All About SMART's Costs

Background

One of the key performance metrics of a passenger rail system is how much it costs to operate trains to provide rail services to the public.

In SMART's case this turns out to be a non-trivial question to answer because of the many ways the agency hides information from the public. It's not just details on ridership that are hidden. It is also the way information is presented on SMART's operating costs. These important performance measures are buried in reports and overseen by a Board that doesn't ask questions and "rubber stamps" reports provided by staff.

Fortunately, there are other sources of data – the Federal Transit Agency (FTA) and the Metropolitan Transportation Commission (MTC) – where the agency reports information in a consistent way with the way other rail agencies report their operating costs. We have looked at all of these reports and this white paper provides a summary and comparison to other agencies.

Operating Costs vs. Total Costs: Some Guidelines

There are many conventions used to report "costs" and readers need to be aware that costs associated with construction ("capital costs") are usually separated and excluded from the definition of "operating costs." The reason this is particularly important in the case of rail is that capital costs can be very large, but only occur for a relatively short period (e.g., a few years during construction of a rail line or its extensions) and these costs can vary significantly from one location to another depending on a variety of local factors.

There are two items that arise in SMART's case that makes it more difficult or controversial to accept the way most transit planning agencies organize these costs. First, the expenditures associated with paying off bonds (i.e., "debt service") are excluded from most presentations of operating costs. Second, transit agencies exclude the non-cash entry of "depreciation." In both cases, these costs are significant. But they are excluded from this presentation of operating costs because the FTA has determined to exclude depreciation from the reporting of operating costs.

Direct Operating Costs vs. "Overhead" or Indirect Operating Costs

Trains are expensive to operate. They require fuel, crews, stations and maintenance of all of these items. These are "direct" operating costs. But trains don't run without transit staffs, planning, engineering, and a variety of other overhead costs that are part of operating costs and part of the requirements for offering passenger service, but they're relatively fixed in the short term and don't vary with the number of trains. I include these in the definition of operating costs because that is the standard in the industry to perform cross comparisons across different transit agencies to assess and analyze such issues as cost-effectiveness.

Lack of Transparency in SMART's Reports on the Costs of Operating Trains

The SMART Board of Directors does not ask many questions regarding such fundamental questions as "how much does it cost to operate trains?" As a consequence, in order to estimate SMART's operating costs for the fiscal years 2017-18, 2018-19, and 2019-20 I have sought

special data submissions supplied to the Metropolitan Transportation Commission. These are shown in Table 1

Fiscal Year	Total Operating Costs ($MM)	Source
2017/18	$30.3	SMART Submissions to State of CA provided by MTC in response to a PRA
2018/19	$38.1	
2019/20	$41.3	SMART Strategic Plan

Note: SMART began providing passenger services on August 25, 2017 and it is one of the reasons there is a "jump in the costs between this partial year and fiscal year 2018/19

Fundamental Economic Principles of Rail Operations in the United States

Principle #1: Trains that fail to serve a high density employment center have zero chance of impacting peak hour traffic. They simply don't and can't carry many commuters close to jobs that are dispersed across suburban counties.

Principle #2: Trains are expensive to operate. When they serve high density employment areas and generate significant ridership, those costs are distributed across a lot of riders and so operating costs per rider are low. When ridership is tiny the operating costs per rider are high.

In the tables that follow, we will demonstrate that SMART's operating performance conforms to these two principles: ridership is low and so when its high operating costs are divided by the number of riders, operating costs per rider and a subsidiary measure taxpayer subsidy per rider are extraordinarily high when compared with other commuter rail systems in the U.S.

Trends in SMART's Operating Costs Per Passenger and Taxpayer Subsidy per Passenger

In table 1 below, I report the two factors relevant to calculating SMART's operating costs per passenger and taxpayer subsidy per passenger. The factors are: Operating costs, fare revenues, and ridership. For fiscal years 2017/18 and 2018/19 we have reported values. For fiscal year FY 2019/20 we have operating costs and fare revenues reported in the Strategic Plan and ridership only through December 2019 and use the calendar year as an estimate of total ridership for the fiscal year.

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Table 1

Data used to Calculate SMART's Operating Costs per Passenger and Taxpayer Subsidy per Passenger

Item	Fiscal Year		
	2017/18*	2018/19	2019/20
Operating Costs ($ millions)	30.3	38.1	41.3
Fare Revenues ($ millions)	3.3	3.6	4.1
Ridership (thousands)	598.8	716.8	717.9
Operating Costs per Passenger ($)	50.60	53.15	57.53
Taxpayer Subsidy per Passenger ($)	45.09	48.13	51.82
Farebox Recovery Ratio (%)	10.9	9.4	9.9

* SMART began passenger service on August 25, 2017. Ridership for this period is less than reported to the NTD because that report included passengers and VIPs prior to the beginning day of service.

Operating Costs per Passenger and Taxpayer Subsidy per Passenger for Commuter Rail Systems in the U.S. for FY 2017/18

In figure 1 (next page), we compare operating costs per rider for FY 2017/18 using the calculations for SMART in Table 1 for the same year. In figure 2, we make similar comparisons for taxpayer subsidy per rider. Both are graphed against the reported annual ridership for each agency. As indicated, SMART had the highest operating costs per rider and taxpayer subsidy two years ago when compared with other rail systems in the U.S.

Figure 1 clearly demonstrates the second economic principle. Trains are expensive and those systems with low ridership have high operating costs per passenger and significant taxpayer subsidies per passenger.

As data is not available for other systems for more recent years, we can't make a comparison. However, we note that based on the calculations in Table 1, operating costs have risen 36 percent in the two years since SMART began service, while ridership has have risen only 20%. Since FY 2017/18 is a partial year, it is better to compare the last two years of operations, during which operating costs increased 8.3% while ridership was relatively constant.

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Figure 1
Operating Costs per Passenger – U.S. Commuter Rail Systems
FY 2017/18

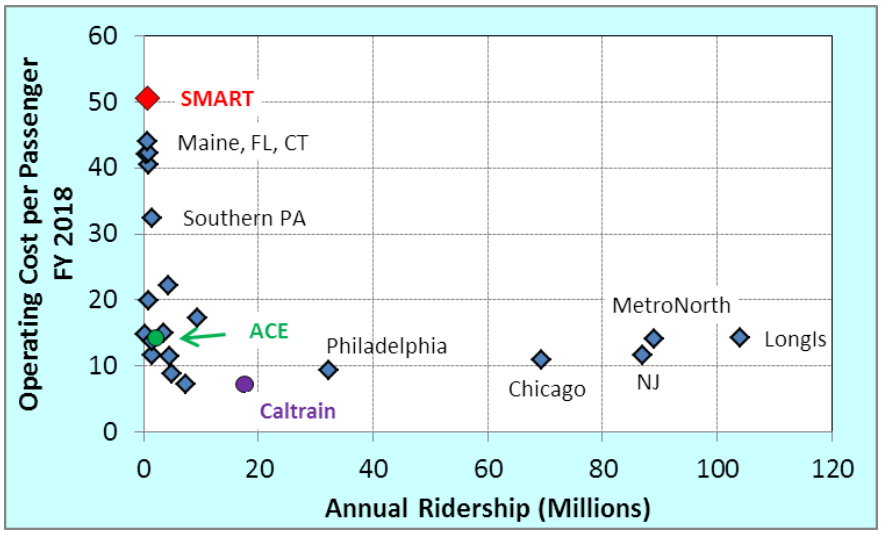
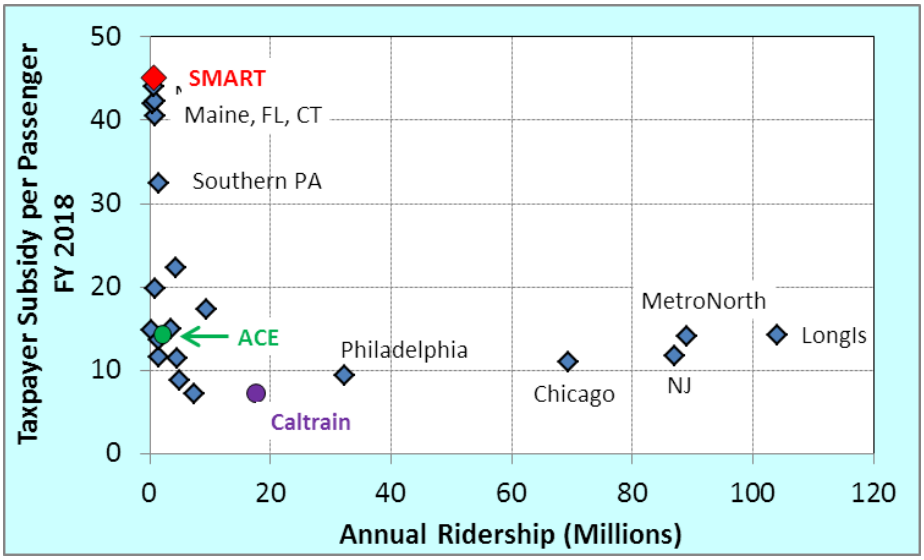


Figure 2
Taxpayer Subsidy per Passenger – U.S. Commuter Rail Systems
FY 2017/18



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Operating Costs per Passenger and Taxpayer Subsidy per Passenger for Selected Bay Area Transit Systems for FY 2017/18

Figures 3 and 4 plot the operating costs per passenger and taxpayer subsidy per passenger for FY 2017/18 for selected Bay Area Transit systems. As indicated, SMART is the most expensive transit system on a per passenger basis, involving the highest taxpayer subsidy per rider when compared with any other transit system in the Bay Area

Figure 3
Operating Costs per Passenger – Selected Bay Area Transit Systems
FY 2017/18

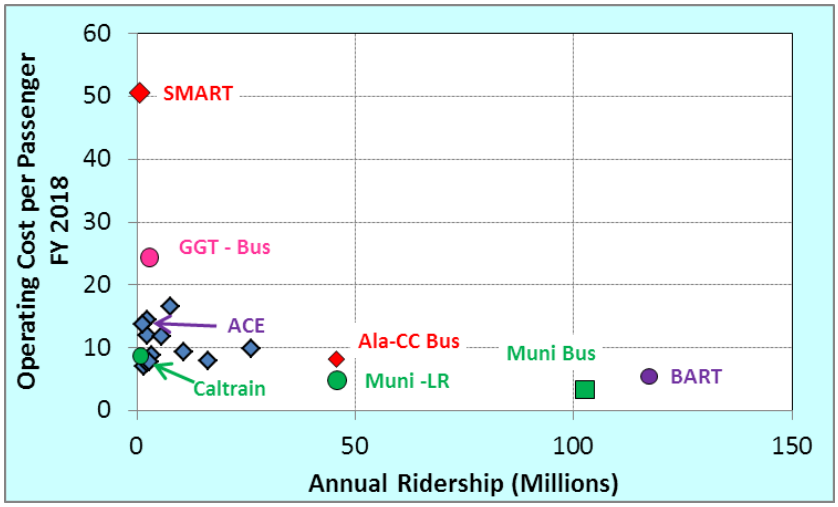
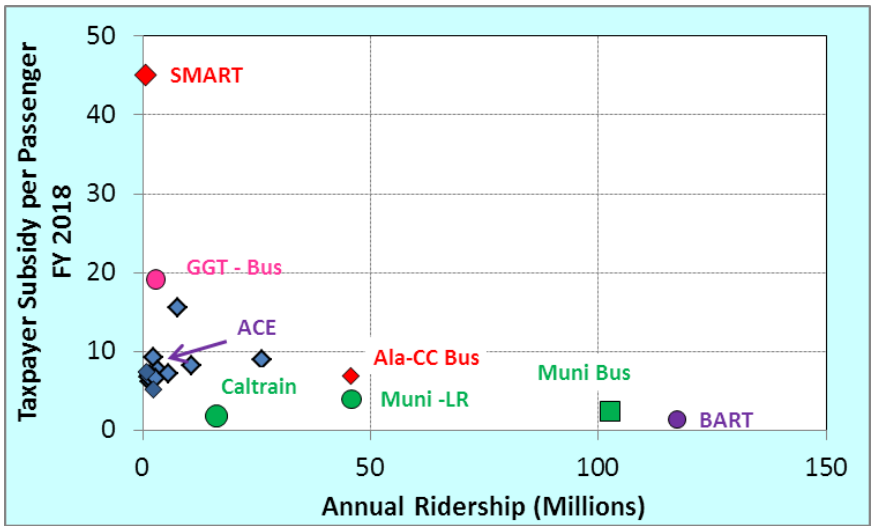


Figure 4
Taxpayer Subsidy per Passenger – Selected Bay Area Transit Systems
FY 2017/18



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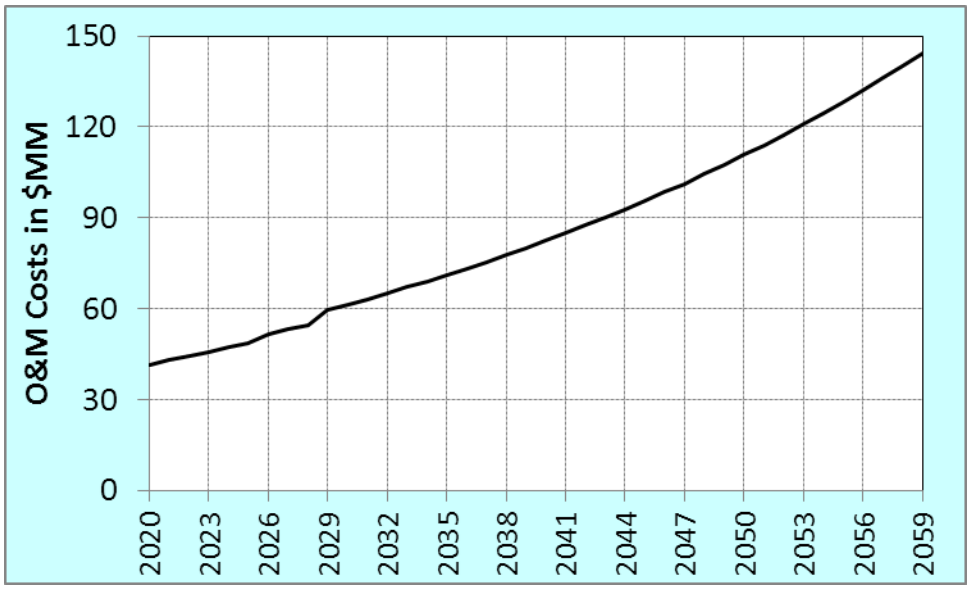
SMART's Strategic Plan: What the Agency Says about Current Expenses and Future Expenses on a Per Passenger Basis

SMART's Strategic Plan (2019) provides its annual assumptions regarding future sales tax revenues, operating costs (labeled "O&M Costs") and fare revenues. They stated in a review at Board meetings that they assumed no increase in ridership, but we don't believe that is a realistic assumption. So in this section we evaluate what their projection of operating cost increases mean to operating costs per passenger.

First, in Figure 5 we plot the O&M costs from the spreadsheet embedded in SMART's Strategic Plan. They are assumed to rise 3.3 percent per year. This is far below what the experience has been for the past two years (see Table 1 above), but we leave the credibility of this assumption to the reader.

Figure 5

SMART's Projections of Operating Costs in their Strategic Plan



In Figure 6 on the next page we answer the question "what is the relationship between assumed ridership growth" and operating costs per passenger over 39 years. The curve demonstrates the relationship described throughout this paper that ridership matter s to costs per passenger, a key performance metric.

If ridership growth is nil, as it has been the past two years, operating costs per passenger will explode, exceeding $200 per passenger trip in 2059. If it is ridership is robust and continuous over this same period, exceeding the 3.3 rate of increase in operating costs, operating costs per passenger will decline, but only slightly.

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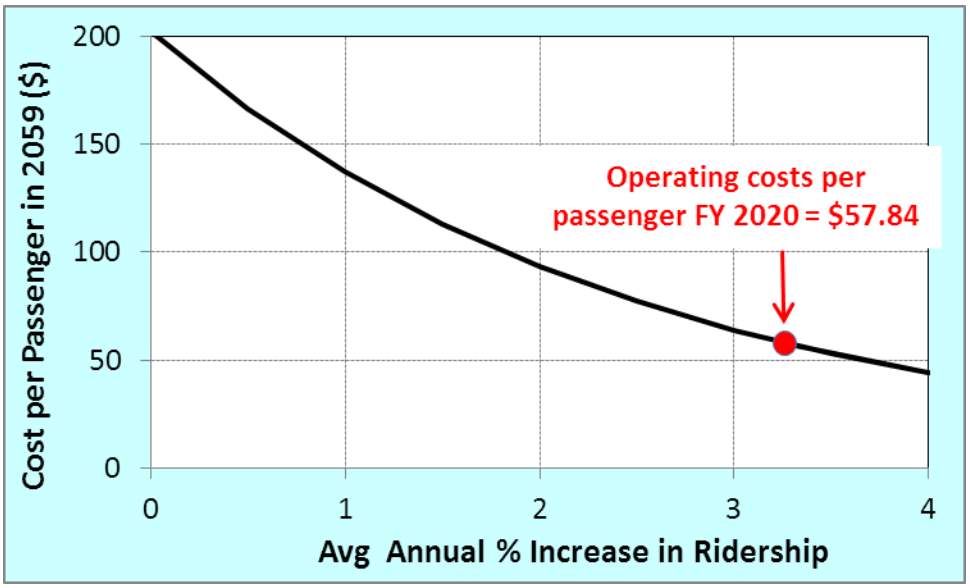
Figure 6

Potential Operating Costs per Passenger Projected by SMART



Conclusion

SMART's current operations are a demonstration of the two economic principles cited above. Rail service is expensive and when ridership is paltry, as it currently is, operating costs per passenger and taxpayer subsidy per passenger are high. As we've demonstrated based on these performance metrics, SMART performs relatively poorly compared to other rail systems in the U.S. or other transit systems in the San Francisco Bay Area.

Based on SMART's own assumptions about how its operating costs are expected to rise over the next 39 years, SMART's ridership will need to "break out" and demonstrate robust growth over that period. To the extent it doesn't, the taxpayer subsidies will continue to grow over time.

It also demonstrates the importance of managing operating costs, which based on the first two years of operations, have grown must faster than what is assumed in the agency's financial plan. Should mismanagement of costs continue, the taxpayer subsidy will grow even faster.