

Metro Rail Capacity Study

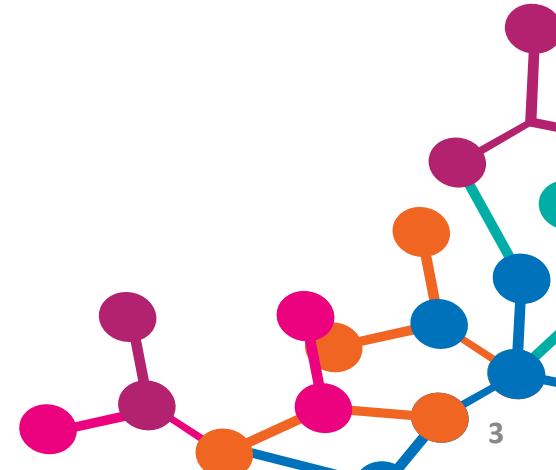
Overview

- Metro Rail Capacity Study Motion (January 2018)
- Analyze current ridership as a percentage of maximum capacity for passengers at all existing rail stations during:
 - Weekdays
 - Weekends
 - On-Peak Hours
 - Off-Peak Hours



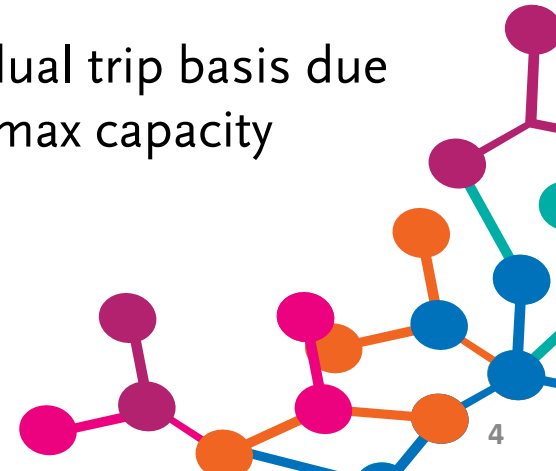
Data Collection

- Rail ridership data collected through manual counts and reported on a monthly basis at a line and day type level.
- Sampling methodology requires one year to collect enough data to generate station and time period level ridership. (FY17 most current)



Data Analysis

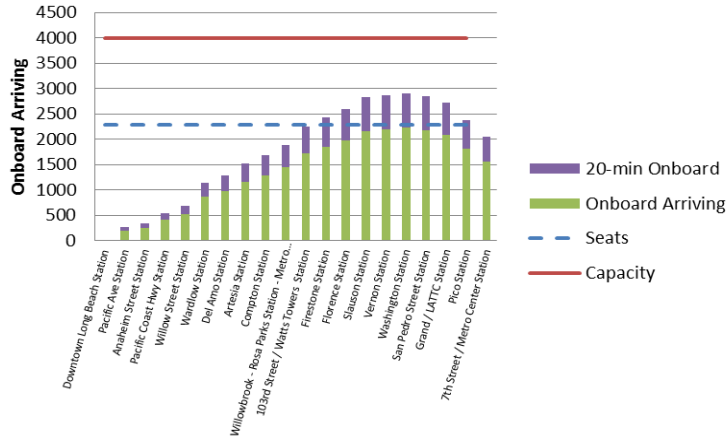
- Capacity (seated and standing) of a light rail line equals 175% of the seated capacity, or a load factor of 1.75. The maximum capacity of a heavy rail line equals 230% of the seated load, or 2.3 load factor.
- Capacity generally exists on the rail network during midday and weekends, with the exception of the Expo and Gold Lines when averaging all trips within a one hour and a 20 minute time slice.
- Standing capacity generally exists on all rail lines during peak periods in the peak direction when averaging trips.
- However, significant ridership variation on an individual trip basis due to “pulsing” of ridership, with many trips exceeding max capacity during the peak period.



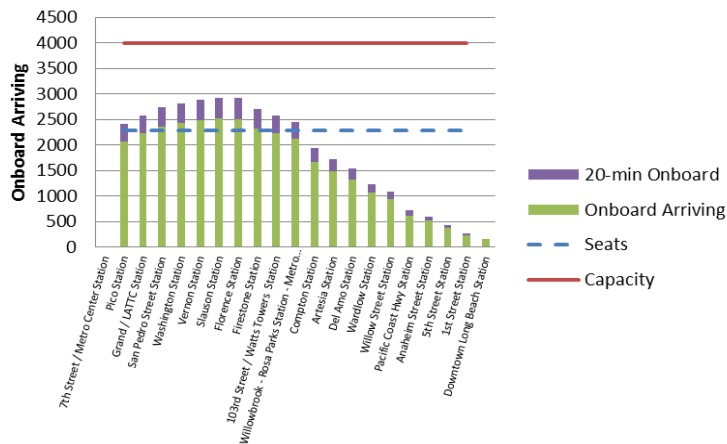
Findings – Weekday Peak Hours

Metro Blue Line

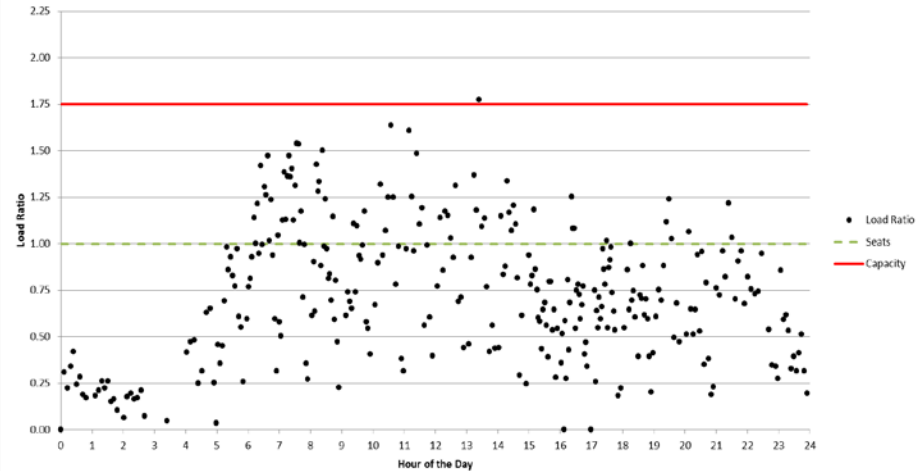
Metro Blue Line Weekday Northbound 7-8am



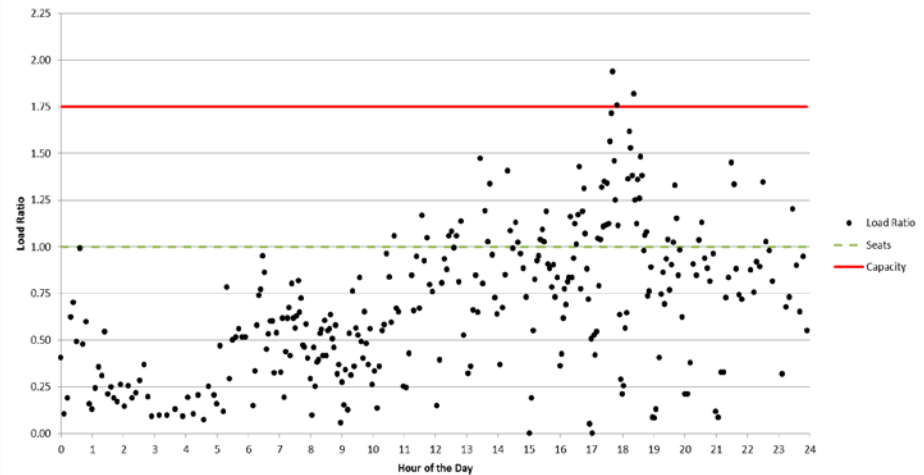
Metro Blue Line Weekday Southbound 5-6pm



Metro Blue Line Weekday Northbound Load Ratios



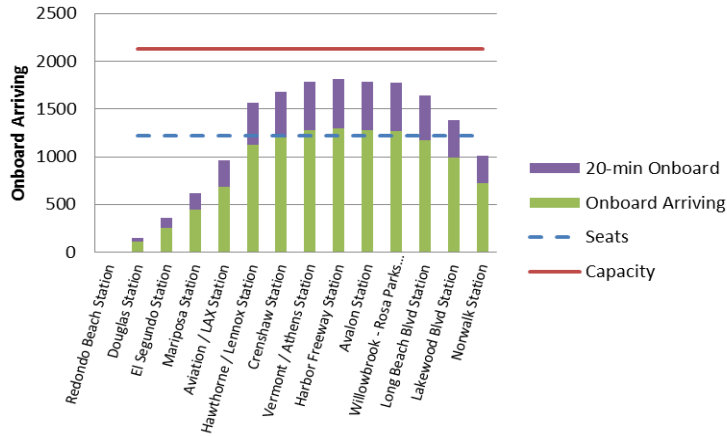
Metro Blue Line Weekday Southbound Load Ratios



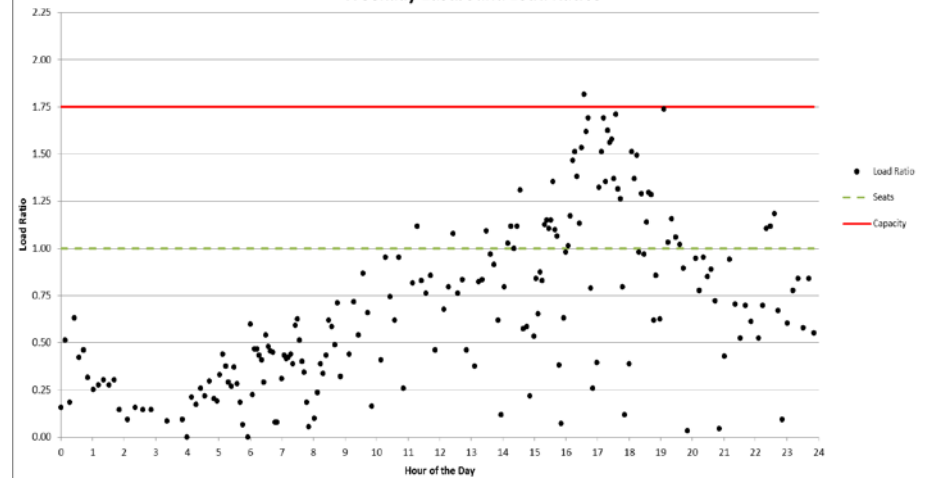
Findings – Weekday Peak Hours

Metro Green Line

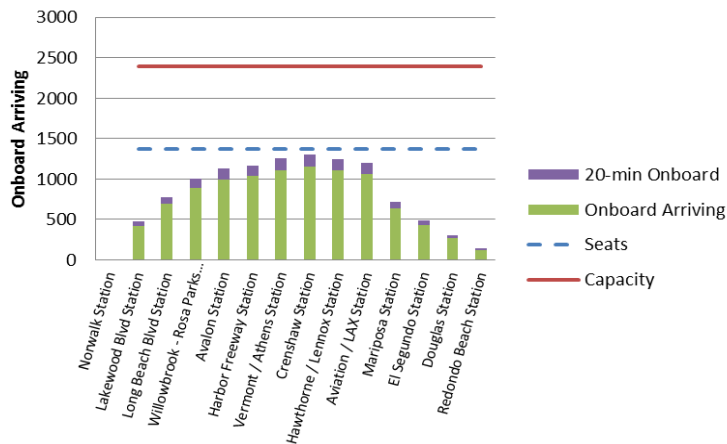
**Metro Green Line
Weekday Eastbound 5-6pm**



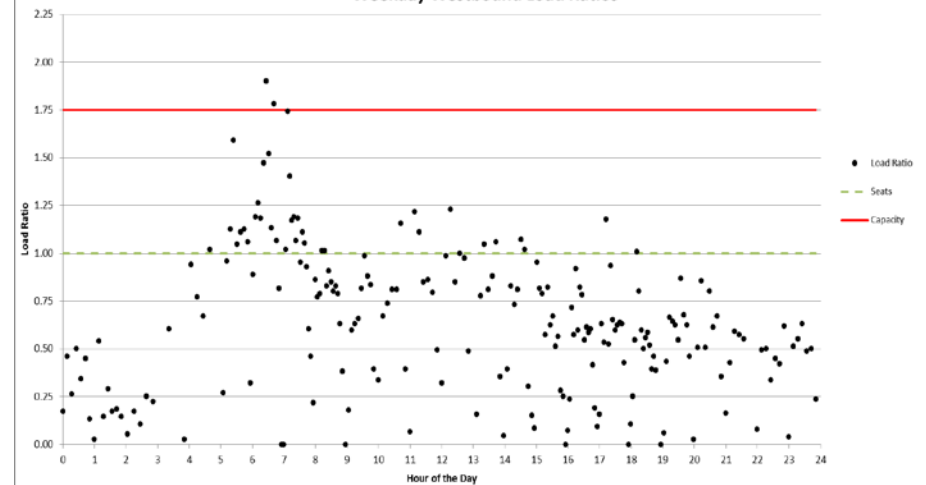
**Metro Green Line
Weekday Eastbound Load Ratios**



**Metro Green Line
Weekday Westbound 7-8am**

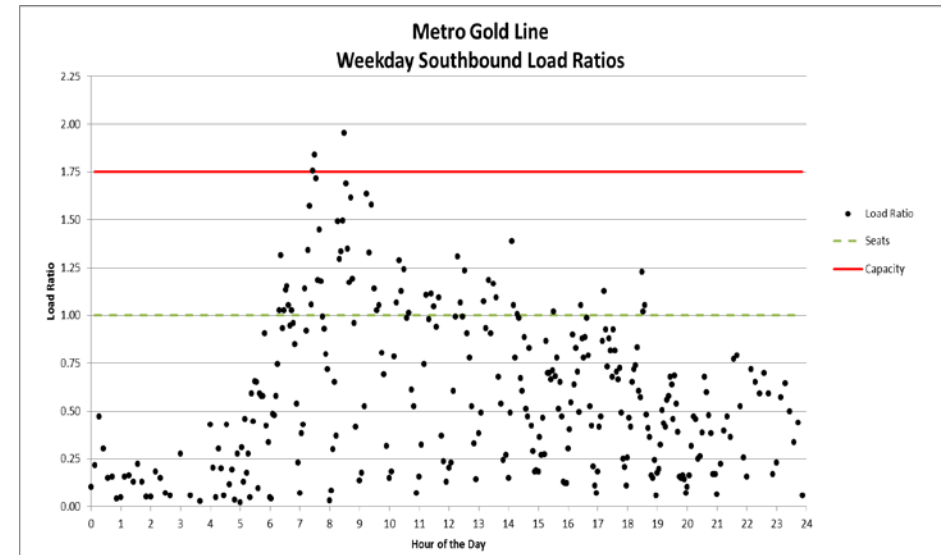
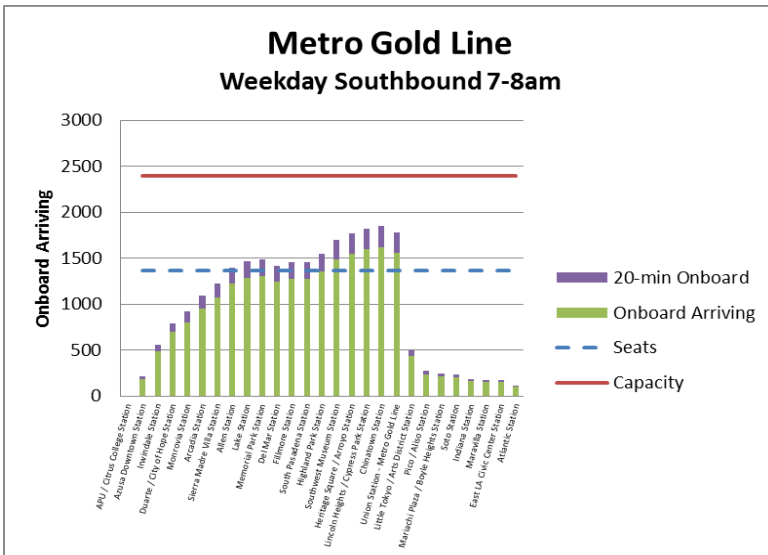
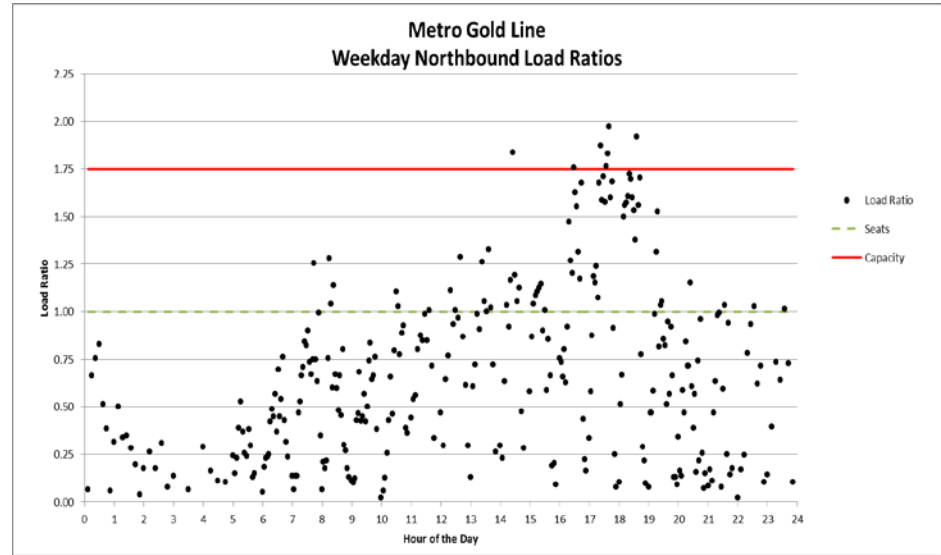
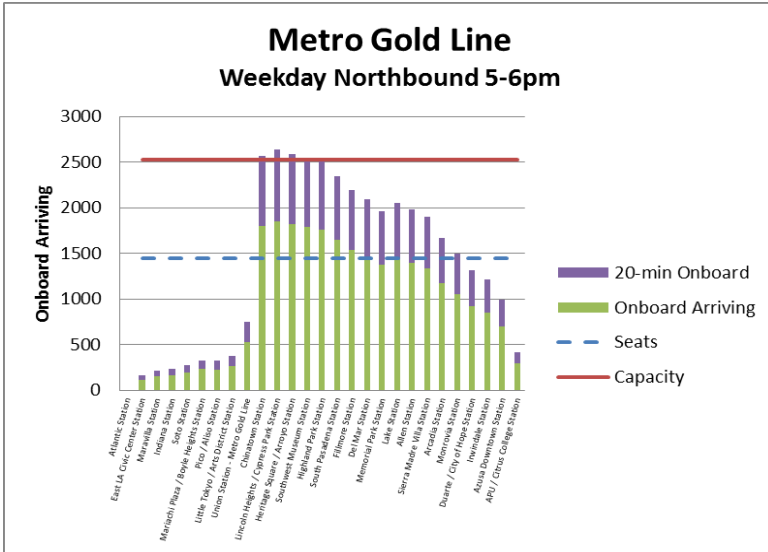


**Metro Green Line
Weekday Westbound Load Ratios**



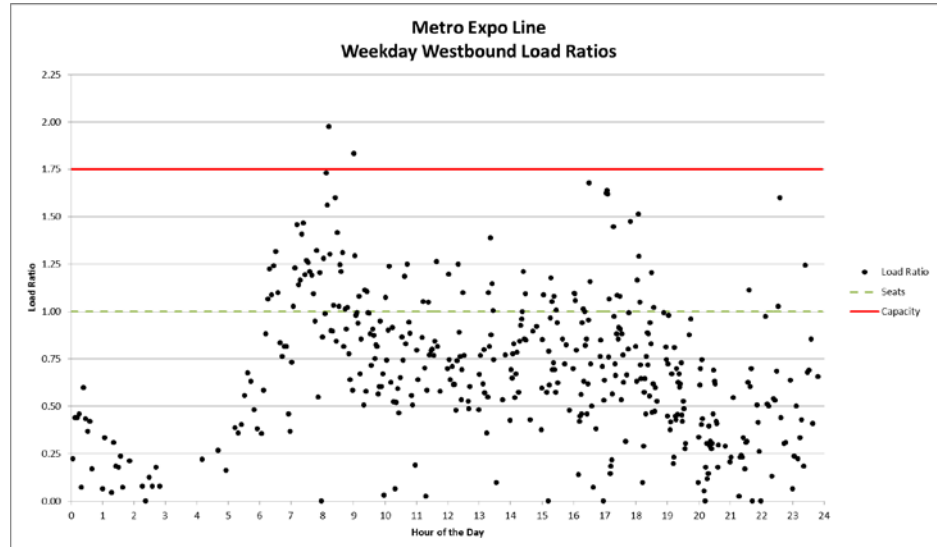
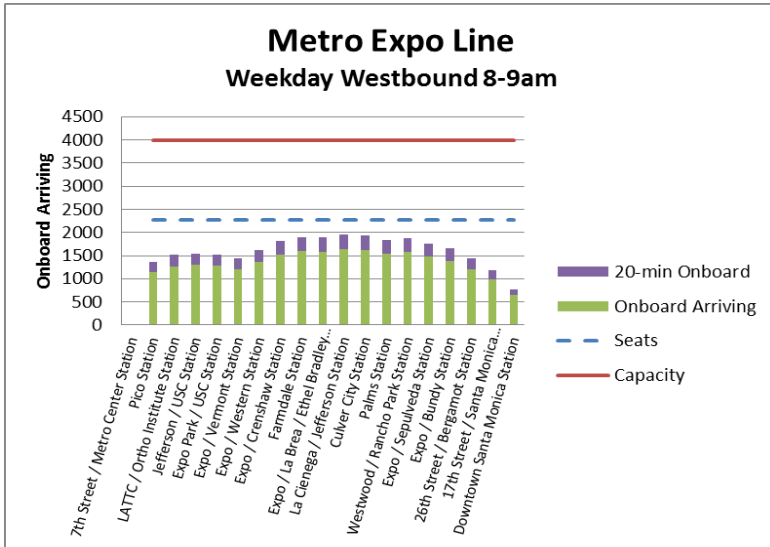
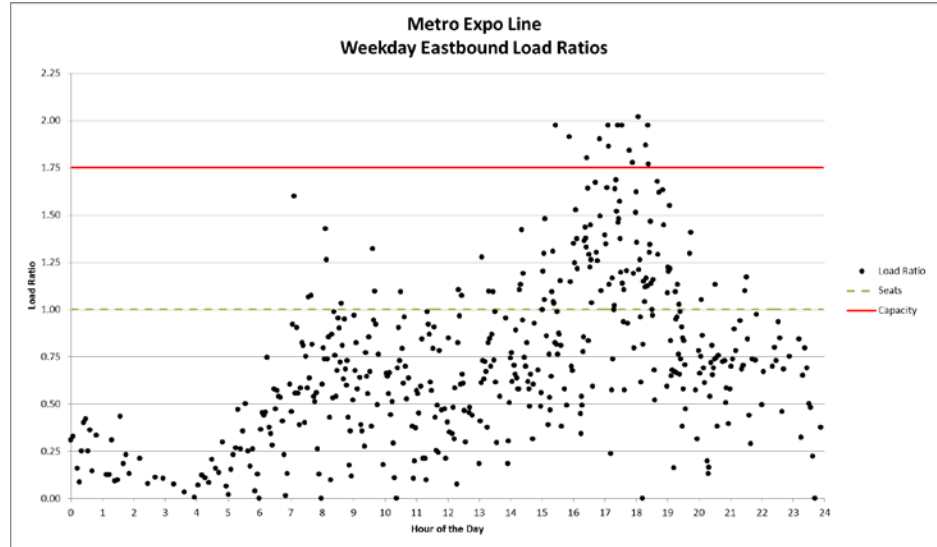
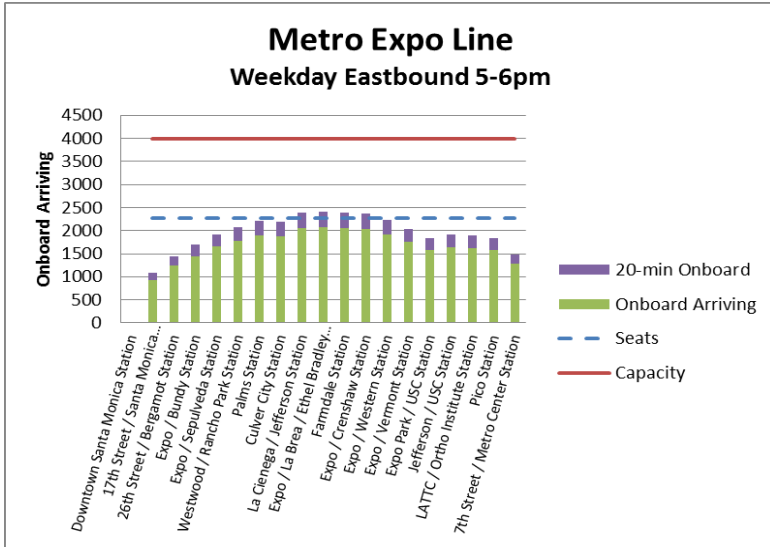
Findings – Weekday Peak Hours

Metro Gold Line



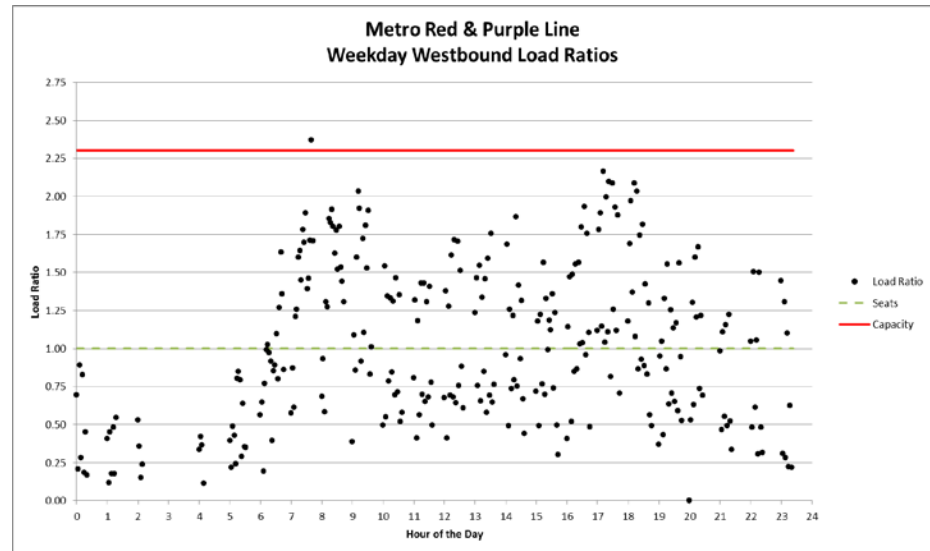
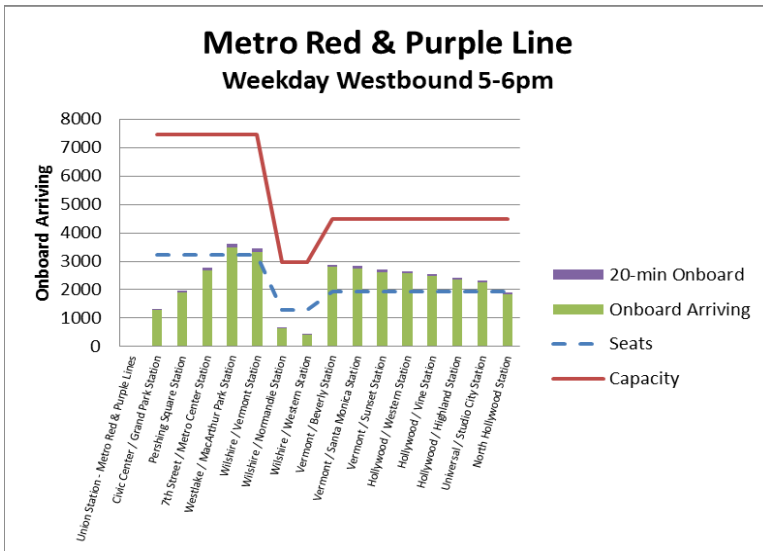
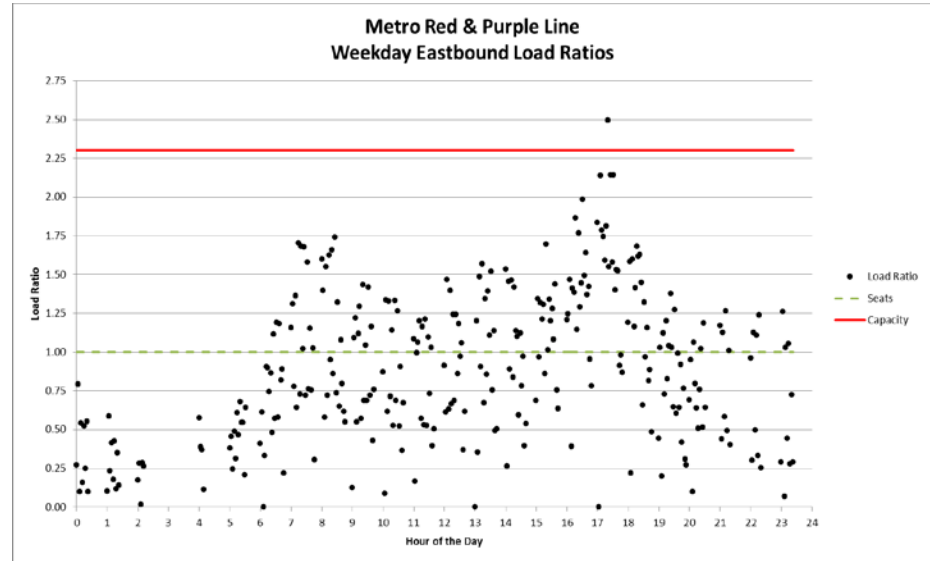
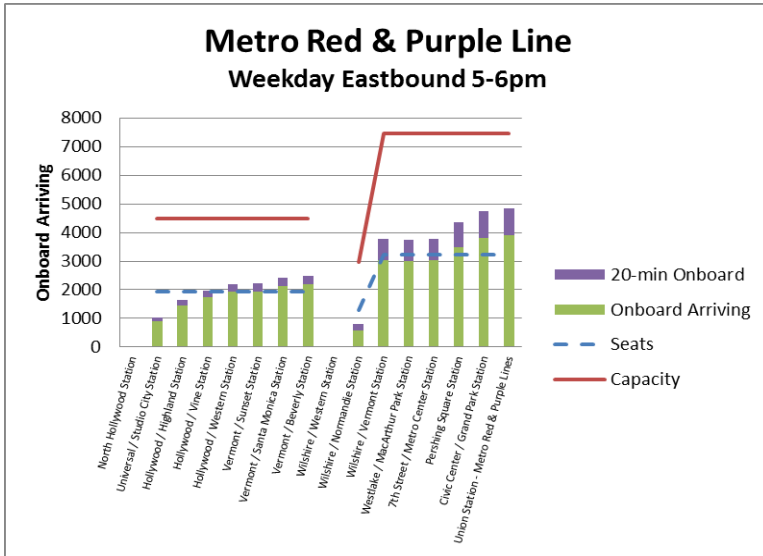
Findings – Weekday Peak Hours

Metro Expo Line



Findings – Weekday Peak Hours

Metro Red & Purple Line



Findings

- The findings indicate there is significant variation in demand from train to train within any specified hour due to the pulsing of ridership, with some observed trains exceeding the policy capacity.
- The table summarizes the number of train trips observed at each level of capacity from less than seated loads (load factor under 1.0) to over maximum capacity (load factor above 1.75 for LRT and 2.30 for HRT).

Line	Direction	Peak Hour	1.0 or Less	1.0 to 1.25	1.25 to 1.50	1.50 to 1.75	Over 1.75	Total TrainTrips
Blue Line	North	AM	2	3	4	2		11
	South	PM		4	2	2	2	10
Green Line	East	PM	3	4	5	4		16
	West	AM	9	8				17
Gold Line	North	PM				6	3	9
	South	AM		1	4	2	1	8
Expo Line	East	PM		1	3		7	11
	West	AM	2	3	2	2	1	10

Line	Direction	Peak Hour	1.0 or Less	1.0 to 1.43	1.43 to 1.87	1.87 to 2.30	Over 2.30	Total Train Trips
Red/Purple Line	East	PM	1	1	7	2	1	12
	West	PM	1	4	1	6		12



Metro

