The Truth about SMART's Ridership

Executive Summary

- After 2 years and four months of operating trains, SMART's ridership remains tiny on the average weekday.
- Total ridership has declined year over year as weekend ridership has declined by more than weekday ridership has increased.
- In comparison to other rail systems in the US, SMART's ridership is tiny
- In comparison to other transit systems in the SF Bay Area SMART's ridership is tiny.

Background

After 2 years and four months of operating trains, SMART released daily ridership figures, which provide numerous insights into the number of people riding the train on weekdays vs weekends, and trends in ridership.

When combined with data provided by the Metropolitan Commission (MTC) based on those using Clipper Cards to pay fares, these two sources combined provide a great deal of information on when people are using the train, what station and time of day they board trains and what stations the get off (or "alight" from) trains.

We summarize these issues in this paper with tables and graphs and also compare the ridership figures with other commuter rail systems in the U.S. as well as other public transit providers in the San Francisco Bay Area.

Data Sources

(1) SMART's daily ridership that provides passengers by day from August 25, 2017 through November 30, 2019.

(2) MTC Clipper data on daily boardings from August 25, 2017 – August 31, 2019

(3) MTC Clipper data on weekday boardings for April 2018 containing station origination and station destination counts by hour.

(4) National Transit Database (NTD) ridership by month from August 2017 – October 2019.

Caveat: Clipper Data Undercounts

Not every passenger on SMART use Clipper Cards to pay their fares. The January 8th staff memo has a detailed description of the different ways. As a result, when using Clipper data provided by the MTC one must be careful to note that they don't count every rider. However, we believe a sufficient number of riders use Clipper Cards that this provides useful guidance for analyzing the patterns of use.

There is a second source of undercounts when using the Clipper data for station origination and destination. When passengers do not swipe their card on exit, they are not included in the count. We discuss this issue in greater detail below.

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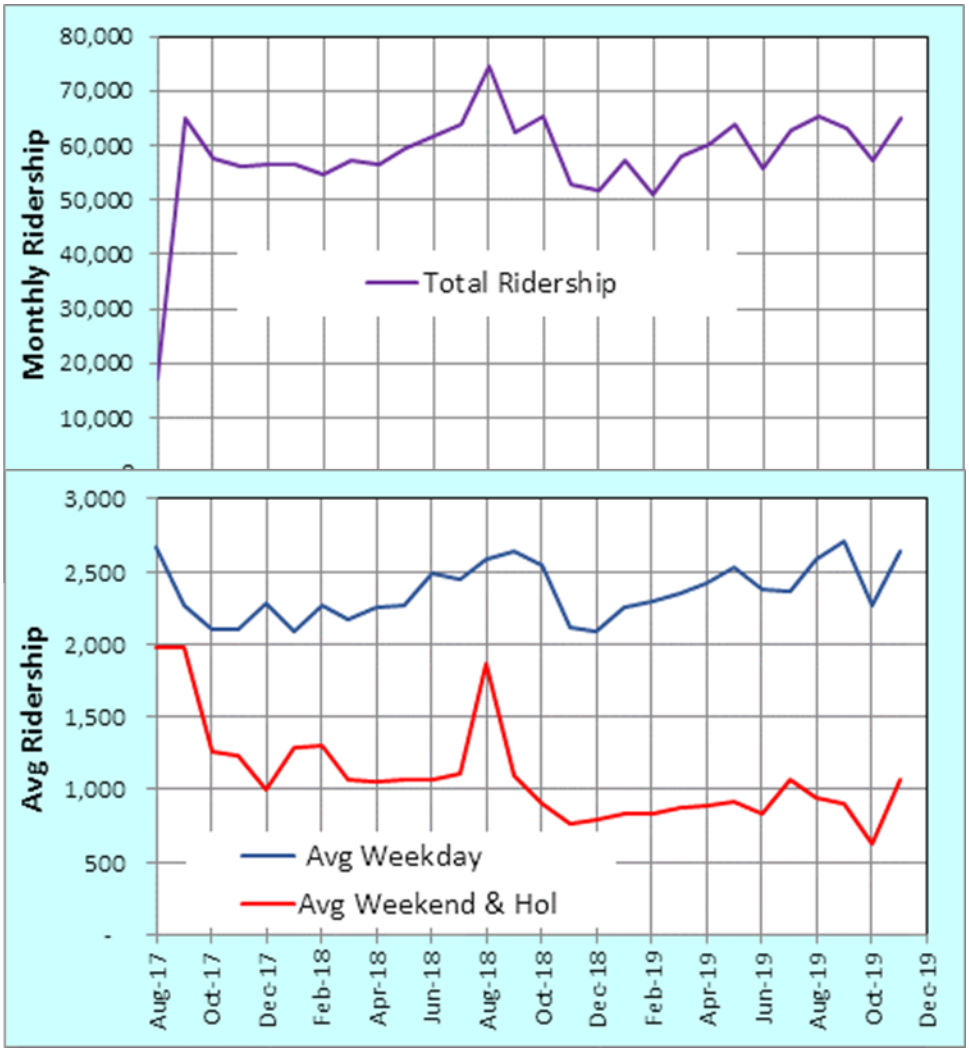
Overall Trends in Weekday and Weekend Ridership

In figure 1 below, we graph the counts of riders by month for weekdays and weekends and holidays. As demonstrated, the trends demonstrate the following

- Total ridership has declined, by a little as shown in the upper panel
- Weekday ridership has increased by a little as shown in the lower panel
- Weekend ridership has declined on a percentage basis more than weekday ridership has increased.
- SMART is a within-suburban rail system. It does not serve a high density employment area like San Francisco. Jobs are dispersed throughout the two counties and there is no convenient way for most commuters to get to their jobs from destination train stations. Prospects for material growth in ridership are by definition limited.

Figure 1

Trends in Total, Weekday and Weekend Ridership by Month



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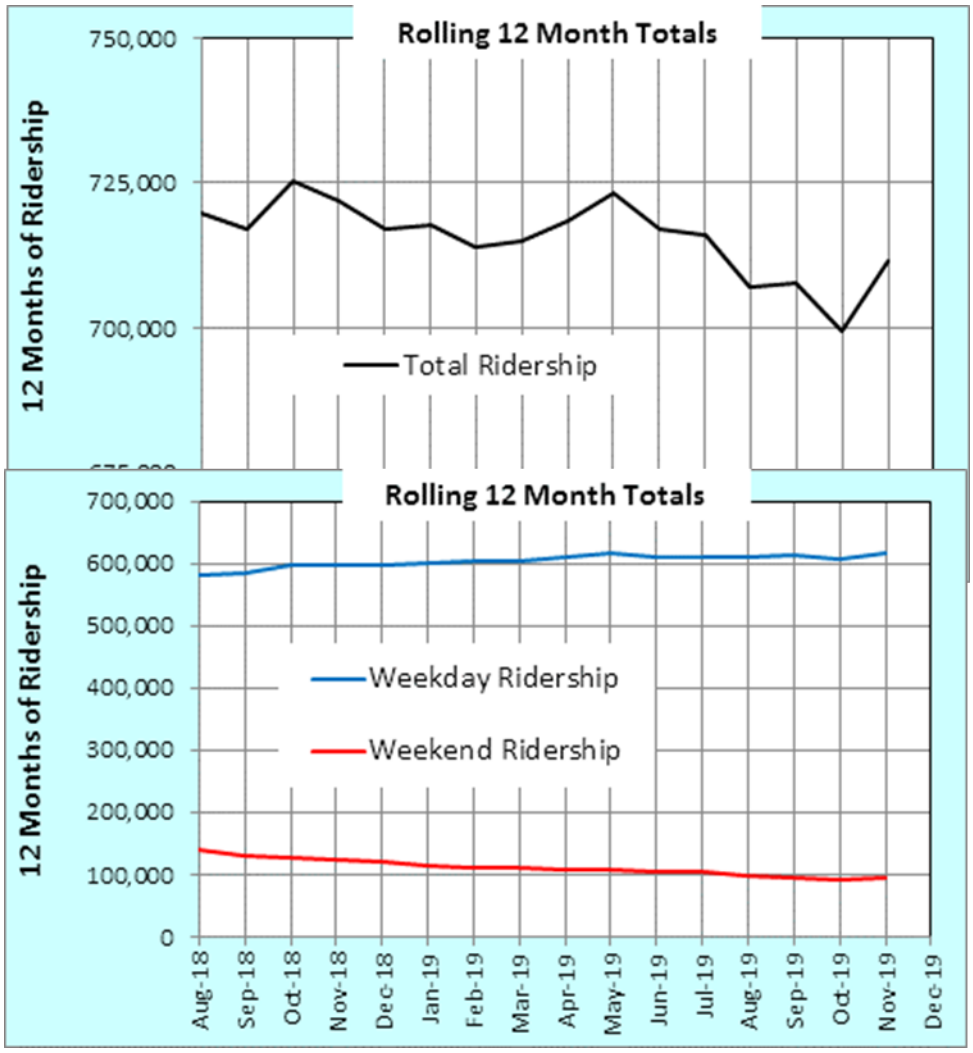
In Figure 2 (next page) we show "rolling 12 month sums" of ridership for weekend, weekday, and total ridership. We do this to compare an annual figure which is often used to assess ridership among the different transit systems. As indicated this demonstrates and reinforces the conclusions above about what the trend in ridership is.

Figure 2
Trends in Total, Weekday and Weekend Ridership using Rolling Annual Ridership



Will the Observed Ridership Trends Continue?

Will total ridership continue to decline? My opinion is that as weekend ridership "flattens out" or stops declining, the growth in weekday ridership will then impact the total ridership trends, such that one might expect – assuming the economy doesn't go into a recession – that total ridership will then begin to increase.

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But be sure to note that all of these trends amount to only minor changes in ridership in terms of average weekday riders. On a base of 2,400 riders per day, a 5% increase is only 120 riders. Also, because transit usage is sensitive to employment a recession could reduce ridership markedly as it does at other transit agencies.

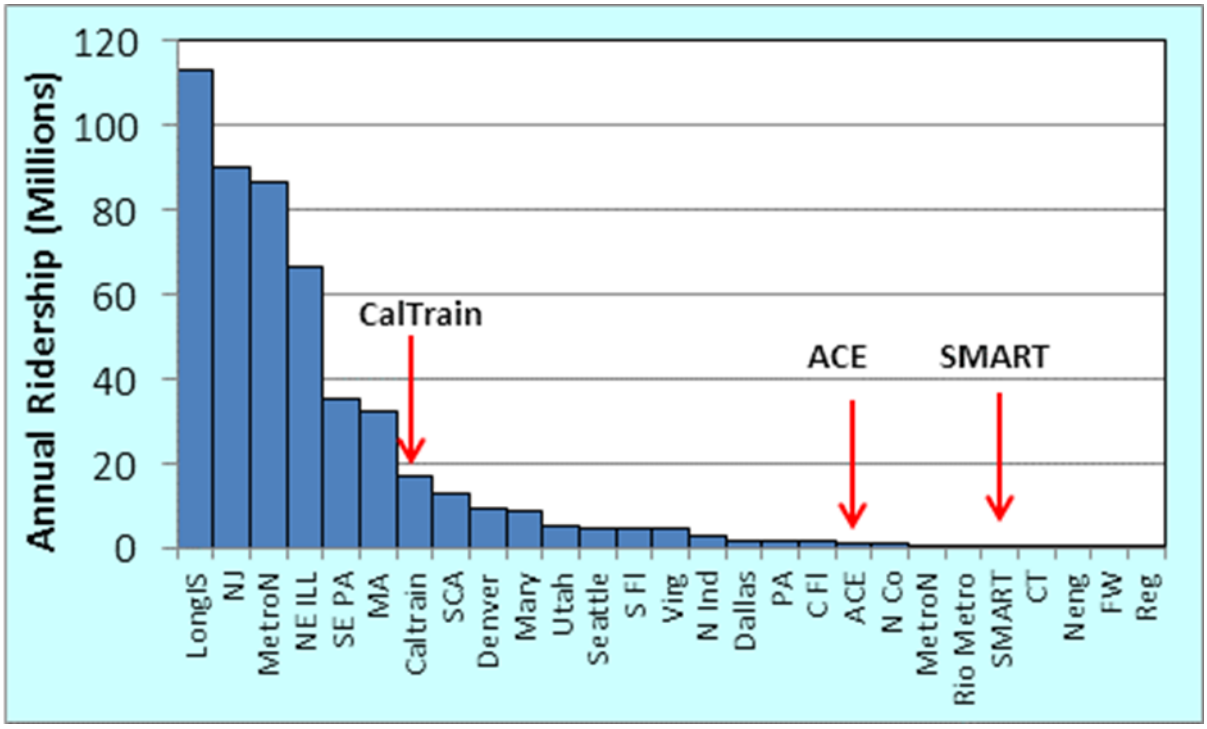
How Does SMART's Ridership Compare to Other Commuter Railroads in the US?

In the figure below, we compare SMART's annual ridership using the latest data from the NTD to conduct the comparisons. Data is monthly ridership from November 2018 – October 2019. Figure 3, provides the graphics for these ridership figures.

As indicated, SMART is generated some of the lowest ridership figures of any rail transit system in the country. It is so low that it can barely be detectable on the graph. By comparison, Caltrain is the seventh largest in the country, taking more than 20 times as many riders than what SMART trains transport.

Figure 3

Rolling 12 Month Ridership: November 2018 – October 2019



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SMART's Design Achilles Heel

The national data demonstrates why SMART's ridership is so limited. The six largest commuter rail systems in the country serve a high density concentrated central business district where commuters can walk from rail stations to their jobs. Even Caltrain provides support for this conclusion. First, it doesn't make all the way into downtown San Francisco (yet). Second, despite the large number of passengers taking southbound trains in the morning commute and private shuttles serving Santa Clara County stations, the ridership is small relative to the number of jobs in San Mateo and Santa Clara counties, where there are over 1.5 million people working.

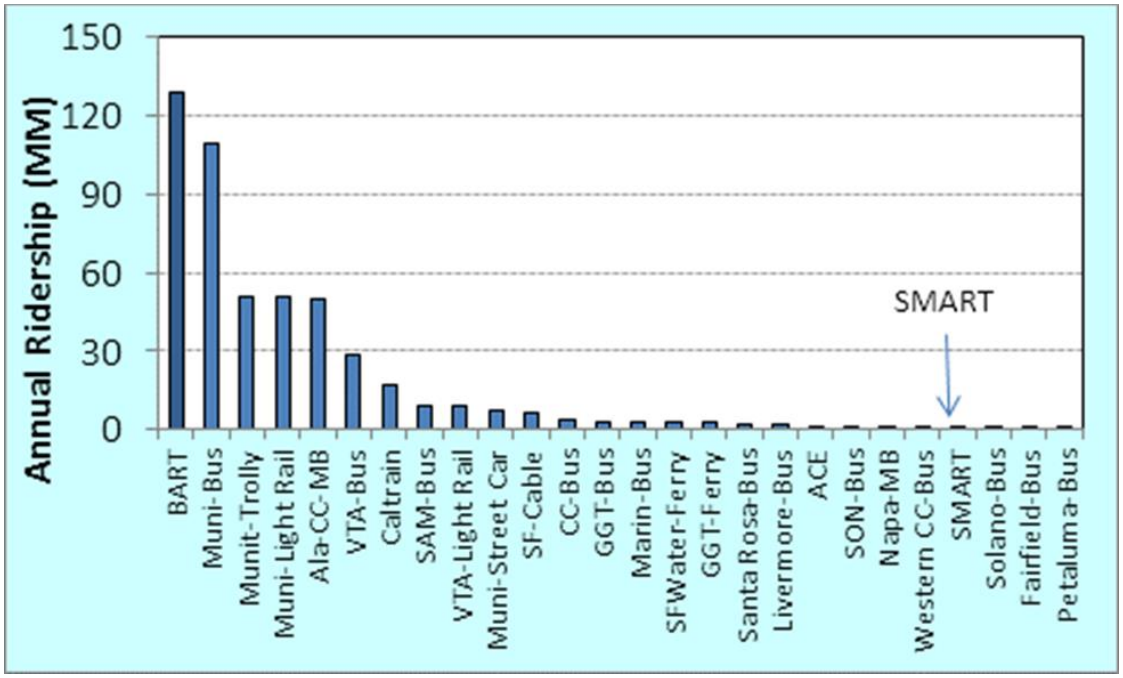
How Does SMART's Ridership Compare to Other Transit Systems in the Bay Area?

SMART's ridership is also low relative to transit providers in the San Francisco Bay Area. As shown in Figure 4, SMART's ridership is tiny relative to the BART, Muni, and Alameda and Caltrain.

Figure 4

Ridership for November 2018 – October 2019

Bay Area Transit Operators by Mode



Ridership by Direction and Hour

Based on Clipper Card data for the April 2018 that contained boardings by hour and station, we developed the following diagram, which demonstrates the vast majority of riders are taking trains during the peak hours, southbound in the morning, and northbound in the evening. In order to obtain these counts, we inflated the Clipper Card counts to the total weekday ridership reported by SMART in the January 8, 2020 staff report.

Figure 6 on the next page plots this information.

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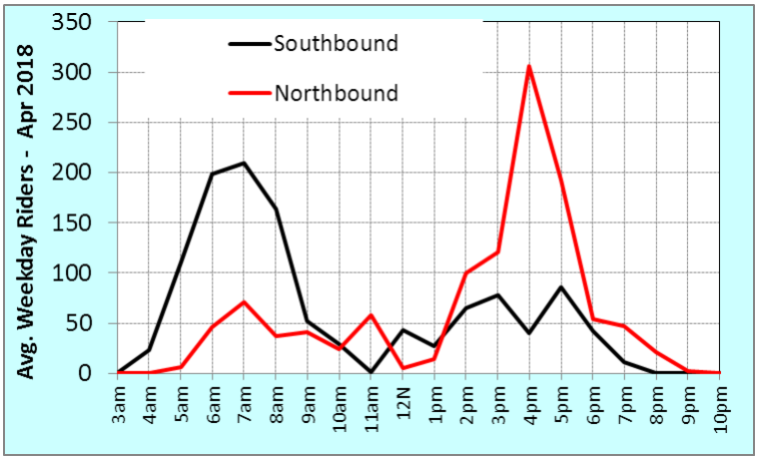
Technical note: since not all riders on the train travel from end to end – there are some are boarding later in the trip, others are alighting on the trip, do not be fooled by the 400 number. The trains are operating at very low capacity utilization during most of the day and there are usually many seats available even on the peak hour trains.

Figure 5

Average Weekday Ridership by Hour and Direction – April 2018



Origination-Destination Results from Clipper Data

Table 1 (below) provides some computation from the Clipper Data**.** Two major conclusions can be drawn from this information:

1) Peak hour trips represent about 72 percent of the weekday passenger trips.

2) In the morning commute, prior to 10am, the majority of trips are Sonoma County residents commuting to Marin or within Sonoma County. Very few Marin residents are boarding trains in the morning.

Table 1
Selected Percent Distribution of Passenger Trips on Average Weekday

Average Weekday Passengers April 2018:	**2,246**
Percent of Total Weekday Passengers on:	
Trains before 9:59	41
Trains 10am - 3:59pm	24
Trains 4pm - 6:59pm	31
Trains after 7pm	4
Percent of Total Weekday Passengers taking Trips:	
Within Sonoma	17
Within Marin	7
Sonoma to Marin before 4pm	35
Marin to Sonoma before 4pm	16