

BART State of Good Repair: Regional Impacts

Results of an Independent Study

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Key Questions

- **What is the cost** of maintaining BART in a state of good repair over the next 20-30 years, and what **investments by category** will be needed?
- **How much funding is currently available** for SGR and what uncertainties are there about future funding?
- **What would happen to system performance** if lower levels of funding were available?
- **If performance declines, what are the consequences** for ridership and for the region?

Methodology

- **Identified needed Investments** from BART databases
- **Evaluated three funding levels:** SGR within 10 yrs., 50% of SGR, 30% of SGR
- **Only considered existing system** – extensions / expansions not included
- **Took deterioration rates from underinvestment from other systems that have experienced far more serious problems than BART has ever faced**

Methodology (2)

- **Forecasted changes in BART condition & performance** if funds for reinvestment fall short
- **Estimated ridership impacts & social, economic, environmental effects** of reduced performance
- **Held focus groups on traveler responses** to changes in condition and performance
- **Interviewed regional business leaders and other major stakeholders** to identify key concerns & responses to scenarios.

New York MTA in the 1970s



It took three decades to recover.

Current Status

- **BART has maintained very good performance** through preventive maintenance, rehab, reinvestment.
- As BART approaches 40 years of service, the District is preparing for a **large reinvestment program**.
- Some BART capital assets are **already beyond recommended replacement life**
- **Funding for reinvestment is uncertain – needed actions may have to be deferred unless** additional funds are secured
- **Ridership growing** – if quality can be maintained, will top 500K/day or more in 30 yrs (proposed new services will generate additional ridership)

BART's Best and Worst Features Today

(focus group findings)

Best:

- **Highly reliable** – almost always on time
- **Good info** if there is a problem
- Can almost always **read or relax** on the train
- Can almost always **get a seat** for most of a long trip

Worst:

- **Unsanitary seats**
- **Parking** in suburban stations fills up early
- **Noise** in stations and on trains (squeals)
- **Dirty stations**
- **Some stations scary after dark**, not enough security
- **Inattentive station staff**

MTC's Cost Estimates for BART SGR by Category (15 & 25 yr. assets only)

Category	Needs (\$M)
Facilities	\$1,018
Guideway	\$1,018
Track work	\$2,588
Stations	\$1,973
Communications	\$971
Electrification	\$2,010
ITS and Utilities	\$59
Revenue Collection	\$124
Non-rev vehicles	\$269
Revenue Vehicles	\$4,971
Total	\$15,388 M
Average Per Year	\$513 M

Other Known BART Needs by Category

-- NOT included in the calculations!

Category	Needs (\$M)
Earthquake Safety	\$1,318
Security	\$258
Safety	\$21
Extensions?	Not included here
Other new efforts?	Not included here
Total	\$1,597 (+)
Average Per Year	\$53 M

BART Performance Measures - Current

Measure	Value in 2011
Mean Time Between Failure - Revenue Cars (hrs)	2,850
Cars Available 0400 (%)	100%
On Time - Customer	96%
On Time - Train	94%
Elevator Availability	96%
Escalator Availability	94%
AFC Availability	99%

Note: system-wide averages; some locations perform better/worse than others

Average Annual Performance Deterioration for Assets Which Are Past Their Useful Lives

Asset Life	Deterioration Rate (%/Year)
10 Years	29 %
15 Years	20 %
20 Years	16 %
25 Years	13 %
30 Years	11 %

**Sources: Cambridge Systematics, based on NY
MTA experience in the 1970s**

Underfunding: Effect on Speed

Scenario	2012 Base	2032	2042
50 percent SGR	33	32.0	28.9
30 Percent SGR	33	31.9	28.3

Travel Time Costs for BART Riders Due to Slower Speeds

Year	2032	2042
Travel Time Cost	Costs (\$M)	Costs (\$M)
50 percent SGR	\$65.4	\$196.2
30 Percent SGR	\$55.1	\$140.5

Underfunding: Effect on Passenger Capacity

	2032	2042
Scenario	Peak Period Passenger Capacity:	Peak Period Passenger Capacity:
50 percent SGR	22% decline	36% decline
30 Percent SGR	37% decline	57% decline

Costs of Worsened Reliability (\$M/Yr)

Year	2032	2042
50 percent SGR	\$88.1 M/yr	\$468.9 M/yr
30 Percent SGR	\$92.2 M/yr	\$464.6 M/yr

Underfunding: Impact on Ridership

Scenario	Loss of peak period riders	Av. Daily Ridership
50 percent SGR	43% decline	382,000
30 Percent SGR	57% decline	343,000

**Note that this is a conservative estimate –
could lose some off-peak riders too**

Other Costs

- **Added travel costs for BART users who switch to auto:** based on auto operating cost per mile and on an assumed \$10 parking charge applied to one half of trips (conservative!)
- **Increased delay for auto users** - based on MTC's increased delay per increased VMT in the 2035 plan alternatives (could be higher in some corridors)
- **Congestion + environmental costs** from more driving
- **Costs to the regional economy:** multiplier of 1.7 times the direct costs to travelers (from the literature - based on modeling of the regional economy in other regions)

Impact of 30% Funding by Measure, Selected Years and Cumulative (\$M)

Measure	Year: 2022	Year: 2032	Year: 2042	Cumulative Costs
Added Delay Costs Due To Unreliability	\$17	\$80	\$422	\$2,695
Added Delay Costs Due to Reduced Speed	\$27	\$56	\$195	\$1,724
Added Costs to BART Users Who Switch Modes	\$107	\$393	\$1,028	\$9,722
Added Costs to All Other Roadway Users	\$121	\$444	\$1,162	\$10,986
Total Added Transportation Costs	\$272	\$972	\$2,807	\$25,127
Total Added Economic Costs	\$466	\$1,662	\$4,799	\$42,958

Impact of 50% Funding by Measure, Selected Years and Cumulative (\$M)

Measure	2022	2032	2042	Cumulative
Added Delay Costs Due To Unreliability	\$15	\$70	\$383	\$2,404
Added Delay Costs Due to Reduced Speed	\$27	\$57	\$206	\$1,765
Added Costs to BART Users Who Switch Modes	\$68	\$232	\$621	\$5,839
Added Costs to All Other Roadway Users	\$76	\$262	\$702	\$6,597
Total Added Transportation Costs	\$186	\$623	\$1,912	\$16,605
Total Added Economic Costs	\$318	\$1,064	\$3,269	\$28,389

Economic Balance Sheet (\$M)

Scenario	Cost Savings	Disbenefits	Net Loss
30 Percent of SGR	\$10,769	\$42,958	\$32,189
50 Percent of SGR	\$7,533	\$28,389	\$20,856

Not spending on SGR could result in 21-32 BILLION DOLLARS in losses to the San Francisco Bay Area!

Summary: Impacts of Not Providing SGR

- **More frequent breakdowns**, leading to lower capacity and slower speeds
- **Higher costs to BART riders** due to delays, lower speeds
- **Loss of riders**, especially during peak
- **More traffic congestion**
- **Higher costs to drivers** due to congestion
- **Lower accessibility** for transit dependents
- **Negative environmental impacts**
- **Big hit on the regional economy**

Rider Reactions

- Riders: BART reliability is essential, and capacity needs to increase, not decrease, as the region grows - must maintain quality of service
- Many riders would be willing to pay more - \$1-2 a trip - to avoid service cuts or quality declines

BUT

- Riders also think costs should be widely shared, because benefits are widely shared - tolls, sales taxes, bonds all seen as fair ways to proceed
- AND
- BART leadership needs to get its act together, demonstrate cost control and lay out a clear action plan

Stakeholder Reactions

- **Business community:** hit on economy is not acceptable; BUT BART needs to show that it's a prudent steward of public funds, and must develop and advocate for a clear and sustainable plan for re-investment
- **Environmentalists:** hit on environment is not acceptable; declining transit service would undermine state efforts to reduce pollution, greenhouse gas emissions
- **Elected officials:** a multi-year investment program is needed – for BART and for other transit operators – with clear proposals for funding the investments

How to Pay for SGR

- **Knowledge gaps are a potential barrier:** Little understanding of costs of transportation of any kind
- **How costs are expressed matters:** cost per person per day (e.g.) more useful than total dollar costs (billions of dollars)
- **Who should pay:** everyone! Share costs of improving transit widely, since benefits to the region are broadly shared.
- **Concerns about impact on low income populations:** Low income respondents concerned about ability to pay; others suggest **lifeline fares for low income populations.**
- **A potential credibility problem:** BART Board need to develop responsible, sustainable, transparent expenditure policies
- **BART plus other partners:** BART as one piece of the transit puzzle and other transit services also need adequate funding