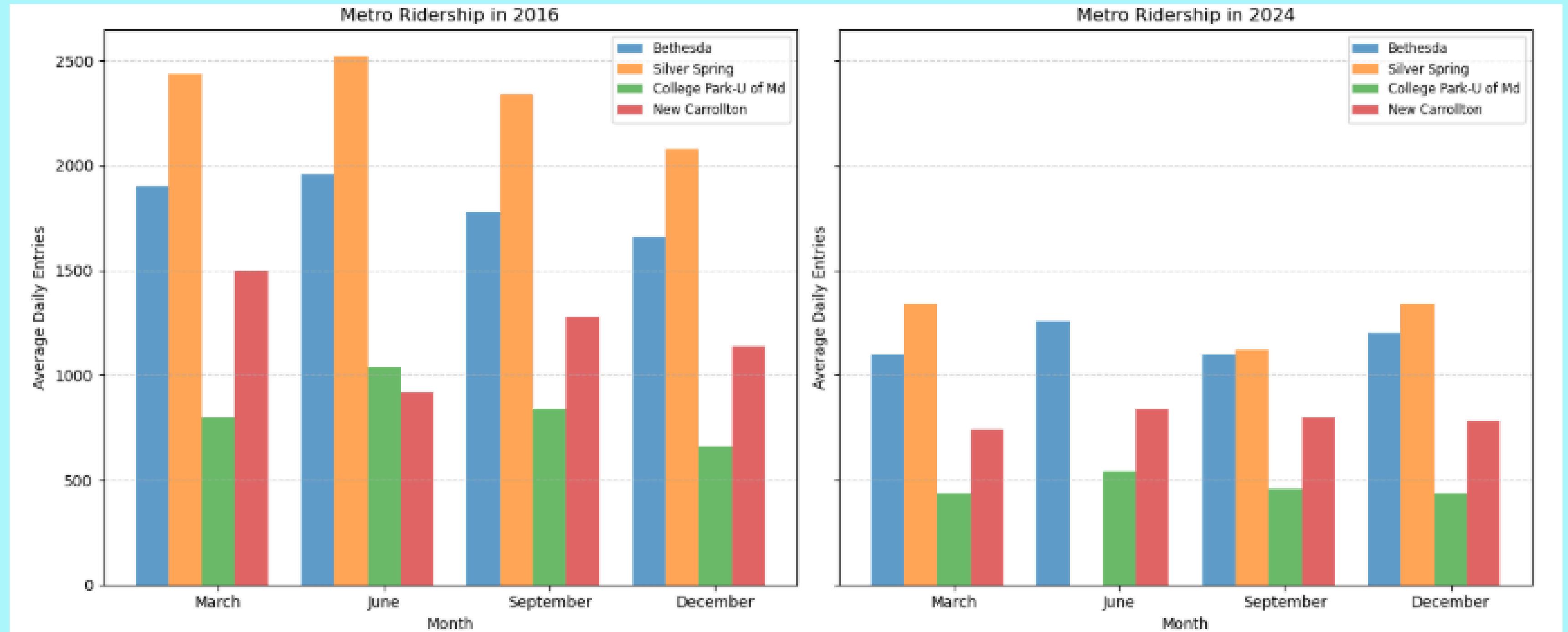
**UNDER  
CONSTRUCTION**

# Background

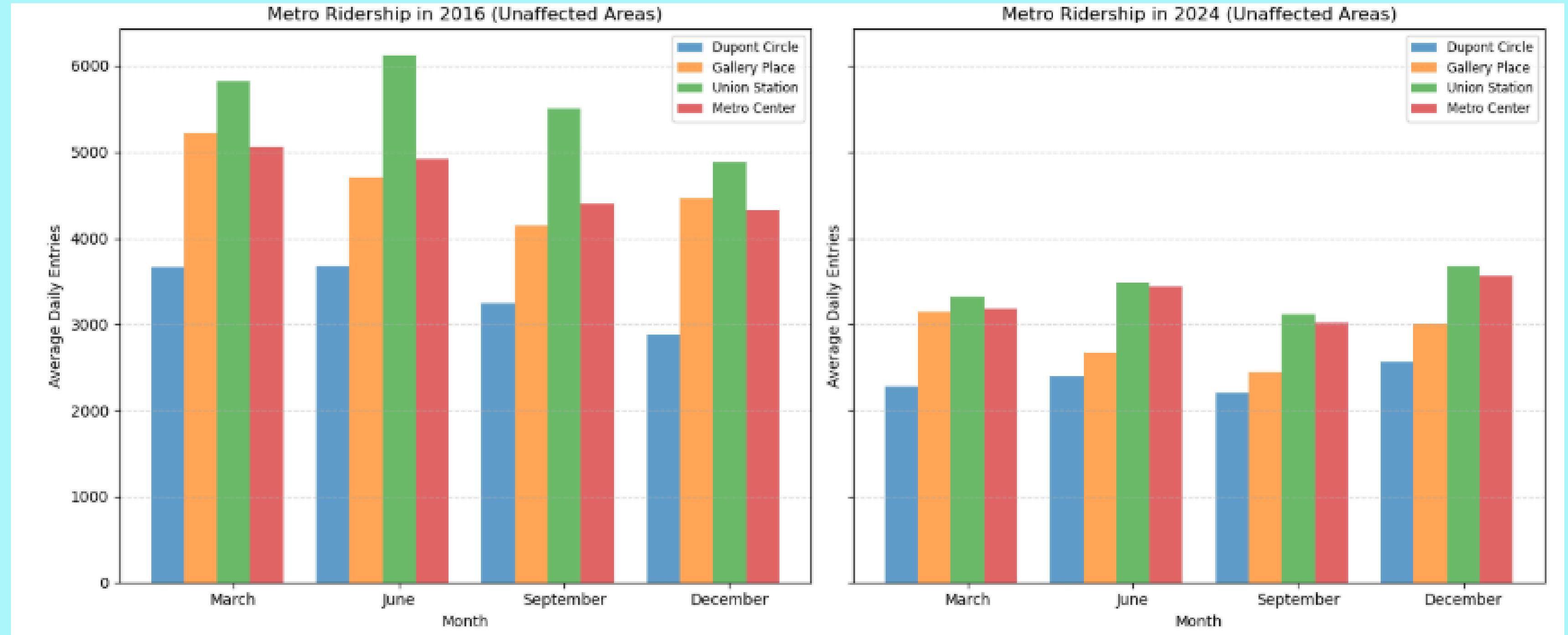
- The Purple line is a 16-mile light rail that will connect Montgomery & Prince George's County.
- It will connect the RED (Bethesda, Silver Spring), GREEN (College Park–U of MD), and ORANGE LINE (New Carrollton).
- Construction began on August 2017 and is planned to be operational in Winter of 2027

# Data Analysis

We analyzed Ridership trends from 2016 (pre-construction) and 2024 (during construction) for both affected and unaffected stations



- Graph of the avg daily entries of affected stations from both 2016 and 2024
- There is a decrease in entries across all months and stations



For further analysis we decided to look at the unaffected station and there was also a decrease in ridership overall, but it was less significant than the affected station



**RIDERSHIP DID  
DECREASE AT THE  
AFFECTED  
LOCATIONS**

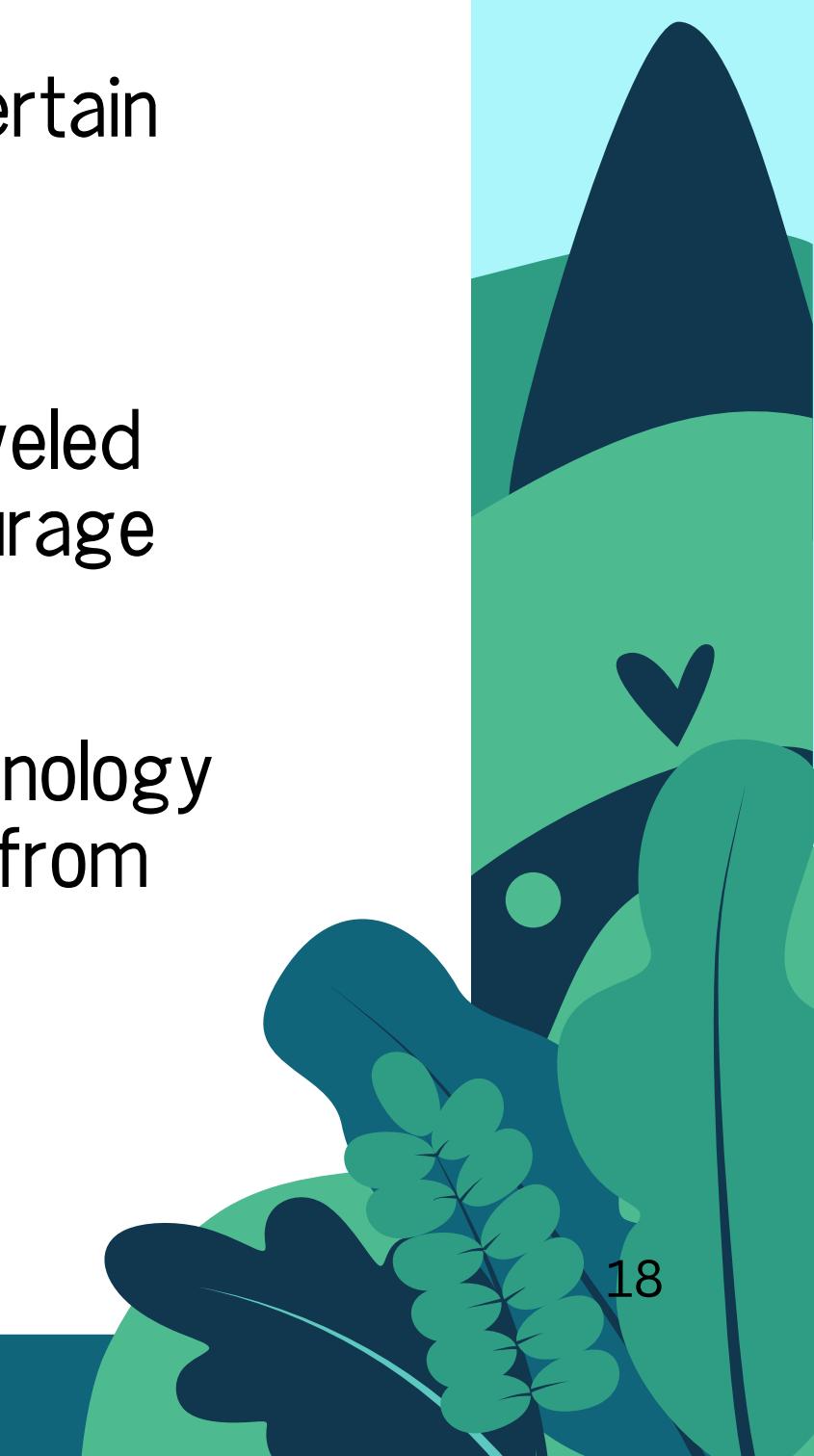
# POSSIBLE REASONS WHY

- New Fare Gate System
- Covid
- Station Closure
- Increased Fare Rates
- Alternate Transportation





# SUGESTIONS



- Offer travel discounts for a certain number of miles traveled to encourage tapped entries
- Increase security on most traveled lines to ease traffic and encourage tapped entries
- Implement more efficient technology to assess correct travel data from popular stations

# QUESTIONS?

