SMART BOARD OF DIRECTORS
PERFORMANCE MEASURES: PART 2
SELECTING METRICS TO GUIDE DECISION-MAKING - APRIL 21, 2021

Agenda

- Present SMART data and recommended metrics from National Transit Database

- Present additional recommended metrics for near-term implementation

- Discuss next steps

Where are we in this process?

- Recall from last time:
  - We have enough data to start analyzing trends; now we need to decide where to focus attention & resources
  - We want to move from reporting data to measuring performance

EXAMPLE: Ridership Data

Downloadable Excel File

SONOMA~MARIN SMART AREA RAIL TRANSIT

Ridership Counts

Paid Fare Media may not capture:
· Clipper Card users that don't tag on & off at the platforms
· Promotional Free Programs
· Free service days
· Riders under the age of 5
· Mobile app users who don't "activate" their ticket
**Preliminary data subject to revision**

Date	Day of the Week	FARE MEDIA		Onboard Count	Bicycles	Wheelchai
		Clipper Tags	Fare App Activations			
06/29/17	Thursday	-	-	3,000	-	-
07/01/17	Saturday	-	-	1,380	-	-
07/04/17	Tuesday	-	-	1,365	-	-
07/07/17	Friday	-	-	1,151	-	-
07/08/17	Saturday	-	-	2,885	-	-
07/09/17	Sunday	-	-	3,077	-	-
07/11/17	Tuesday	-	-	713	-	-
07/13/17	Thursday	-	-	3,524	-	-
07/15/17	Saturday	-	-	3,269	-	-
07/16/17	Sunday	-	-	3,035	-	-
07/18/17	Tuesday	-	-	678	-	-
07/19/17	Wednesday	-	-	4,018	-	-
07/20/17	Thursday	-	-	1,103	-	-
07/22/17	Saturday	-	-	3,735	-	-
07/23/18	Sunday	-	-	4,278	-	-
08/25/17	Friday	-	-	2,561	-	-
08/26/17	Saturday	1,358	308	1,932	-	-
08/27/17	Sunday	1,549	415	2,021	-	-
08/28/17	Monday	1,501	212	2,539	-	-
08/29/17	Tuesday	1,793	238	2,627	49	0
08/30/17	Wednesday	1,934	280	2,733	220	23
08/31/17	Thursday	1,990	286	2,860	259	3

General Manager's Monthly Report

RIDERSHIP INFORMATION

Passenger Ridership	
Daily Riders	Sum of Ridership
2020	175985
2021	14100
Jan	6728
Feb	7372
1-Feb	302
2-Feb	398
3-Feb	391
4-Feb	400
5-Feb	394
6-Feb	0
7-Feb	0
8-Feb	311
9-Feb	372
10-Feb	379
11-Feb	338
12-Feb	389
13-Feb	0
14-Feb	0
15-Feb	272
16-Feb	397
17-Feb	392
18-Feb	382
19-Feb	337
20-Feb	0
21-Feb	0
22-Feb	350
23-Feb	365
24-Feb	407
25-Feb	403
26-Feb	393
27-Feb	0
28-Feb	0
Grand Total	190085

Bike Ridership	
Weekly Riders	Sum of Bike Ridership (Weekly)
2020	27129
2021	2849
Jan	1366
Feb	1483
1-Feb	385
8-Feb	341
15-Feb	343
22-Feb	414
Grand Total	29978

ADA Ridership	
Weekly Riders	Sum of ADA Ridership Weekly
2020	679
2021	18
Jan	10
Feb	8
1-Feb	1
8-Feb	3
15-Feb	3
22-Feb	1
Grand Total	697

MARIN SMART AREA RAIL TRANSIT
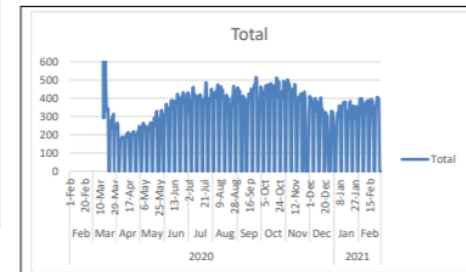
EXAMPLE: Ridership Data Analysis

DECEMBER 2020 (COVID 19) SMART RIDERSHIP

SMART Ridership Report
Board of Directors,
January 20, 2021

December 2020 saw COVID-19 related public health orders to Stay at Home reinstated across counties in the Bay Area, reversing the earlier lifting of restrictions. Though Sonoma County had never left the most restricted tier (Purple) in 2020, Marin County had moved into less restricted tiers in Fall 2020 allowing, for example, indoor dining and schools to reopen. With those openings, SMART, along with other Bay Area Transit Agencies, had seen slight increases in ridership compared to the early months of the pandemic (April & May). Compared to November 2020, average weekday ridership decreased by 26% with the reissuing of Stay at Home Orders for Sonoma and Marin Counties in the second week of December 2020.

SMART modified services in March 2020 due to the pandemic, with weekend service annulled starting March 21/22 and weekday service reduced first by 4 trips (down to 34) on March 23rd, then by another 18 trips, (down to 16), on April 6.

SMART's December 2020 ridership was down 87% overall compared to December 2019. Total ridership year-to-date is down 86%. Fare payments in December through the Clipper and SMART App systems were also down 86% from the previous year. The total number of bicycles is down 73%. However, the percentage of riders bringing bicycles onboard grew from 8% in December 2019 to 23% in December 2020.

MONTHLY TOTALS YEAR-OVER-YEAR	Dec 2019	Dec 2020	% Change
Total Ridership (Onboard Counts)	58,199	7,414	-87%
Total Paid Ridership (Clipper + App Only)	49,907	6,983	-86%
Average Weekday Ridership (Onboard Counts)	2,391	337	-86%
Average Weekday Paid Ridership (Clipper + App Only)	2,090	317	-85%
Average Weekend/Holiday Ridership (Onboard Counts)	814	0	-100%
Average Weekend/Holiday Paid Ridership (Clipper + App Only)	666	0	-100%
Total Bikes Onboard	4,754	1,690	-64%
Total Wheelchairs Onboard	246	23	-91%

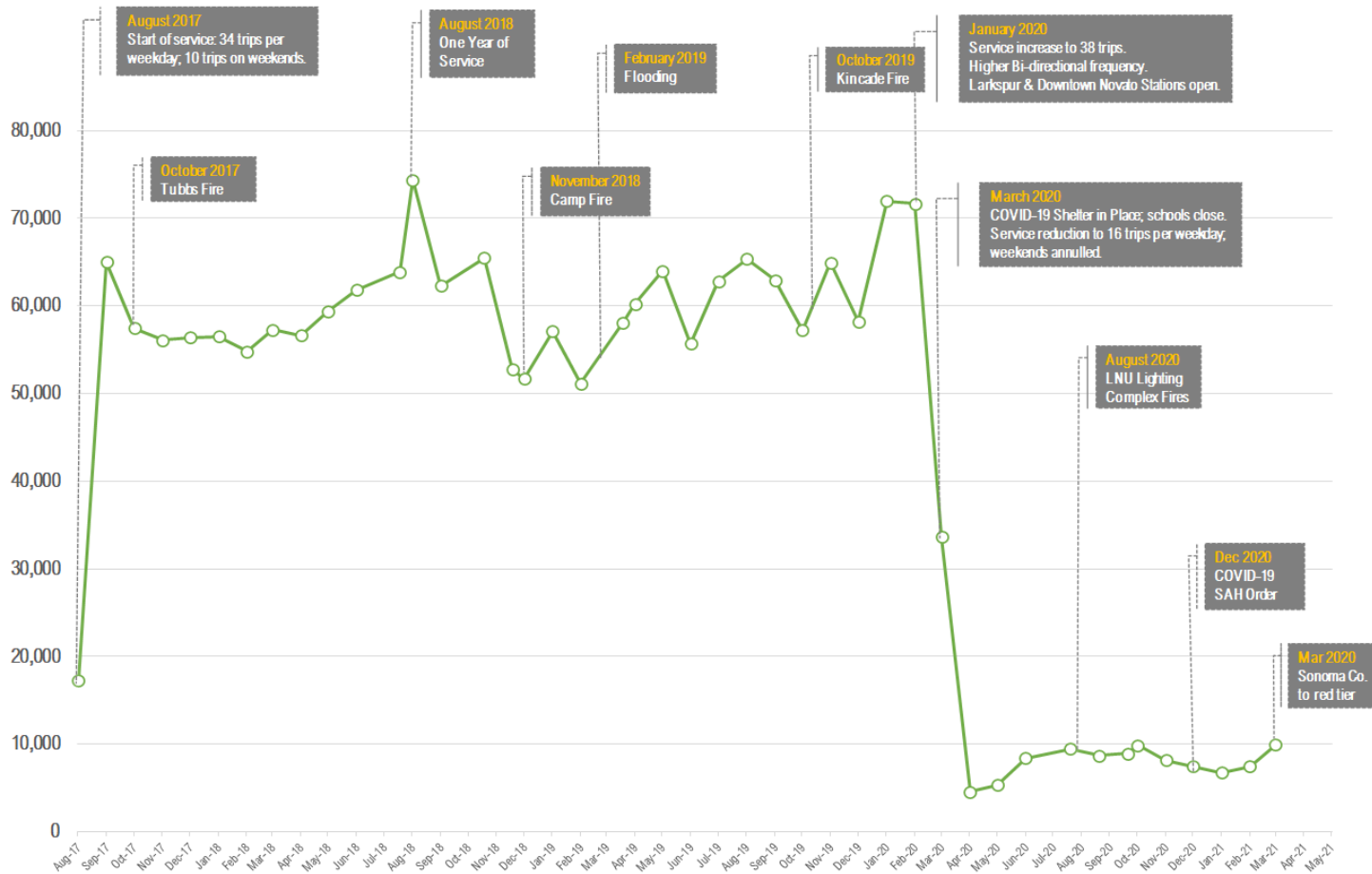| FISCAL YEAR-TO-DATE (JUL - DEC)	Fiscal Year 2020	Fiscal Year 2021	% Change*
Total Ridership (Onboard Counts)	371,564	52,450	-86%
Total Paid Ridership (Clipper + App Only)	294,744	48,886	-83%
Average Weekday Ridership (Onboard Counts)	2,565	410	-84%
Average Weekday Paid Ridership (Clipper + App Only)	2,094	381	-82%
Average Weekend/Holiday Ridership (Onboard Counts)	940	0	-100%
Average Weekend/Holiday Paid Ridership (Clipper + App Only)	629	0	-100%
Total Bikes Onboard	41,767	11,112	-73%
Total Wheelchairs Onboard	1,379	184	-87%

*NOTES: COVID-19 Stay at Home Orders issued third week of March 2020. SMART annulled services starting March 21. SMART experienced similar ridership reductions to other transit systems in the Bay Area and Nationally. Free fare days and free fare programs offered in Fiscal Year 2020 also contributed to lower Clipper + App numbers. Stay at Home Orders were re-issed in December 2020 and extended in January 2021.

- Monthly Board report includes calculations relative to prior periods and narrative summary of notable trends and developments

SONOMA~MARIN SMART AREA RAIL TRANSIT

EXAMPLE: Ridership Data Enhanced Presentation

SMART Ridership

August 2017
Start of service: 34 trips per weekday; 10 trips on weekends.

October 2017
Tubbs Fire

August 2018
One Year of Service

November 2018
Camp Fire

February 2019
Flooding

October 2019
Kincade Fire

January 2020
Service increase to 38 trips.
Higher Bi-directional frequency.
Larkspur & Downtown Novato Stations open.

March 2020
COVID-19 Shelter in Place; schools close.
Service reduction to 16 trips per weekday;
weekends annulled.

August 2020
LNU Lighting Complex Fires

Dec 2020
COVID-19 SAH Order

Mar 2020
Sonoma Co. to red tier

Performance Metrics from the National Transit Database (NTD)

SMART NTD AGENCY PROFILE: FY2018-19

5401 Old Redwood Highway
Suite 200
Petaluma, CA 94954

Sonoma-Marin Area Rail Transit District
2019 Annual Agency Profile

Programming and Grants Manager: Ms. Joanne Parker
707-794-3062

General Information

Urbanized Area Statistics - 2010 Census
Santa Rosa, CA
- 98 **Square Miles**
- 308,231 **Population**
- 123 **Pop. Rank out of 498 UZAs**

Other UZAs Served
13 San Francisco-Oakland, CA, 0 California Non-UZA, 428 Petaluma, CA

Service Area Statistics
- 2,596 **Square Miles**
- 763,651 **Population**

Service Consumption
- 18,371,183 **Annual Passenger Miles (PMT)**
- 716,847 **Annual Unlinked Trips (UPT)**
- 2,420 **Average Weekday Unlinked Trips**
- 1,043 **Average Saturday Unlinked Trips**
- 877 **Average Sunday Unlinked Trips**

Service Supplied
- 923,002 **Annual Vehicle Revenue Miles (VRM)**
- 32,890 **Annual Vehicle Revenue Hours (VRH)**
- 11 **Vehicles Operated in Maximum Service (VOMS)**
- 14 **Vehicles Available for Maximum Service (VAMS)**

Database Information
- **NTDID:** 90299
- **Reporter Type:** Full Reporter

Financial Information

Sources of Operating Funds Expended
Fares and Directly Generated	$10,065,590	29.6%
Local Funds	$18,958,445	55.7%
State Funds	$5,000,758	14.7%
Federal Assistance	$0	0.0%
Total Operating Funds Expended	**$34,024,793**	**100.0%**

Operating Funding Sources
14.7% / 29.6% / 55.7%

Sources of Capital Funds Expended
Fares and Directly Generated	$0	0.0%
Local Funds	$20,841,363	46.3%
State Funds	$2,883,978	6.4%
Federal Assistance	$21,270,383	47.3%
Total Capital Funds Expended	**$44,995,724**	**100.0%**

Capital Funding Sources
47.3% / 6.4% / 46.3%

Modal Characteristics

Modal Overview

Mode	Vehicles Operated in Maximum Service — Directly Operated	Purchased Transportation	Uses of Capital Funds — Revenue Vehicles	Systems and Guideways	Facilities and Stations	Other	Total
Commuter Rail	11	-	$5,690,630	$31,000,342	$7,278,518	$1,026,234	$44,995,724
Total	11	-	$5,690,630	$31,000,342	$7,278,518	$1,026,234	$44,995,724

Summary of Operating Expenses (OE)
Labor	$17,779,961	64.7%
Materials and Supplies	$3,660,576	13.3%
Purchased Transportation	$0	0.0%
Other Operating Expenses	$6,049,653	22.0%
Total Operating Expenses	**$27,490,190**	**100.0%**
Reconciling OE Cash Expenditures	$6,534,603	
Purchased Transportation (Reported Separately)	$0	

Operation Characteristics

Mode	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Vehicles Operated in Maximum Service	Percent Spare Vehicles	Average Fleet Age in Years[a]
Commuter Rail	$27,490,190	$4,094,540	$44,995,724	18,371,183	716,847	923,002	32,890	85.8	14	11	21.4%	6.0
Total	$27,490,190	$4,094,540	$44,995,724	18,371,183	716,847	923,002	32,890	85.8	14	11	21.4%	

Performance Measures

Service Efficiency
Mode	Operating Expenses per Vehicle Revenue Mile	Operating Expenses per Vehicle Revenue Hour
Commuter Rail	$29.78	$835.82
Total	$29.78	$835.82

Service Effectiveness
Mode	Operating Expenses per Passenger Mile	Operating Expenses per Unlinked Passenger Trip	Unlinked Trips per Vehicle Revenue Mile	Unlinked Trips per Vehicle Revenue Hour
Commuter Rail	$1.50	$38.35	0.8	21.8
Total	$1.50	$38.35	0.8	21.8

Operating Expense per Vehicle Revenue Mile: Commuter Rail

Operating Expense per Passenger Mile: Commuter Rail

Unlinked Passenger Trip per Vehicle Revenue Mile: Commuter Rail

SONOMA~MARIN
SMART
AREA RAIL TRANSIT

Common Transit Industry Performance Metrics in NTD

Data Items

- Service Supplied
  - **Vehicle Revenue Miles**
  - Vehicle Revenue Hours
- Service Consumed
  - **Passenger Miles**
  - **Passenger Trips**
- Financial Inputs
  - **Operating Expense**
  - **Fare Revenue**

Derived Metrics

1. **Operating Expense per Vehicle Revenue Mile**
2. Operating Expense per Vehicle Revenue Hour
3. **Operating Expense per Passenger Mile**
4. Operating Expense per Passenger Trip
5. **Passenger Trips per Vehicle Revenue Mile**
6. Passenger Trips per Vehicle Revenue Hour
7. **Average Fare**
8. Farebox Recovery Ratio
9. Average Trip Length

Bold green text indicates key data & recommended metrics

SONOMA~MARIN
SMART
AREA RAIL TRANSIT

Why These Metrics?

- Operating Expense per Vehicle Revenue Mile
  - Measures cost-efficiency: How are SMART's financial resources being used to produce transit service being supplied?

- Operating Expense per Passenger Mile
  - Measures cost-effectiveness: How much does it cost to move people along SMART's 45-mile corridor?

- Passenger Trips per Vehicle Revenue Mile
  - Measures service-efficiency: How are SMART passengers utilizing the transit service being supplied?

- Average Fare per Passenger
  - Measures cost-effectiveness: How much does the average person pay to ride SMART?

SMART NTD AGENCY PROFILE: FY2018-19

Sonoma-Marin Area Rail Transit District
2019 Annual Agency Profile

http://www.sonomamarintrain.org
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Operating Funding Sources (14.7%, 29.6%, 55.7%)

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Total	**11**	**-**	**$5,690,630**	**$31,000,342**	**$7,278,518**	**$1,026,234**	**$44,995,724**

Operation Characteristics
Mode	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Vehicles Operated in Maximum Service	Percent Spare Vehicles	Average Fleet Age in Years[a]
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Total	**$27,490,190**	**$4,094,540**	**$44,995,724**	**18,371,183**	**716,847**	**923,002**	**32,890**	**85.8**	**14**	**11**	**21.4%**	

Performance Measures

Service Efficiency
Mode	Operating Expenses per Vehicle Revenue Mile	Operating Expenses per Vehicle Revenue Hour
Commuter Rail	$29.78	$835.82
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Commuter Rail	$1.50	$38.35	0.8	21.8
Total	**$1.50**	**$38.35**	**0.8**	**21.8**

Operating Expense per Vehicle Revenue Mile: Commuter Rail

Operating Expense per Passenger Mile: Commuter Rail

Unlinked Passenger Trip per Vehicle Revenue Mile: Commuter Rail

SMART NTD AGENCY PROFILE: FY2018-19

Operation Characteristics

Mode	Operating Expenses	Fare Revenues
Commuter Rail	$27,490,190	$4,094,540
Total	$27,490,190	$4,094,540

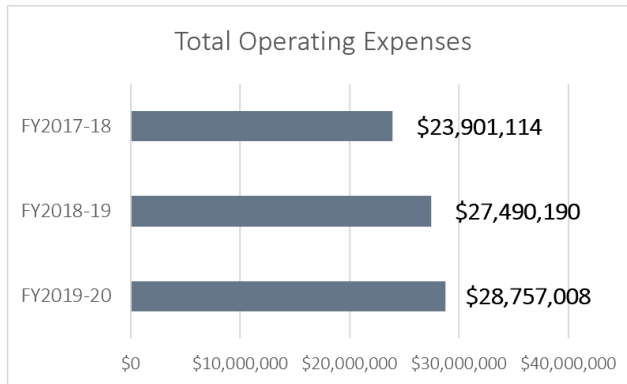| Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles
18,371,183	716,847	923,002
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Passenger Miles are the sum of the distances ridden by all passengers in a fiscal year.

Unlinked Trips are the total amount of riders/ number of boardings per fiscal year

Vehicle Revenue Miles is the total number of miles that the train traveled while in revenue service

SMART ANNUAL RESULTS: Data Trends

Total Operating Expenses

FY2017-18	$23,901,114
FY2018-19	$27,490,190
FY2019-20	$28,757,008

Total Fare Revenues

FY2017-18	$3,315,274
FY2018-19	$4,094,540
FY2019-20	$3,091,660

Passenger Miles Traveled (PMT)

FY2017-18	16,174,174
FY2018-19	18,371,183
FY2019-20	13,174,854

Unlinked Passenger Trips (UPT)

FY2017-18	636,029
FY2018-19	716,847
FY2019-20	567,103

Vehicle Revenue Miles (VRM)

FY2017-18	766,833
FY2018-19	923,002
FY2019-20	821,415

NOTES: (1) FY2017-18 is for ~10 months of operations. (2) FY2019-20 values are pending final approval from FTA and formal publication.

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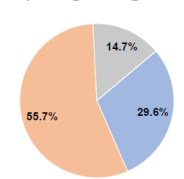|	
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(Uses of Capital Funds columns: Revenue Vehicles, Systems and Guideways, Facilities and Stations, Other, Total)

Operation Characteristics

Mode	Operating Expenses	Fare Revenues	Uses of Capital Funds	Annual Passenger Miles	Annual Unlinked Trips	Annual Vehicle Revenue Miles	Annual Vehicle Revenue Hours	Fixed Guideway Directional Route Miles	Vehicles Available for Maximum Service	Vehicles Operated in Maximum Service	Percent Spare Vehicles	Average Fleet Age in Years[a]
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Performance Measures

Service Efficiency

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Service Effectiveness

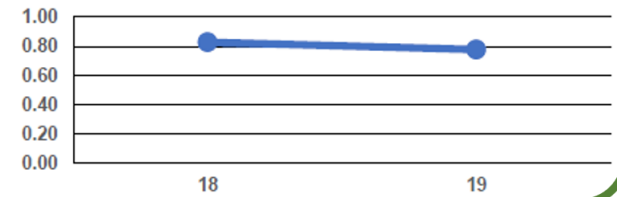| Mode	Operating Expenses per Passenger Mile	Operating Expenses per Unlinked Passenger Trip	Unlinked Trips per Vehicle Revenue Mile	Unlinked Trips per Vehicle Revenue Hour
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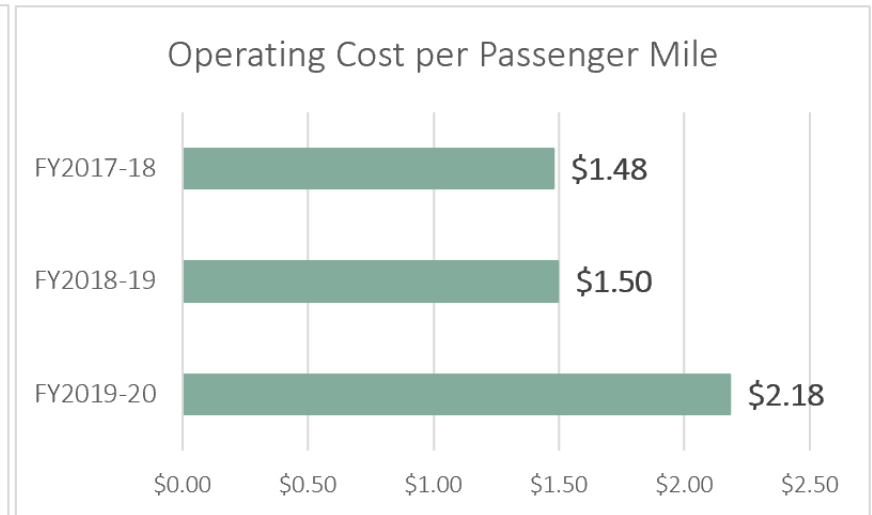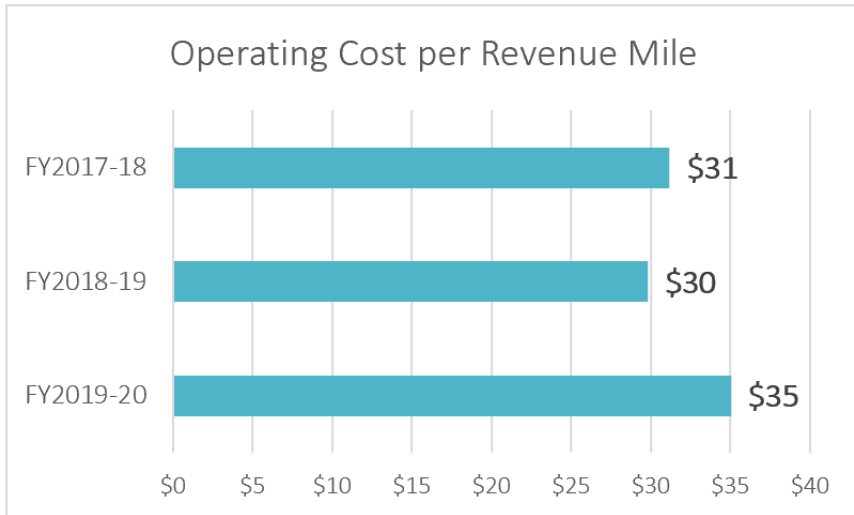(Charts: Operating Expense per Vehicle Revenue Mile: Commuter Rail; Operating Expense per Passenger Mile: Commuter Rail; Unlinked Passenger Trip per Vehicle Revenue Mile: Commuter Rail — years 18, 19)

SMART NTD AGENCY PROFILE: FY2018-19

Performance Measures

Mode	Operating Expenses per Vehicle Revenue Mile
Commuter Rail	$29.78
Total	**$29.78**

Mode	Operating Expenses per Passenger Mile
Commuter Rail	$1.50
Total	**$1.50**

	Unlinked Trips per Vehicle Revenue Mile
	0.8
	0.8

Operating Expense per Vehicle Revenue Mile: Commuter Rail

Operating Expense per Passenger Mile: Commuter Rail

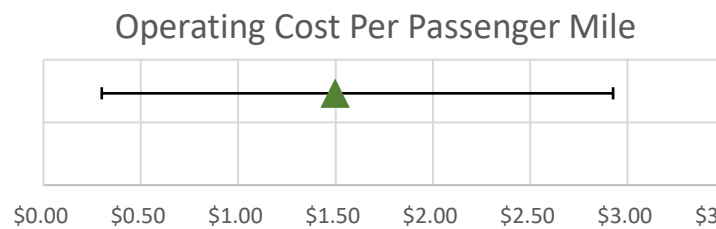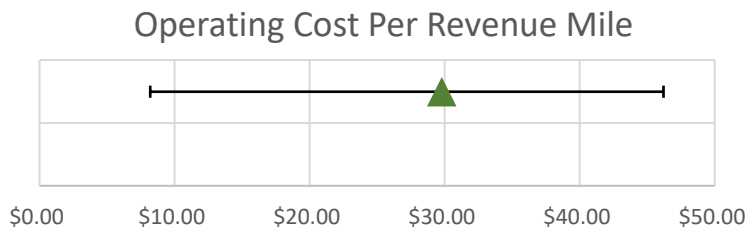Unlinked Passenger Trip per Vehicle Revenue Mile: Commuter Rail

SMART ANNUAL RESULTS: Metrics (1)

Operating Cost per Revenue Mile

Fiscal Year	Cost
FY2017-18	$31
FY2018-19	$30
FY2019-20	$35

Operating Cost per Passenger Mile

Fiscal Year	Cost
FY2017-18	$1.48
FY2018-19	$1.50
FY2019-20	$2.18

Note: FY2019-20 values are pending FTA approval & publication

## FY2018-19 ranges for the 31 commuter rail agencies who report to NTD

Operating Cost Per Revenue Mile

Operating Cost Per Passenger Mile

Note: ▲ = SMART

SMART ANNUAL RESULTS: Metrics (2)
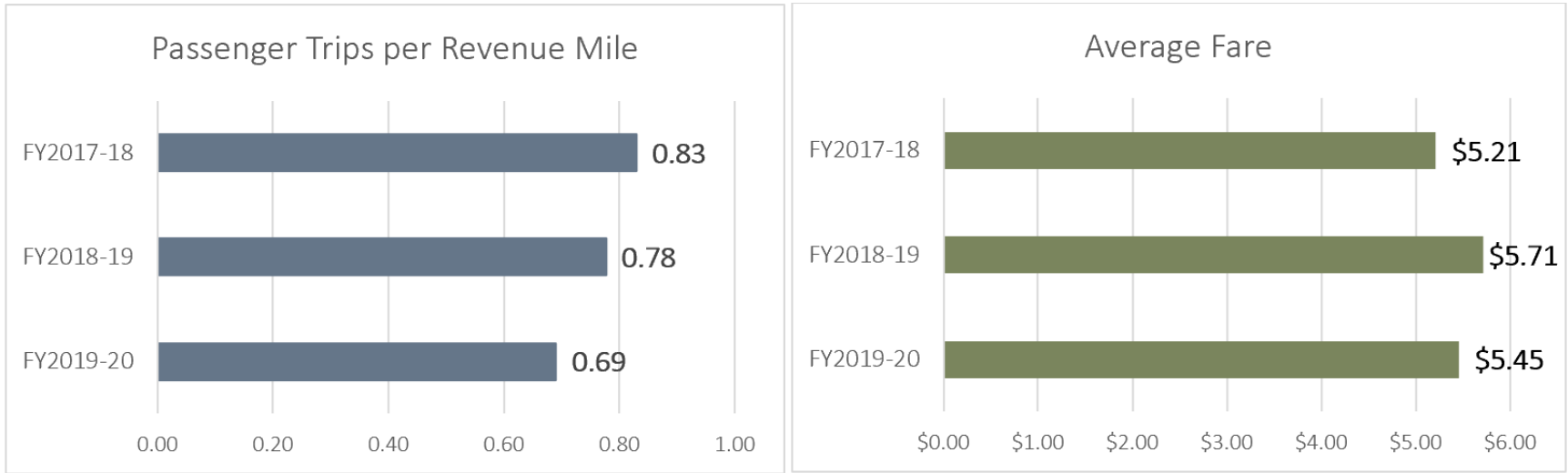
Passenger Trips per Revenue Mile

FY2017-18	0.83
FY2018-19	0.78
FY2019-20	0.69

Average Fare

FY2017-18	$5.21
FY2018-19	$5.71
FY2019-20	$5.45

Note: FY2019-20 values are pending FTA approval & publication

FY2018-19 ranges for the 31 commute rail agencies who report to NTD

Passenger Trips Per Revenue Mile

Average Fare Per Passenger
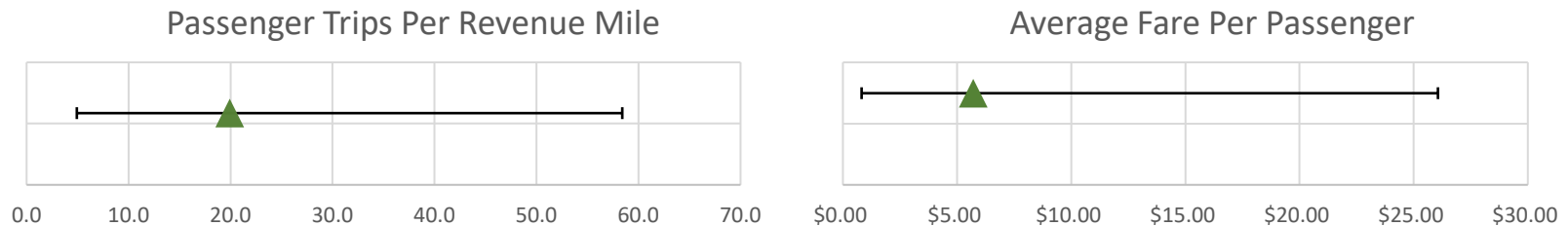
Note: ▲ = SMART

Performance outcomes reflect policy choices

- Providing more service hours ⇨ increases total costs

- Offering amenities to attract discretionary riders ⇨ increases unit costs

- Increasing fares to boost revenues ⇨ makes service unaffordable for some and reduces ridership

- Decreasing fares to boost ridership ⇨ could reduce farebox ratio or attract so many passengers that trains are crowded

- Cutting staff to reduce costs ⇨ will take longer to increase service in future (due to hiring & training lag)

Customized SMART Metrics

Approach for additional metrics

- Metrics from NTD are already collected annually
  - Metrics for NTD reporting have been provided for the last 5 years
  - Available at the following link: https://www.transit.dot.gov/ntd/transit-agency-profiles/sonoma-marin-area-rail-transit-district

- Additional metrics require varying levels of resources to define, collect data, and analyze results, so prioritize a few simple metrics to add to near-term reporting effort
  - Include the relevant items in the Draft FY2021-22 Budget

- Continue to pursue development of more complex metrics as part of a longer-term process
  - Undertake planning efforts to define these new metrics over next 12 months
  - Bring back similar presentation with options to consider during next budget cycle

Metric 1: Pathway Usage

- Pathway data is needed for many reasons:
  - What is the cost vs usage of the pathway
  - Existing grant reporting and new funding applications
  - Future environmental work & capital project evaluation
  - Operational monitoring
- Metric would be based on counts of bicyclists and pedestrians using the path at key locations and at various times
  - Likely collected using combination of field surveys and automatic equipment

Metric 2: On-Time Performance

- Useful for both internal and public purposes:
  - Captures the main outcome of operations & maintenance efforts: are trains moving as planned?
  - Illustrates service reliability for transit customers
- Metric would report the share of train arrivals that occur within a specified time window relative to the schedule
  - Raw data is available from existing sources

Metric 3: Customer Experience

- Measuring Customer Satisfaction
  - Crowding
  - Vehicle cleanliness
  - Safety
  - Wayfinding
  - On time performance
  - Cost
- Needs survey data collection from transit passengers and pathway users
  - Typically conducted once per year

The seven recommended metrics have different reporting timeframes

- Survey data → annual reporting
  - Pathway Usage
  - Customer Experience

- Financial data → semi-annual reporting
  - Operating Cost per Vehicle Revenue Mile
  - Operating Cost per Passenger Mile
  - Average Fare

- Operational data → quarterly reporting
  - Passenger Miles per Vehicle Revenue Mile
  - On-Time Performance

- Still going to report data such as ridership, sales & use collections, fare collections, etc.

Beyond the first seven metrics…

- SMART provides many other types of community benefits that we could measure and report on:
  - Climate Benefits
  - Economic Development
  - Mobility & Mode Choice
  - Access to Opportunities
  - Public Health
- These areas will take more work to develop:
  - Review which metrics fit SMART's priorities
  - Determine implementation needs & resources
  - Coordinate with agency partners, jurisdictions, stakeholders

Wrap Up & Next Steps

- Incorporate Board feedback on today's recommendations

- Include associated line items in draft FY2021-22 budget

- Implement over next 12 months, with budget approval

- Return with status update and new recommended metrics during next budget cycle

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