BART Seat Labs

Community Feedback

I. Introduction

The San Francisco Bay Area Rapid Transit District (BART) is in the process of designing new train cars. The new cars will replace all 669 cars in the current fleet, and add up to 331 additional cars to bring the fleet size to 1,000 cars total. BART's current fleet has served the public well by carrying over 2.5 billion riders since 1972.

BART is seeking public participation in the car design process. The general public was invited to try out sample seats at a series of community Seat Labs. At the "Seat Labs," 2,220 area residents completed questionnaires after sitting in various size seats and considering different materials and design options.

Twelve Seat Labs were held at various locations throughout the BART service area. Seat Lab sessions and the resulting number of questionnaires are:

Table 1 - Community Seat Labs - Dates/locations/# attendee responses

Date	Location	# Questionnaires
May 1, 2011	Fruitvale BART	150
May 11, 2011	San Francisco State University	360
May 23, 2011	Fruitvale BART	217
May 24, 2011	Los Medanos Community College, Pittsburg	175
May 31, 2011	Richmond BART	147
June 2, 2011	Union City BART	134
June 13, 2011	Dublin/Pleasanton BART	165
June 14, 2011	Pleasant Hill/Contra Costa Centre BART	273
June 8, 2011	Prewitt Family Park & Community Center, Antioch	43
June 21, 2011	South San Francisco BART	154
June 22, 2011	Justin Herman Plaza, San Francisco	339
June 30, 2011	VTA Great Mall Transit Center Park & Ride Lot, Milpitas	63
	Total	2,220

The following tables contain community Seat Lab feedback on six different design issues. Design issues include: seat width, armrest preference, seat materials, comfort vs. cleanliness, accommodations for bikes/luggage/strollers, and communication options for persons with limited English proficiency. The percentages shown on the tables may not add to exactly 100% due to rounding.

As another element of the design process a professional research firm was used to conduct in-depth interviews with a statistically selected sample of BART riders. The findings from the community Seat Labs and the in-depth interviews are comparable. Differences are due primarily to additional background information available at the in-depth interviews. Another factor underlying the differences is the random BART rider focus of the in-depth interviews vs. the self-selected, broader community composition of the Seat Labs. Key differences are noted in the text.

II. Design Issue: Seat Width

Seat Lab participants tried out seats of varying widths. They were then asked to note the acceptability of each width seat. The questionnaire pointed out that the seat width impacts how much room is available in the aisle. Specifically, "Narrower seats=wider aisle, and wider seats= narrower aisle." The current 22" inch BART seat width was considered acceptable by more than four out of five, 86.8%, participants, but the 20" seat also received a high 75.6% acceptability rating.

Table 2. Seat width acceptability

Seat	Seat Width	Acceptable	Unacceptable	No Response
A	22 Inches	86.8%	9.5%	3.7%
B	20 Inches	75.6%	18.9%	5.5%
C	19 Inches	38.6%	54.3%	7.1%
D	18 Inches	17.2%	77.1%	5.8%

N = 2,220

The participants were directed to consider the trade-off between seat width and space in the aisle and then choose one preferred seat width.

- When forced to choose a preferred seat, the 22" seat was favored by 39.4% of the participants, while an equally significant, 37.2% opted for the 20" seat. Note that over half, 54.1%, chose seats 18, 19 or 20 inches wide over the current 22 inch width.
- The preferred seat choice for persons who stand frequently on BART as well as for those who say that they use BART to commute is consistent with the overall preference data.

Table 3. Preferred Seat Width: Taking into account the seat width/aisle space trade-off

Seat	Seat Width	Total Preferences	Frequent Standee Preferences	Commuters' Preferences
A	22 Inches	39.4%	40.3%	40.7%
B	20 Inches	37.2%	38.0%	37.7%
C	19 Inches	11.7%	12.8%	10.9%
D	18 Inches	5.2%	5.1%	4.7%
Multiple Responses		3.8%	2.3%	4.0%
No Response		2.7%	1.5%	2.0%
		N =2,220	N =392	N =1,290

- In the in-depth interviews the survey takers used a predefined verbal script that noted the wider aisle widths created by the narrower seats. This attention to the trade-off between seat and aisle widths may be the reason that almost two thirds, 64%, of the persons in the in-depth interviews preferred the 20 inch seat and only 21% chose the 22 inch seat.

III. Design Issue: Seats With/Without Armrests

The current BART seats have armrests at both the window and aisle sides of the seats. Although the seats tested at the Seat Labs did not have armrests, the participants were asked to indicate their preferences for seats with armrests or without armrests.

- Seats without armrests were preferred by 39.2% of the participants, but more than a third of the people, 36.8%, indicated that they preferred seats with armrests.
- A sizeable proportion, 22.1%, checked the "No preference" response.

Table 4. Armrest preference

Options	Preference
Seats without armrests	39.2%
Seats with armrests	36.8%
No preference	22.1%
No response	1.9%
Total	100.0%

N = 2,220

- Persons in the in-depth interviews expressed more definite opinions. Nearly half, 49%, of those in the in-depth interviews favored seats without armrests, while, 36% chose seats with armrests and only 16% had no preference.

IV. Design Issue: Seat Materials - Participant Comments

Participants were given the opportunity to comment on various types of materials that could be used in the seats for the new cars. The written comments were scanned to determine how frequently a specific material was noted and typical comments are shown for the frequently mentioned materials

- 1,687 of the 2,220 participants, 76%, provided comments concerning seat materials for the new cars

  - 447 mentions for "Cloth" or "Fabric", but sentiments are mixed.

    UPHOLSTERY OF CLOTH IS COMFORTABLE; HOWEVER, IT HARBORS DIRT, SMELLS, ETC.

    FABRIC-COMFORTABLE, DIFFICULT TO CLEAN

  - 379 mentions for "Vinyl," many of these were related to cleanliness.

    THE SEATS WITH MATERIAL ARE HARDER TO KEEP CLEAN SO POSSIBLY USE VINYL, SEEMS EASY TO CLEAN.

    FABRIC - SOMEWHAT COMFORTABLE, FEELS DIRTY. PLASTIC - NOT COMFORTABLE AT ALL BUT CLEAN. VINYL - MOST COMFORTABLE, FEELS CLEAN

- 377 note “Leather” (253) or “Fake Leather” (124). These comments include some relation to comfort and cleanliness.

FAUX LEATHER IS A GREAT CHOICE

VINYL OR LEATHER, DEFINITELY NO TO PLASTICS

WANT A DURABLE, EASY TO CLEAN MATERIAL-LIKE ANTI MICROBIAL SIMULATED LEATHER-CONCERNED ABOUT TEARING.

- 653 times the word “clean” was used when commenting about seat material.

I PREFER MATERIAL THAT IS EASY TO CLEAN-MATERIAL OTHER THAN CLOTH

THE SEATS WITH MATERIAL … HARDER TO KEEP CLEAN SO POSSIBLY USE VINYL, SEEMS EASY TO CLEAN.

V. Design Issue: Seat Comfort vs. Cleanliness Trade-off

Participants were asked to consider the trade-offs between comfort and cleanliness with regard to the type of seat material used in the cars. The question stated the trade-off as, “…a fabric seat with a thick cushion may be really comfortable, but difficult to keep clean, while a plastic seat may be really easy to clean, but (is) less comfortable.”

Persons rated each of the factors on a scale of 1 to 7 where 1 is not at all important and 7 is very important.

- Seat cleanliness is strongly favored over comfort with an average mean rating of 6.29 for cleanliness vs. 5.20 for comfort.
- Note that more than eight out of ten participants, 81.0%, rate cleanliness at the top two importance ratings (6 or 7). By contrast, less than half, 45.0%, gave comfort the top two ratings.

Table 5. Importance of seat cleanliness
1 = Not at all important / 7 = Very important

Rating	Frequency	Percent
1	19	.9%
2	15	.7%
3	54	2.5%
4	126	5.9%
4.5	1	<.1%
5	190	8.9%
5.5	1	<.1%
6	342	16.0%
6.5	2	.1%
7	1385	64.9%
Total	2,135	100.0%
Mean	6.29	

Table 6. Importance of seat comfort
1 = Not at all important / 7 = Very important

Rating	Frequency	Percent
1	66	3.1%
2	66	3.1%
3	164	7.7%
3.5	2	.1%
4	362	17.0%
4.5	2	.1%
5	509	23.9%
6	332	15.6%
7	627	29.4%
Total	2,130	100.0%
Mean	5.20	

- The in-depth interview findings are very similar to the Seat Lab results.
    - About eight out of ten participants, 79%, gave cleanliness the top two ratings for a mean average score of 6.28.
    - Comfort ratings are similar, but only 34% gave this factor the top two ratings. The mean average of 4.88 is slightly lower than the Seat Lab results.
- The bottom line is that both cleanliness and comfort are important, but customers would trade-off some degree of comfort for cleanliness.

VI. Design Issue: Accommodation for Bikes, Luggage, and Strollers

BART is looking at alternate car space configurations used by other transit systems. Participants voiced their opinions concerning various options that reflect the trade-off between seats and accommodations for bikes, luggage and strollers.

- Nearly half, 48.7%, indicated that they would support removing "several" seats to make more open space for bikes, luggage and strollers.
- Fewer persons, 24.4%, would remove seats that would only benefit bikes.

Table 7. Options to accommodate bikes, luggage, and strollers

Accommodation	Frequency	Percent
Remove several seats to provide more open space for bikes, luggage, and strollers	1082	48.7%
Remove several seats and create a bicycle stand that can hold several bikes	541	24.4%
Use slightly narrower seats to create wider aisles	478	21.5%
Other*	511	23.0%

N = 2,220 (Note: Multiple responses accepted)

*Other accommodations that were suggested include designated bike cars or bike/luggage cars and other methods to secure bicycles, e.g. hooks.

- The in-depth interview sample yielded the same order of preferred accommodations with 52.7% favoring more open space. Significantly more persons, however, were in favor of the other choices: bike stands, 43.2%, narrower aisles, 32.2%, and other options, 42.5%. Again, it should be noted that persons at the in-depth interviews were provided with more information concerning the available options.

VII. Design Issue: Communication Options for Individuals of Limited-English Proficiency

Another series of design features dealt with different ways to provide passenger information to individuals of limited-English proficiency.

- More than two-thirds, 68.8%, thought that BART should use pictograms. Pictograms are standardized icons to identify specific features, e.g. elevators, restrooms.
- The next highest rated option, with 59.5% of those surveyed, was to provide information using electronic BART system maps showing train location and next stops.
- A third, 33.6%, of the participants selected signage in multiple languages and fewer, 21.0%, favored audio announcements in other languages.

Table 8. Alternative ways to provide passenger information to individuals of limited-English proficiency

Information Option	Frequency	Percent
Pictograms	1528	68.8%
Electronic BART system map showing train location and next stops	1322	59.5%
Signage in English, Spanish, Mandarin, Vietnamese and Korean	747	33.6%
Audio announcements in English, Spanish, Mandarin, Vietnamese and Korean	467	21.0%
*Other	137	6.2%

N = 2,220 (Note: Multiple responses accepted)

*Other option suggestions included using arrows and other graphics as well as comments ranging from a greater emphasis on other languages including ASL to limiting information to English only.

- Persons at the in-depth interviews favored the electronic BART system maps, 83.6%, closely followed by the pictograms, 78.8%. Less than a half, 47.3%, chose non-English signage and about a quarter, 24.0%, selected non-English audio announcements.

VIII. Seat Lab Participant Demographics

It should be noted that these findings are based on the opinions of the participants at the Seat Labs. This is a convenience sample of those persons who chose to attend the Seat Labs. As such, the findings are a good representation of the participants' views, but the results do not necessarily reflect the overall opinions of BART customers or residents of the region.

1. Gender

Gender	Frequency	Percent
Male	998	45.0%
Female	1089	49.1%
No response	133	6.0%
Total (N)	2,220	100.0%

2. Age

Age	Frequency	Percent
Under 18	66	3.0%
18 - 24	470	21.2%
25 - 34	428	19.3%
35 - 44	315	14.2%
45 - 54	383	17.3%
55 - 64	317	14.3%
65 or older	125	5.6%
No response	116	5.2%
Total (N)	2,220	100.0%

3. Income

Income	Frequency	Percent
Under $25,000	408	18.4%
$25,000 - $39,999	203	9.1%
$40,000 - $74,999	520	23.4%
$75,000 or more	778	35.0%
No response	311	14.0%
Total (N)	2,220	100.0%

4. Race or ethnic identification

Race/Ethnicity	Frequency	Percent
White	874	43.0%
Asian or Pacific Islander	539	26.5%
Hispanic, Latino or Spanish	372	18.3%
Black/African American	280	13.8%
American Indian or Alaska Native	50	2.5%
Other	74	3.6%
No response	186	8.4%

N = 2,220 (Note: Multiple responses accepted)

5. Language spoken at home

Do you speak a language other than English at home?	Frequency	Percent
No	1,416	63.8%
Yes	641	28.9%
No response	163	7.3%
Total (N)	2,220	100.0%

6. English proficiency, if a language other than English spoken at home

(English proficiency if other language spoken at home) **English Spoken:**	Frequency	Percent
Very Well	475	74.1%
Well	105	16.4%
Not Well	39	6.1%
Not At All	5	.8%
No response	17	2.7%
Total (N)	641	100.0%