

# Rail Customer Travel Time Impact from Spring 2021 Platform Improvement Project

Planning Office, August 2020

Metro is proposing to rebuild the platforms at Arlington Cemetery and Addison Road stations in the Spring of 2021. This memo describes one aspect of potential customer impact – differences in typical travel times for customers in Alexandria traveling to downtown DC on the Yellow Line vs. the Blue line. This memo presents typical travel times under normal circumstances, which will be approximately similar to the customer experience during the construction project.

## Proposed Rail Service

Arlington Cemetery would be closed, the Silver Line would bypass Addison Road, and the Blue Line would be re-routed over the Yellow line bridge to run from Franconia-Springfield to Mt. Vernon Square. All other lines would remain as normally scheduled under near-normal headways. Some customers would need to transfer at L'Enfant Plaza to another line to complete their journey.

## Summary of Changes in Customer Travel Time

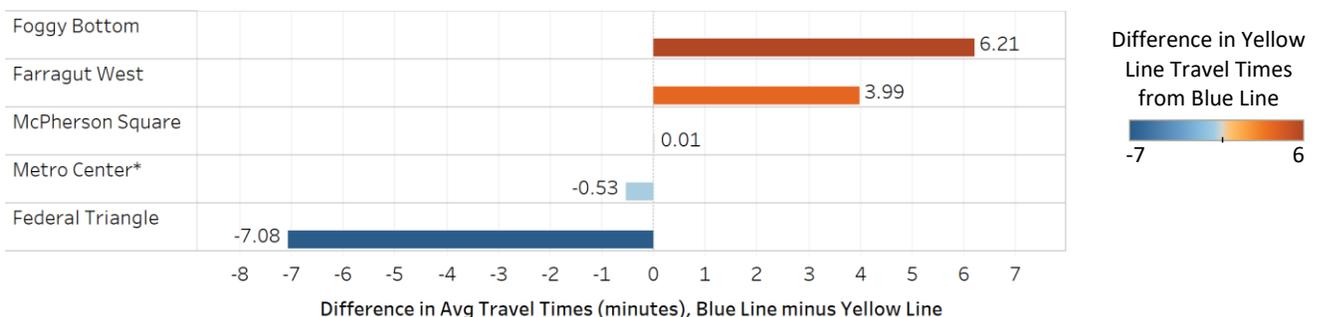
During the morning peak, customers' trips from Braddock Road or King Street to downtown D.C. (between Rosslyn and Federal Triangle) are normally about 25-30 minutes, from tap-in to tap-out. These customers can choose between the Yellow and Blue Lines. When they choose the Yellow Line over the Blue Line and transfer at L'Enfant Plaza (similar to the proposed rail service above), their travel times:

- To Farragut West, Foggy Bottom, or Rosslyn **increase by 4-12 minutes**,
- To McPherson Square or Metro Center **remain about the same**, or perhaps get marginally faster.
- To Federal Triangle **decrease** (improve), because the Yellow Line is the faster route to this station, on average.

On an average weekday, approximately 3,700 customers travel from a station in Alexandria to a station between Rosslyn and Federal Triangle. For about 2,500 of these passengers, traveling through L'Enfant Plaza instead of taking the Blue Line takes 4-12 minutes longer. For the remainder, travel times via the Yellow Line bridge is equivalent or slightly faster than via the Blue Line.

## Difference in Travel Time, Yellow Line vs. Blue Line

Braddock Rd & King St to downtown, March 2019, AM Peak: 5-9:30am



\*Travel times via the Yellow Line to Metro Center uncertain; see note in the Methodology section.

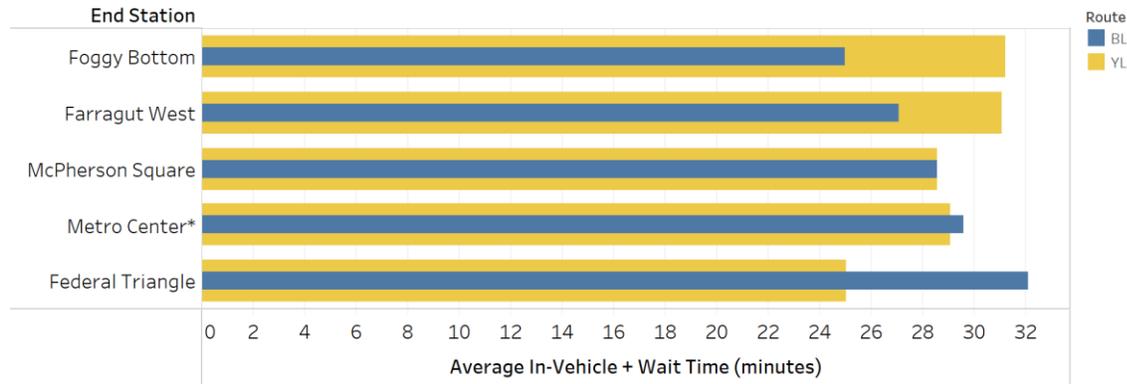
The chart above shows that from Braddock Road or King Street under normal conditions, it is about 6 minutes slower to take the Yellow Line to Foggy Bottom during the morning peak, and 4 minutes slower to Farragut West. There is no difference in travel times between taking the Yellow Line or Blue Line to McPherson Square. Travel times by path to Metro Center are less certain; see note in Methodology. However, the Yellow Line is seven minutes faster when traveling to Federal Triangle.

Using path inference data from the Trace Model, we estimate that under normal circumstances, passengers traveling between Alexandria stations and Rosslyn almost exclusively use the Blue Line, which is why travel times to Rosslyn are not included in the charts in this memo. However, the Blue Line is estimated to be about 12 minutes faster than the Yellow Line when traveling to Rosslyn from Alexandria stations (see Methodology section).

Eisenhower Ave or Van Dorn St are each served by only one line. From Eisenhower Ave or Van Dorn St to the downtown core, the *difference* between Yellow and Blue travel times are similar to those from King Street and Braddock Road.

For context on these changes in travel times, the typical travel times from Braddock Road and King Street are shown in the chart below. These trips are typically 25-30 minutes long, including wait time and transfer time.

Braddock Rd & King St to downtown, March 2019, AM Peak: 5-9:30am



## Methodology

The fare system does not directly record which line color or path a traveler took, since faregates only record entries and exits. Therefore, this data based on inferences from the Trace Model, which combines fare system data with rail vehicle location data to infer which train a passenger boarded. The Trace model did not infer that any passengers took the Yellow Line to Rosslyn, so travel time differences to that station are calculated using a comparison of the travel times from Metro Center to Foggy Bottom and Metro Center to Rosslyn, along with the normal Blue Line travel times from King Street or Braddock Road to Rosslyn.

The analysis only included one-seat trips made entirely on the Blue Line, or two-seat trips that started on the Yellow Line with a transfer at L'Enfant Plaza to the Orange or Silver Lines. Trips that started on the Yellow Line and then transferred to the Blue Line were omitted because it was not possible to determine whether the transfer was made at L'Enfant Plaza or at another station to the south.

Because there are at least three viable routes from stations in Alexandria to Metro Center with similar travel times (Blue Line directly, Yellow Line to L'Enfant Plaza, or Yellow Line to Red Line at Gallery Place), inferred travel times are less reliable and certain.