

*STATE of the SUBWAYS
REPORT CARD*



*NYPIRG Straphangers Campaign
Summer 2011*

A NYPIRG Straphangers Campaign Report

STATE OF THE SUBWAYS REPORT CARD

Summer 2011

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STATE OF THE SUBWAYS REPORT CARD NYPIRG STRAPHANGERS CAMPAIGN Summer 2011

I. Findings

What do subway riders want?

They want short waits, trains that arrive regularly, a chance for a seat, a clean car and understandable announcements that tell them what they need to know. That's what MTA New York City Transit's own polling of rider satisfaction measures.¹

This "State of the Subways" Report Card tells riders how their lines do on these key aspects of service. We look at six measures of subway performance for the city's 20 major subway lines, using recent data compiled by MTA New York City Transit.² Much of the information has not been released publicly before on a line-by-line basis. Most of the measures are for all or the last half of 2010.

Our Report Card has three parts:

First, is a comparison of service on 20 lines, as detailed in the attached tables.

Second, we give an overall "MetroCard Rating"³ to 18 of the 20 lines.⁴

Third, the report contains one-page profiles on each of the 20 lines. These are intended to provide riders, officials and communities with an easy-to-use summary of how their line performs compared to others.

This is the fourteenth Subway Report Card by the Straphangers Campaign since 1997.⁵

¹ New York City Residents' Perceptions of New York City Transit Service, 2010 Citywide Survey, prepared for MTA New York City Transit.

² The measures are: frequency of scheduled service; how regularly trains arrive; delays due to car mechanical problems; chance to get a seat at peak period; car cleanliness; and in-car announcements. Regularity of service is reported in a indicator called *wait assessment*, a measure of gaps in service or bunching together of trains.

³ We derived the MetroCard Ratings with the help of independent transportation experts. Descriptions of the methodology can be found in Section II and Appendix I. The rating was developed in two steps. First, we decided how much weight to give each of the six measures of transit service. Then we placed each line on a scale that permits fair comparisons. Under a formula we derived, a line whose performance fell exactly at the 50th percentile in this baseline would receive a MetroCard rating of \$1.15 in this report. Any line at the 95th percentile of this range would receive a rating of \$2.25, the current base fare.

⁴ We were unable to give an overall MetroCard Rating to the system's three permanent shuttle lines — the Franklin Avenue Shuttle, the Rockaway Park Shuttle, and the Times Square Shuttle — because data is not available. The G line does not receive a MetroCard Rating as reliable data on crowding for that line is not available. The M line did not receive a MetroCard rating because the route was dramatically restructured after the most recent crowding data was available.

⁵ We did not issue a report in 2002. Because of the severe impact on the subways from the World Trade Center attack, ratings based on service at the end of 2001 would not have been appropriate.

Our findings show the following picture of how New York City's subways are doing:

1. The best subway line in the city was the J/Z with a "MetroCard Rating" of \$1.45. The J/Z ranked number one in the system for the first time since the Straphangers Campaign Report Card started in 1997. The J/Z ranked highest because it performs best in the system on regularity of service. It also performs above average on three measures: delays caused by mechanical breakdowns, seat availability at the most crowded point during rush hour and subway car announcements. The line did not get a higher rating because it performed average on subway car cleanliness and amount of scheduled service. The J/Z runs between Broad Street in Manhattan and Jamaica Center in Queens.

2. The 2 was ranked the worst subway line with a MetroCard Rating of 90 cents, tying with the C line for last. This was the first time in fourteen annual Straphangers Campaign Report Cards that the 2 came in last. The 2 performs worst in the system on seat availability at the most crowded point during rush hour and next to worst on regularity of service. The line also performs below average on subway car cleanliness. The line did not get a lower rating as it performs above average on three measures: amount of scheduled service, delays caused by mechanical breakdowns and subway car announcements. The 2 runs between Brooklyn College and Wakefield Avenue in the Bronx.

3. For the third year in a row, the C was ranked the worst subway line, with a MetroCard Rating of 90 cents, tying with the 2. The C line performs worst in the system on three measures: amount of scheduled service, delays caused by mechanical breakdowns and subway car announcements. The line did not get a lower rating as it performs best in the system on subway car cleanliness and above average on service regularity and chance of getting a seat at rush hour. The C operates between Euclid Avenue in Brooklyn and Washington Heights in Manhattan.

4. Systemwide, for 20 lines, we found the following on the three of six measures we can compare over time: car breakdowns, car cleanliness and announcements. (We cannot compare three remaining measures due to changes in definitions by New York City Transit. Also, the M's routing was too changed in mid-2010 to make comparisons with the previous year on some indicators.)

- **The car breakdown rate improved from an average mechanical failure every 148,002 to 170,217 miles during the 12-month period ending December 2010 — a gain of 15%.** This positive trend reflects the arrival of new model subway cars in recent years and better maintenance of Transit's aging fleet. We found fourteen lines improved (2, 3, 7, A, B, C, E,

F, J/Z, L, M, N, Q and R), while six lines worsened (1, 4, 5, 6, D, and G).

- **Subway cars went from 95% rated clean in our last report to 94% in our current report – essentially unchanged, experiencing a decrease of 1.1%.** We found that twelve lines declined (1, 3, 4, 5, 7, A, E, G, L, M, N and Q) and eight improved (2, 6, B, C, D, F, J/Z and R).

- **Accurate and understandable subway car announcements declined slightly, going from 91% in our last report to 87% in the current report.** We found twelve lines worsened (1, 2, 4, 5, 7, B, C, D, G, J/Z, L and N), four improved (3, F, Q and R) and four did not change (6, A, E and M).

5. There are large disparities in how subway lines perform.

- **Breakdowns:** The M had the best record on delays caused by car mechanical failures: once every 843,598 miles. The C was worst, with a car breakdown rate fifteen times higher: every 54,838 miles.

- **Cleanliness:** The C and E were the cleanest lines, with only 4% of cars having moderate or heavy dirt, while 13% of cars on the dirtiest lines — the G — had moderate or heavy dirt, a rate more than three times higher.

- **Chance of getting a seat:** We rate a rider's chance of getting a seat at the most congested point on the line. We found the best chance is on the 7, where riders had a 70% chance of getting a seat during rush hour at the most crowded point. The 2 ranked worst and was much more overcrowded, with riders having only a 28% chance of getting a seat.

- **Amount of scheduled service:** The 6 line had the most scheduled service, with two-and-a-half minute intervals between trains during the morning and evening rush hours. The C ranked worst, with nine- or ten-minute intervals between trains all through the day.

- **Regularity of service:** The J/Z line had the greatest regularity of service, arriving within 25% of its scheduled interval 85% of the time. The most irregular line is the 5, which performed with regularity only 66% of the time.

Table One

BEST to WORST: 2011 STRAPHANGERS CAMPAIGN METROCARD RATINGS

J&Z	\$1.45
7	\$1.35
E	\$1.35
Q	\$1.35
6	\$1.25
L	\$1.25
F	\$1.20
1	\$1.10
D	\$1.10
N	\$1.10
3	\$1.05
5	\$1.05
R	\$1.05
4	\$1.00
A	95¢
B	95¢
2	90¢
C	90¢

Table Two

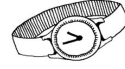
HOW DOES YOUR SUBWAY LINE RATE?



**Straphangers Campaign
MetroCard
Rating**



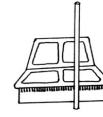
Scheduled Frequency



Regularity of Service



Breakdowns



Seat Availability



Cleanliness



Announcements

Scheduled minutes between trains during morning rush

Scheduled minutes between trains at noon

Scheduled minutes between trains during evening rush

How often trains arrive without bunching or gaps in service

Number of miles traveled between car breakdowns

Chance of getting a seat during rush hour

Percentage of subway cars with clean seats and floors

Percentage of in-car announcements which are accurate and understandable

1	\$1.10	3:00	6:00	4:00	70%	every 95,252 miles	52%	93%	76%
2	90¢	5:00	8:00	5:00	66%	223,671	28%	92%	98%
3	\$1.05	5:00	8:00	5:00	72%	165,595	47%	94%	85%
4	\$1.00	4:00	8:00	4:00	68%	167,534	33%	91%	97%
5	\$1.05	4:00	8:00	4:00	66%	242,259	37%	93%	99%
6	\$1.25	2:30	4:00	2:30	72%	122,061	35%	95%	99%
7	\$1.35	2:30	6:00	2:30	74%	233,673	70%	94%	73%
A	95¢	4:45	10:00	4:45	72%	106,545	48%	89%	87%
B	95¢	7:15	10:00	8:00	78%	183,181	60%	91%	74%
C	90¢	9:15	10:00	10:00	82%	54,838	50%	96%	72%
D	\$1.10	6:00	10:00	6:15	80%	176,739	49%	95%	76%
E	\$1.35	4:00	7:30	4:00	76%	676,833	33%	96%	100%
F	\$1.20	4:00	7:30	4:00	73%	435,495	34%	95%	95%
G	*	6:30	10:00	10:00	85%	58,158	*	87%	81%
J&Z	\$1.45	5:00	10:00	5:00	85%	436,009	52%	94%	96%
L	\$1.25	3:30	7:30	4:00	77%	226,626	36%	95%	98%
M	*	8:00	10:00	9:00	83%	843,598	*	94%	100%
N	\$1.10	7:00	10:00	7:00	78%	423,803	35%	94%	96%
Q	\$1.35	6:00	10:00	6:00	79%	508,995	54%	95%	100%
R	\$1.05	6:00	10:00	6:00	78%	102,136	62%	91%	78%
System Average		5:10	8:32	5:33	79%	170,217	46%	94%	87%

*G and M lines receive no MetroCard Rating as comparable data is not available.


































Table Three

BEST to WORST SUBWAY LINES by SERVICE/PERFORMANCE MEASURE

Rank (from Best to Worst)	Amount of Scheduled Service	Regularity of Service	Breakdown Rate	Chance of Getting a Seat	Interior Cleanliness	In-Car Announcements
1	6	J&Z	M	7	C E	E M Q
2	7	G	E	R		
3	1	M	Q	B	6 D F	
4	L	C	J&Z	Q	L Q	5 6
5	E F	D	F	J&Z		
6		Q	N	1		2 L
7	4 5	N R	5	C		
8			7	D	3 7 J&Z	4
9	2 3	B	L	A	M N	J&Z N
10		L	2	3		
11	A	E	B	5		F
12	J&Z	7	D	L		A
13	Q R	F	4	N	1 5	3
14		3	3	6		G
15	D	A	6	F	2	R
16	N	6	A	4	4 B R	1 D
17	B	1	R	E		
18	G	4	1	2		B
19	M	2	G		A	7
20	C	5	C		G	C

Table Four

**BEST and WORST:
STRAPHANGERS CAMPAIGN METROCARD RATINGS
1997-2011**

	<u>BEST</u>	<u>WORST</u>
2011		 
2010		
2009		
2008		
2007		 
2006		 
2005		
2004		
2003		
2001		
2000		
1999		  
1998		
1997		

II. Summary of Methodology

The NYPIRG Straphangers Campaign reviewed extensive MTA New York City Transit data on the quality and quantity of service on 20 subway lines. We used the latest comparable data available, largely from 2010.⁶ Several of the data items have not been publicly released before on a line-by-line basis. MTA New York City Transit does not conduct a comparable rider count on the G line, which is the only major line not to go into Manhattan. As a result, we could not give the G line a MetroCard Rating, although we do issue a profile for the line. In addition, major changes were made to the route pattern of the M line in June of 2010; since then no comparable rider count data has been made available. For this reason, we could not give the M line a MetroCard Rating, although we do issue a profile for the line.

We then calculated a MetroCard Rating — intended as a shorthand tool to allow comparisons among lines — for 18 subway lines, as follows:

First, we formulated a scale of the relative importance of measures of subway service. This was based on a survey we conducted of a panel of transit experts and riders, and an official survey of riders by MTA New York City Transit. The six measures were weighted as follows:

Amount of service	
• <i>scheduled amount of service</i>	30%
Dependability of service	
• <i>percent of trains arriving at regular intervals</i>	22.5%
• <i>breakdown rate</i>	12.5%
Comfort/usability	
• <i>chance of getting a seat</i>	15%
• <i>interior cleanliness</i>	10%
• <i>adequacy of in-car announcements</i>	10%

Second, for each measure, we compared each line's performance to the best- and worst-performing lines in this rating period.

A line equaling the system best in 2010 would receive a score of 100 for that indicator, while a line matching the system low in 2010 would receive a score of 0. Under this rating scale, a small difference in performance between two lines translates to a small difference between scores.

These scores were then multiplied by the percentage weight of each indicator, and added up to reach an overall raw score. Below is an illustration of calculations for a line, in this case the 4.

⁶ See Appendix I for a complete list of MTA New York City Transit data cited in this report.

Figure 1 Indicator	4 line value including best and worst in system for 5 indicators	4 line score out of 100	Percentage weight	4 line adjusted raw score
Scheduled service	AM rush—4 min; noon—8 min; PM rush—4 min	71	30%	21
Service regularity	68% (best—85%; worst—66%)	12	22.5%	3
Breakdown rate	167,534 miles (best—843,598 miles; worst—54,838 miles)	14	12.5%	2
Crowding	33% seated (best—70%; worst—28%)	13	15%	2
Cleanliness	91% clean (best—96%; worst—87%)	44	10%	4
Announcements	97% adequate (best—100%; worst—72%)	89	10%	9
Adjusted score total				4 line—41 pts.

Third, the summed totals were then placed on a scale that emphasizes the relative differences between scores nearest the top and bottom of the scale. (See Appendix I.)

Finally, we converted each line’s summed raw score to a MetroCard Rating. We created a formula with assistance from independent transit experts. A line scoring, on average, at the 50th percentile of the lines for all six measures would receive a MetroCard Rating of \$1.15. A line that matched the 95th percentile of this range would be rated \$2.25, the current base fare. The 4 line, as shown above, falls at the 41st percentile over six measures, corresponding to a MetroCard Rating of \$1.00.

New York City Transit officials reviewed the profiles and ratings in 1997. They concluded: "Although it could obviously be debated as to which indicators are most important to the transit customer, we feel that the measures that you selected for the profiles are a good barometer in generally representing a route’s performance characteristics... Further, the format of your profiles... is clear and should cause no difficulty in the way the public interprets the information."

Their full comments can be found in Appendix I, which presents a more detailed description of our methodology. Transit officials were also sent an advance summary of the findings for this year's State of the Subways Report Card.

For our first five surveys, we used 1996 — our first year for calculating MetroCard Ratings — as a baseline. As we said in our 1997 report, our ratings “will allow us to use the same formula for ranking service on subway lines in the future. As such, it will be a fair and objective barometer for gauging whether service has improved, stayed the same, or deteriorated over time.”

However, in 2001, 2003, 2004, 2005, 2008, 2009 and 2010, transit officials made changes in how performance indicators are measured and/or reported. The Straphangers Campaign unsuccessfully urged MTA New York City Transit to re-consider its new methodologies, because of our concerns about the fairness of these measures and the loss of comparability with past indicators. Transit officials also rejected our request to re-calculate measures back to 1996 in line with their adopted changes. As a result, in this report we were forced to redefine our baseline with current data, and considerable historical comparability was lost.

III. Why A Report Card on the State of the Subways?

Why does the Straphangers Campaign publish a yearly report card on the subways?

First, riders are looking for information on the quality of their trips. In the past, the MTA has resisted putting detailed line-by-line performance measures on their web site. That has been gradually changing. In 2009, for example the MTA began posting monthly performance data for subway car breakdown rates on its website, www.mta.info. In 2010, it made some of the performance measurement data bases available publicly on its developer resources page. Our profiles seek to provide this information in a simple and accessible form.

Second, our report cards provide a picture of where the subways are. Overall, we looked at the three measures we can compare over time — car breakdowns, car cleanliness and announcements. We were unable to compare the other three measures due to changes in methodology by transit officials.

- **The car breakdown rate improved from an average mechanical failure every 148,002 to 170,217 miles during the 12-month period ending December 2010 — a gain of 15%.** This positive trend reflects the arrival of new model subway cars in recent years and better maintenance of Transit’s aging fleet. We found fourteen lines improved (2, 3, 7, A, B, C, E, F, J/Z, L, M, N, Q and R), while six lines worsened (1, 4, 5, 6, D and G).
- **Subway cars went from 95% rated clean in our last report to 94% in our current report – essentially unchanged, experiencing a decrease of 1.1%.** We found that twelve lines declined (1, 3, 4, 5, 7, A, E, G, L, M, N and Q) and eight improved (2, 6, B, C, D, F, J/Z and R).
- **Accurate and understandable subway car announcements declined slightly, going from 91% in our last report to 87% in the current report.** We found twelve lines worsened (1, 2, 4, 5, 7, B, C, D, G, J/Z, L and N), four improved (3, F, Q and R) and four did not change (6, A, E and M).

Future performance will be a challenge given the MTA’s tight budget.

Lastly, we aim to give communities the information they need to win better service. We often hear from riders and neighborhood groups. They will say, “Our line has got to be worst.” Or “We must have the most crowded trains.” Or “Our line is much better than others.”

For riders and officials on lines receiving a poor level of service, our report will help them make the case for improvements, ranging from increases in service to major repairs. That’s not just a hope. In past years, we’ve seen riders win improvements, such as on the B, N and 5 lines.

For those on better lines, the report can highlight areas for improvement. For example, riders on the 7 — now a front runner in the system — have pointed to past declines and won increased service.

This report is part of a series of studies on subway and bus service. For example, we issue annual surveys on payphone service in the subways, subway car cleanliness, and subway car announcements, as well as give out the Pokey Awards for the slowest city bus routes.

Our reports can be found online at www.straphangers.org, as can our **profiles**. We hope that these efforts — combined with the concern and activism of many thousands of city transit riders — will win better subway and bus service for New York City.

The background features a collection of overlapping circles in various colors (purple, pink, orange, blue, green, grey, yellow, brown). Each circle contains a white number or letter. Visible elements include: a purple circle with '7', a pink circle with '1', an orange circle with 'D', a blue circle with 'E', a green circle with '6', a grey circle with 'L', a light green circle with 'G', a red circle with '3', a yellow circle with 'N', a blue circle with 'A', a yellow circle with 'R', a brown circle with 'J', a green circle with '4', an orange circle with 'B', and a yellow circle with 'Q'.

PROFILES OF 20 SUBWAY LINES

Straphangers Campaign

1 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.10

The 1 line ranks tied for 8th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

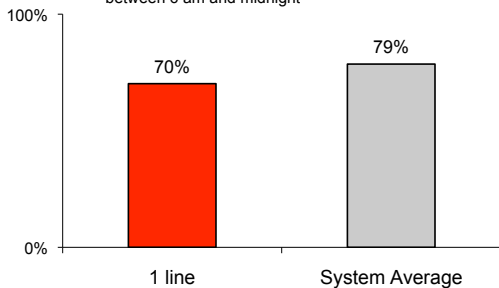
The 1 line is scheduled to come more often than most subway lines...

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
1 line	3	6	4	20
System Average	5:10	8:32	5:33	20

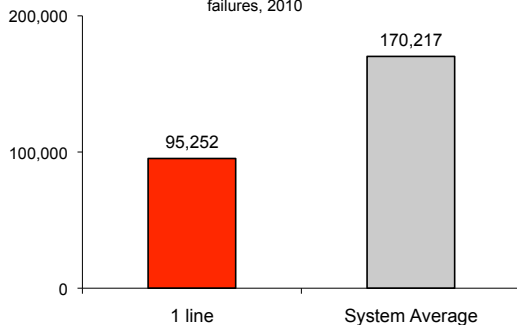
but arrives with below-average regularity.

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



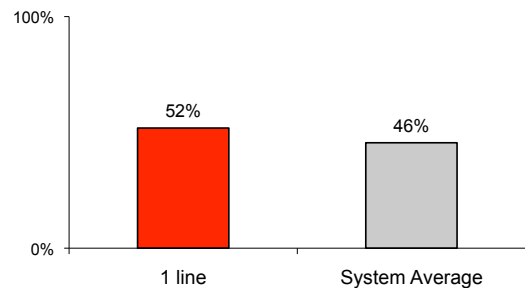
Cars on the 1 break down much more often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



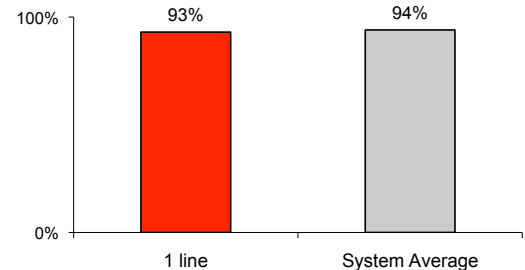
You're more likely to get a seat on the 1.

% of passengers with seats at most crowded point during rush hour



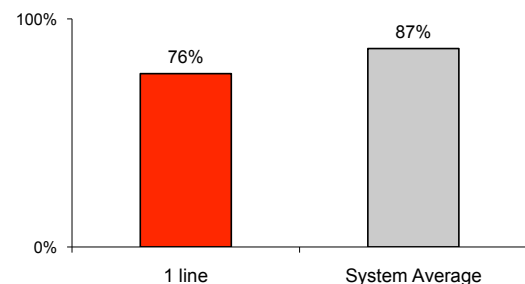
The 1 line is about as clean as average...

% of cars with "light or no interior dirtiness" as defined by NYC Transit



but performs below average on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

2 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating 90¢

The 2 line ranks tied for worst of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

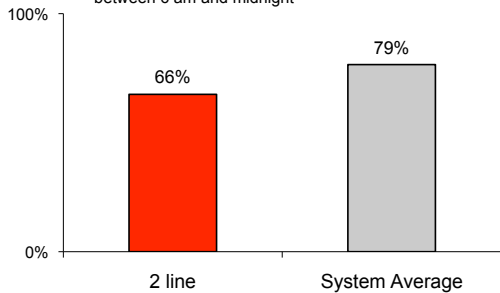
The 2 line is scheduled to come slightly more often than most subway lines...

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
2 line	5	8	5	20
System Average	5:10	8:32	5:33	20

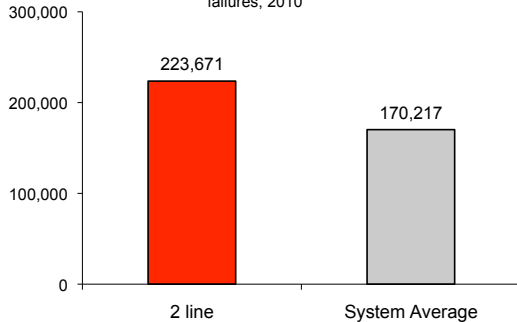
but arrives with regularity much less than average.

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



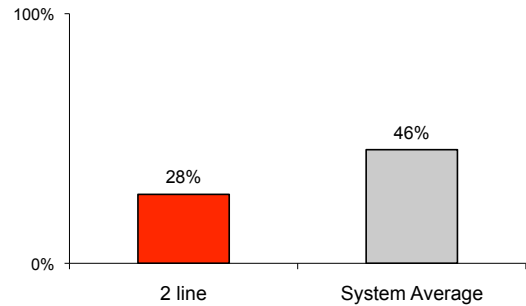
Cars on the 2 break down less often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



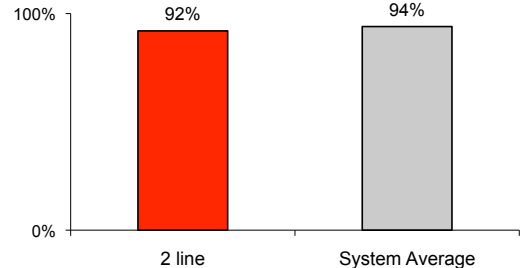
You're least likely to get a seat on the 2.

% of passengers with seats at most crowded point during rush hour



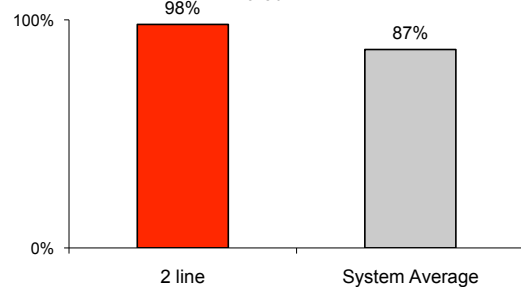
The 2 line is less clean than average...

% of cars with "light or no interior dirtiness" as defined by NYC Transit



but performs nearly perfect on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

3 SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating \$1.05

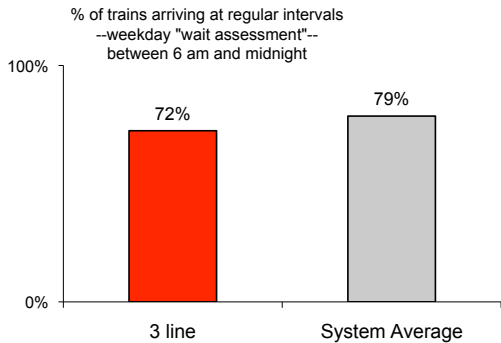
The 3 line ranks tied for 11th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The 3 line is scheduled to come slightly more often than most subway lines...

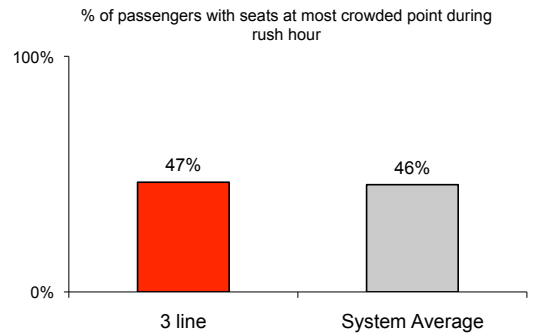
scheduled minutes between weekday trains
as of December 2010

	AM Rush	Noon	PM Rush	Overnight
3 line	5	8	5	20
System Average	5:10	8:32	5:33	20

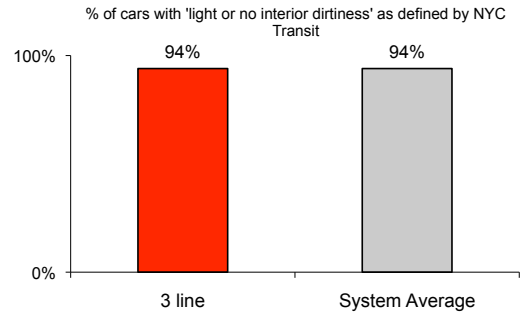
but arrives with below-average regularity.



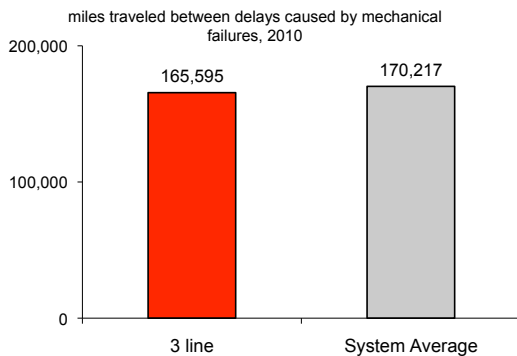
You have an average chance of getting a seat on the 3 line.



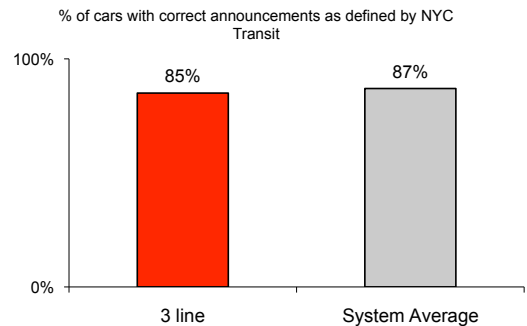
The 3 is as clean as the average line...



Cars on the 3 break down more often than those on the average line.



but performs below average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

4 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating **\$1.00**

The 4 line ranks 14th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

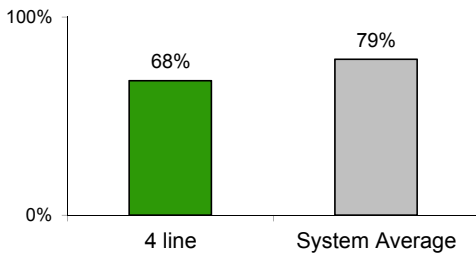
The 4 line is scheduled to come more often than most subway lines...

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
4 line	4	8	4	20
System Average	5:10	8:32	5:33	20

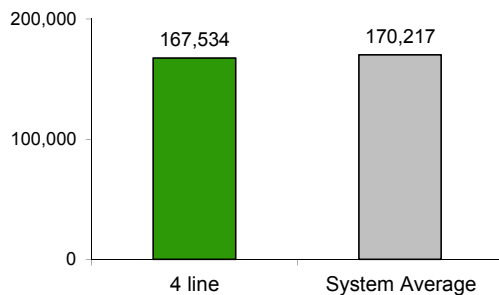
but arrives with below-average regularity.

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



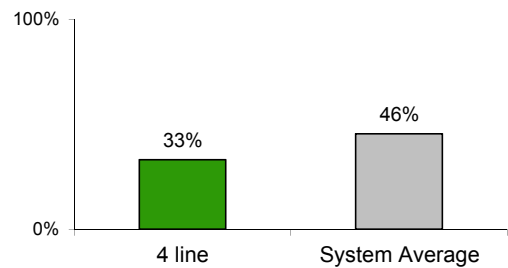
Cars on the 4 line break down more often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



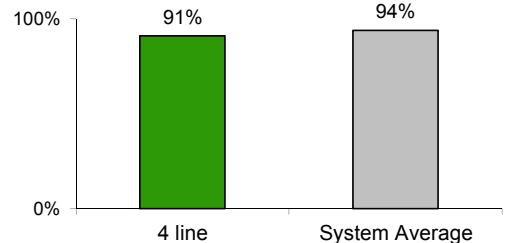
You're much less likely to get a seat on the 4.

% of passengers with seats at most crowded point during rush hour



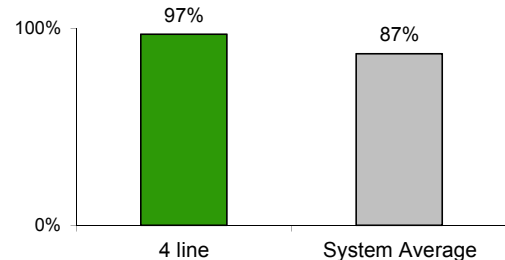
The 4 line is less clean than average...

% of cars with 'light or no interior dirtiness' as defined by NYC Transit



but performs above average on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

5 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.05

The 5 line ranks tied for 11th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

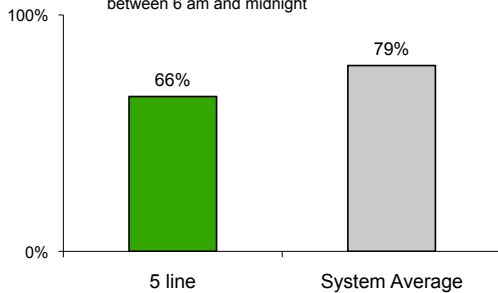
The 5 line is scheduled to come more often than most subway lines...

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
5 line	4	8	4	20
System Average	5:10	8:32	5:33	20

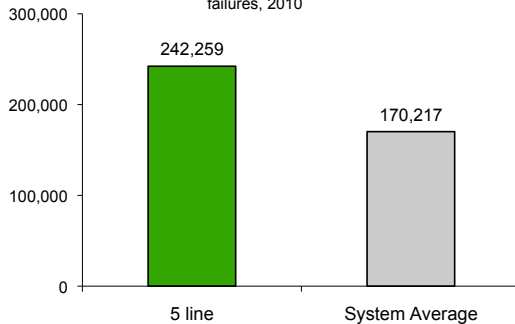
but arrives with regularity less often than any other line in the system.

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



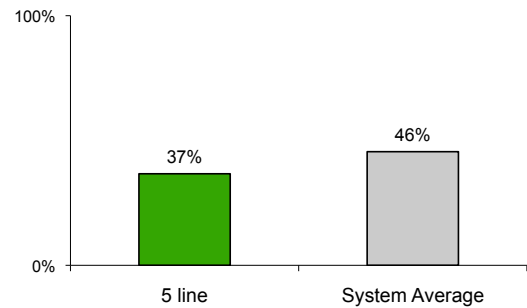
Cars on the 5 break down less often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



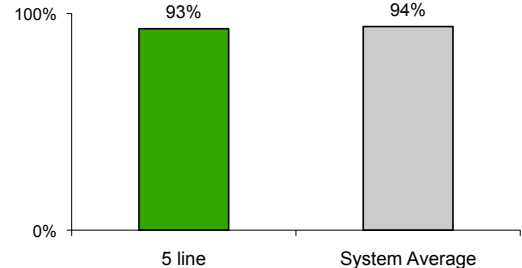
You're less likely to get a seat on the 5.

% of passengers with seats at most crowded point during rush hour



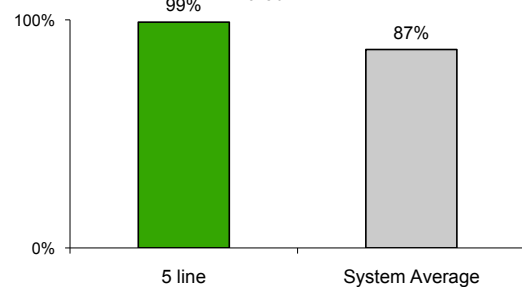
The 5 line is about as clean as average...

% of cars with "light or no interior dirtiness" as defined by NYC Transit



and performs nearly perfect on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

6 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.25

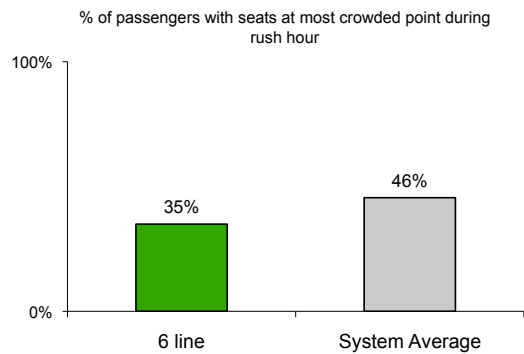
The 6 line ranks tied for 5th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The 6 line has more scheduled service than any other subway line.

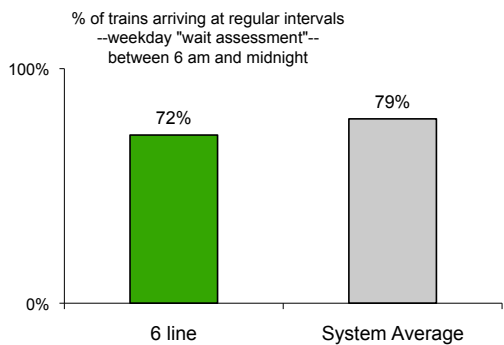
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
6 line	2:30	4	2:30	20
System Average	5:10	8:32	5:33	20

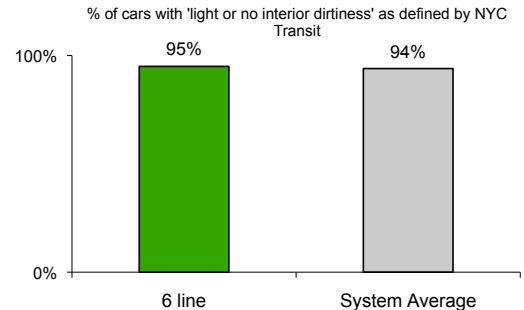
You're less likely to get a seat on the 6.



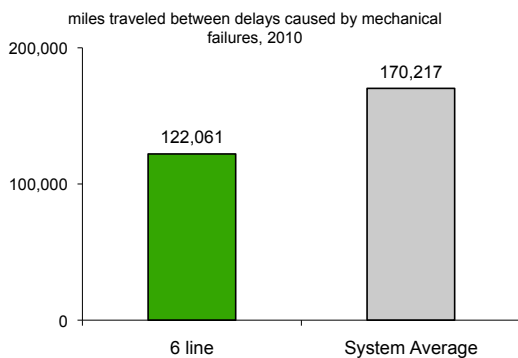
The 6 line arrives with below-average regularity...



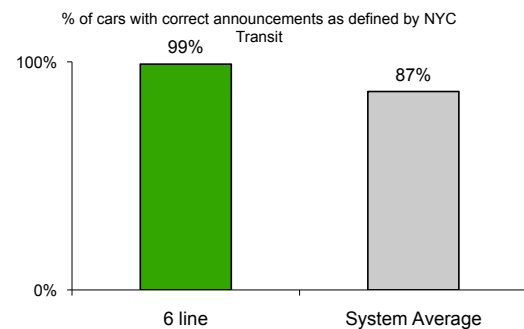
The 6 has average cleanliness...



and its cars break down more often than those on the average line.



and performs nearly perfect on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

7 SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.35

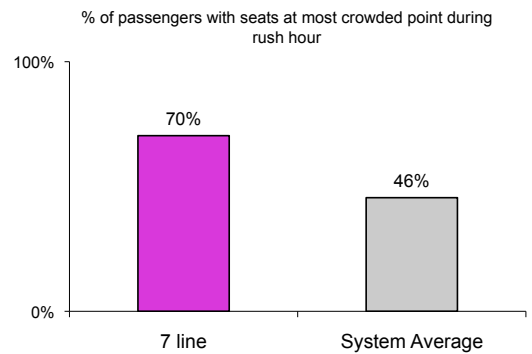
The 7 line ranks tied for 2nd best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The 7 line is scheduled to come much more often than the average line.

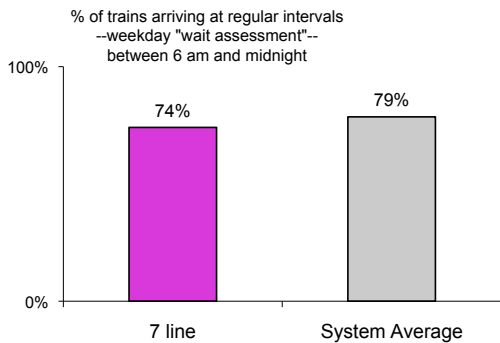
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
7 line	2:30	6	2:30	20
System Average	5:10	8:32	5:33	20

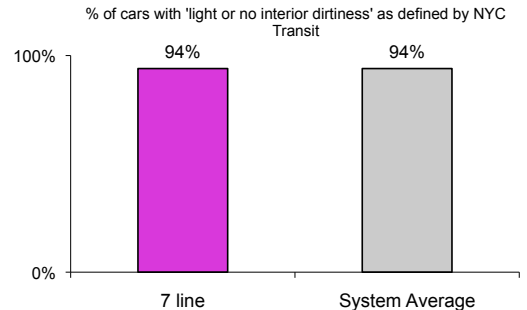
You're most likely to get a seat on the 7.



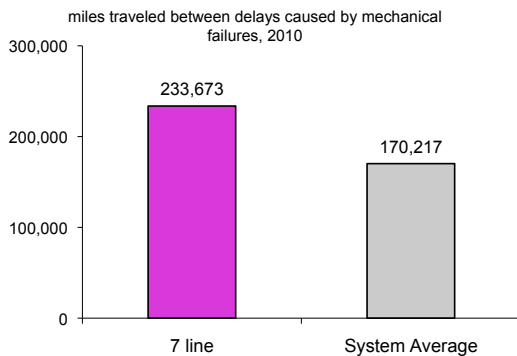
The 7 line arrives with below-average regularity...



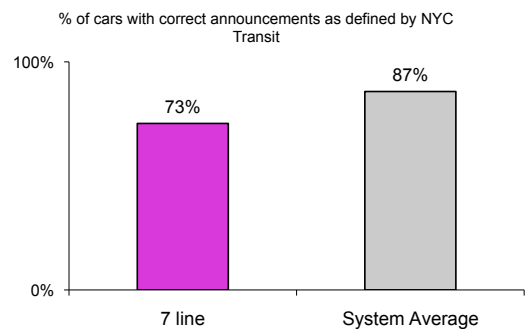
The 7 is as clean as the average line...



but its cars break down less often than those on the average line.



but performs next to worst on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

A SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **95¢**

The A line ranks tied for 15th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

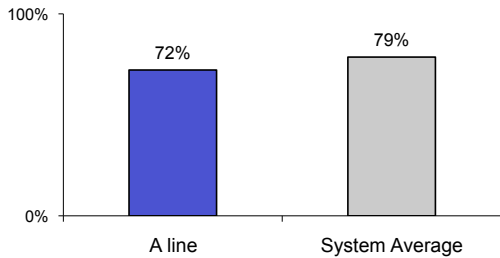
The A has more rush-hour but less midday service than the average subway line.

scheduled minutes between weekday trains
as of December 2010

	AM Rush	Noon	PM Rush	Overnight
A line	4:45	10	4:45	20
System Average	5:10	8:32	5:33	20

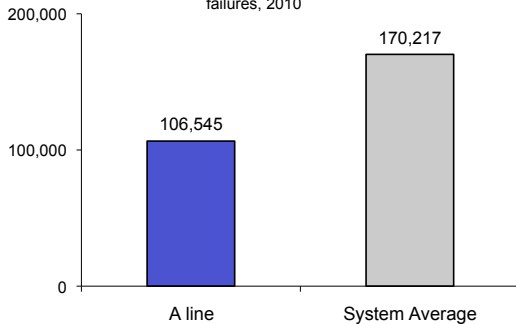
The A arrives with regularity less often than the system average...

% of trains arriving at regular intervals
--weekday "wait assessment"--
between 6 am and midnight



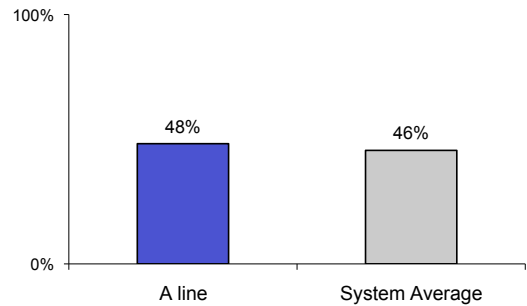
and its cars breakdown more often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



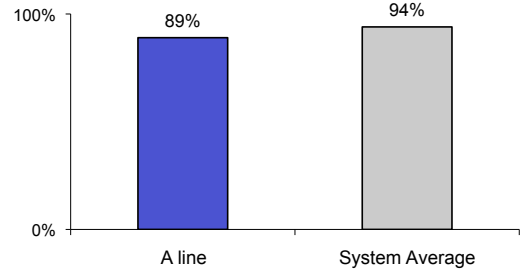
You're more likely to get a seat on the A.

% of passengers with seats at most crowded point during rush hour



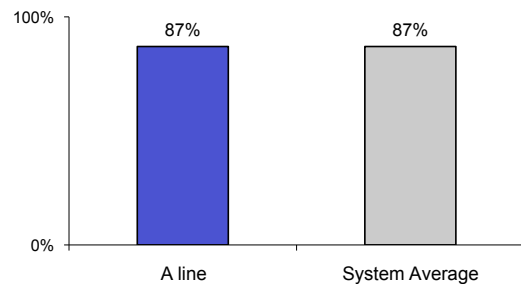
The A ranks next to worst on cleanliness...

% of cars with 'light or no interior dirtiness' as defined by NYC Transit



but performs average on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

B SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **95¢**

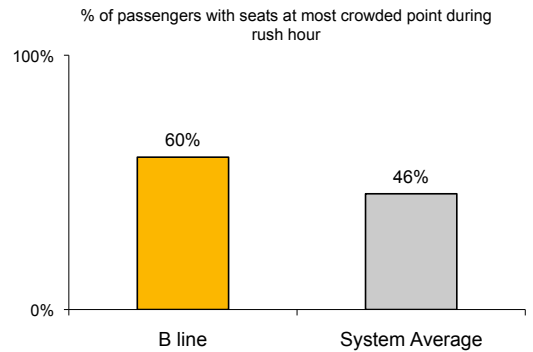
The B line ranks tied for 15th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The B line has a below-average amount of daytime service, and doesn't run at night.

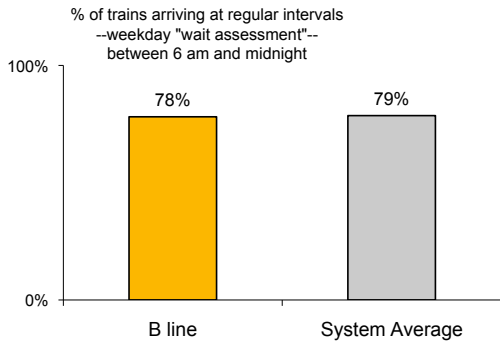
scheduled minutes between weekday trains
as of December 2010

	AM Rush	Noon	PM Rush	Overnight
B line	7:15	10	8	-
System Average	5:10	8:32	5:33	20

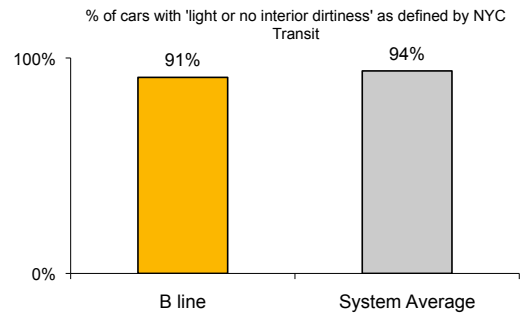
You're much more likely to get a seat on the B.



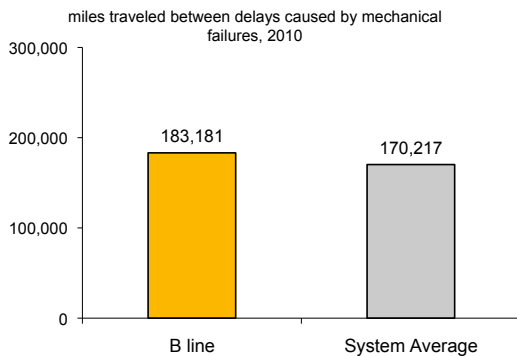
The B arrives with average regularity...



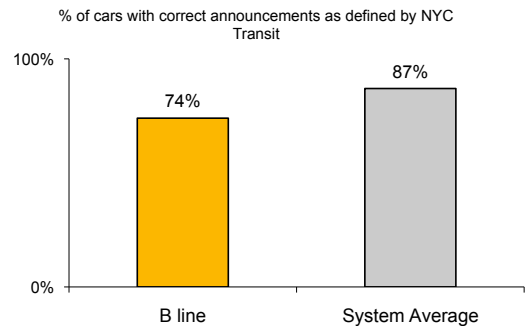
The B is less clean than the average line...



and its cars break down less often than those on the average line.



and performs far below average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

C SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **90¢**

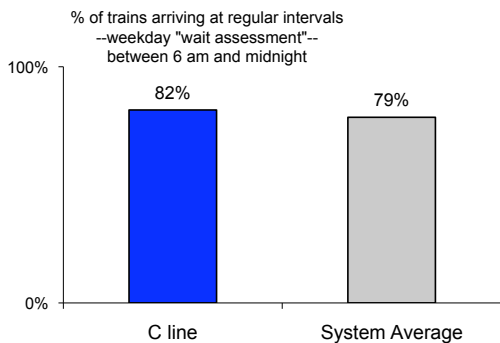
The C line ranks tied for worst of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The C line has the least amount of daytime service, and doesn't run at night.

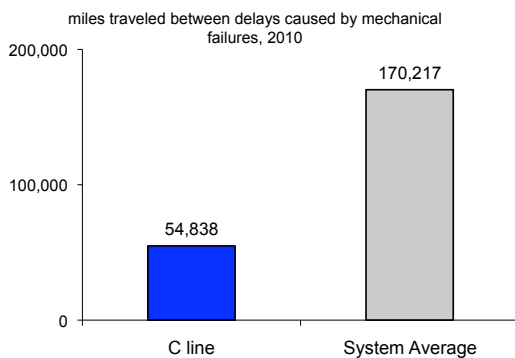
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
C line	9:15	10	10	-
System Average	5:10	8:32	5:33	20

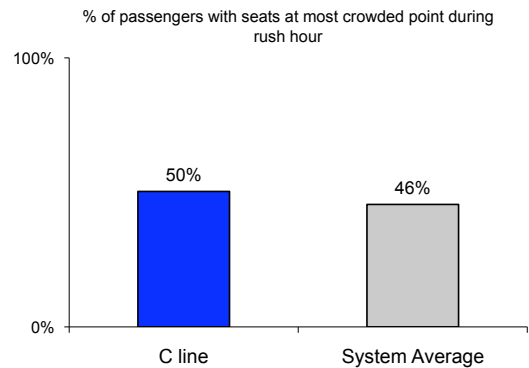
The C arrives with regularity more often than average...



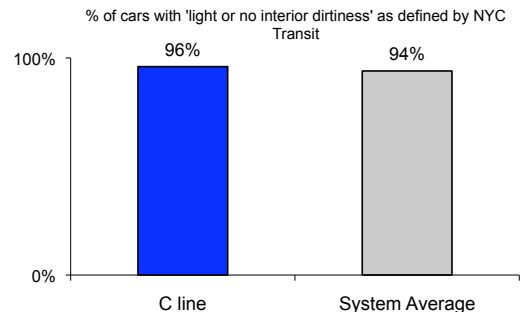
but its cars break down more often than those on any other line.



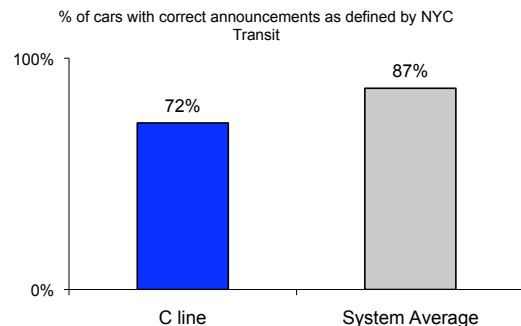
You're more likely to get a seat on the C.



The C line is tied for the system's cleanest...



but performs worst on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

D SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **\$1.10**

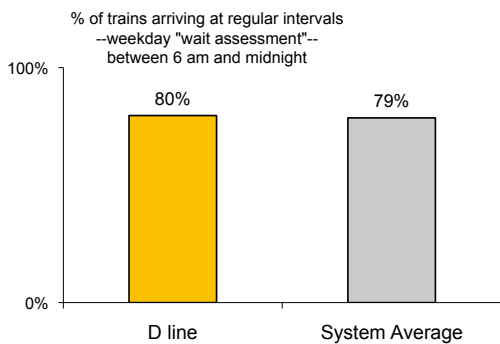
The D line ranks tied for 8th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The D is scheduled to come less often than the average subway line.

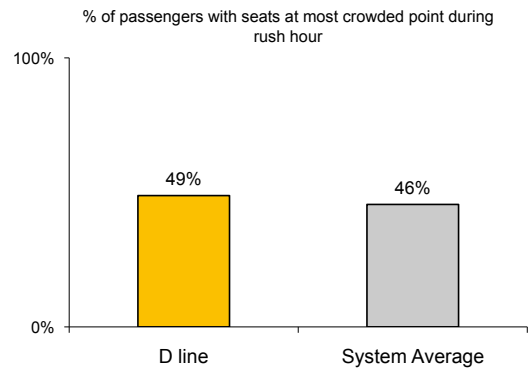
scheduled minutes between weekday trains
as of December 2010

	AM Rush	Noon	PM Rush	Overnight
D line	6	10	6:15	20
System Average	5:10	8:32	5:33	20

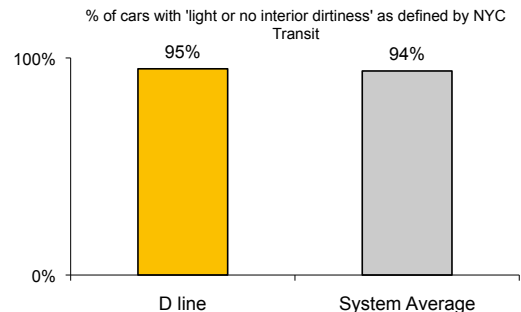
The D line arrives with average regularity...



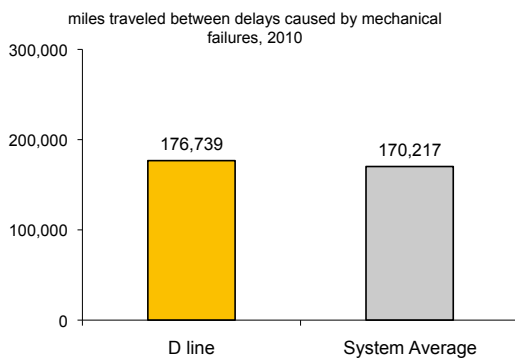
You're more likely to get a seat on the D.



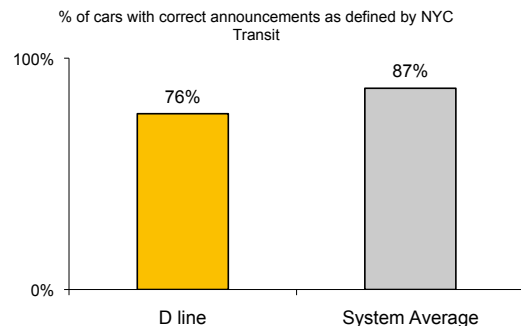
The D is as clean as the average line...



and its cars break down less often than those on the average line.



but performs below average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign E SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.35

The E line ranks tied for 2nd best of 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

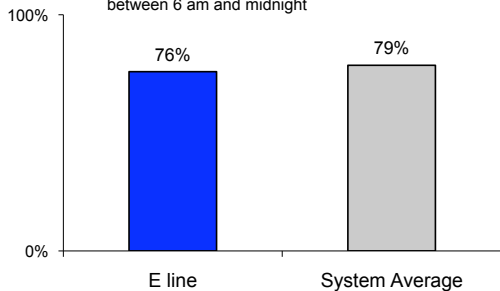
The E line has an above-average amount of scheduled service...

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
E line	4	7:30	4	20
System Average	5:10	8:32	5:33	20

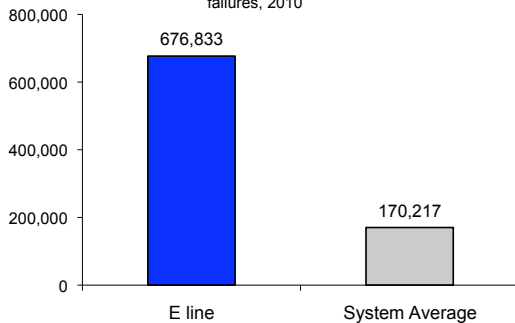
but arrives with regularity less often than the average line.

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



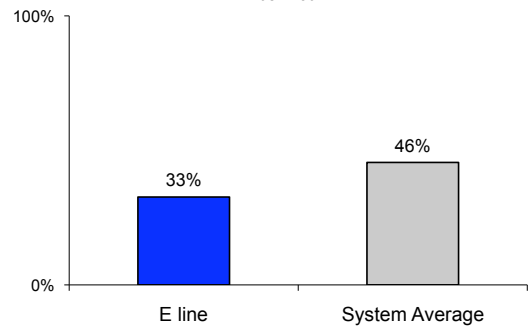
Cars on the E break down much less often than those on other subway lines.

miles traveled between delays caused by mechanical failures, 2010



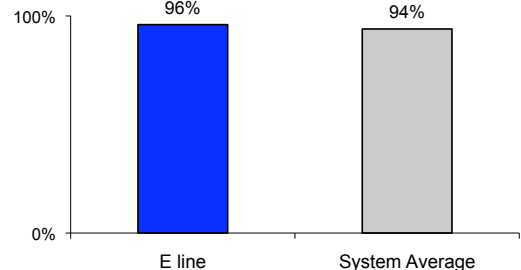
You're much less likely to get a seat on the E.

% of passengers with seats at most crowded point during rush hour



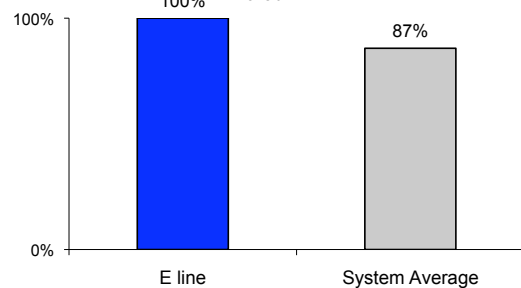
The E is tied for the system's cleanest line...

% of cars with "light or no interior dirtiness" as defined by NYC Transit



and performs perfectly on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign F SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **\$1.20**

The F line ranks 7th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

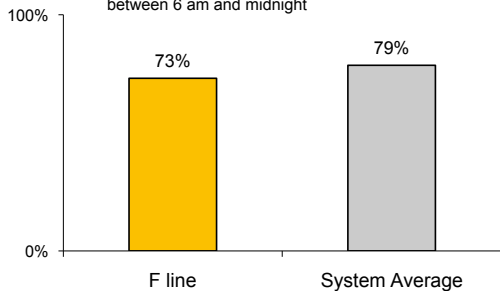
The F is scheduled to come more often than most subway lines.

scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
F line	4	7:30	4	20
System Average	5:10	8:32	5:33	20

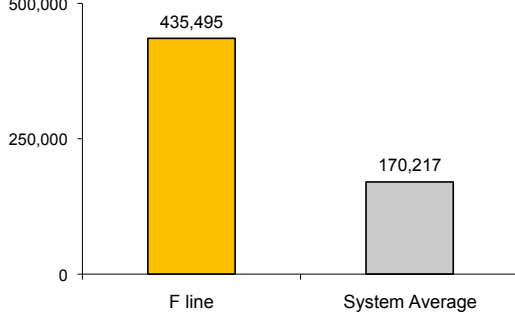
The F arrives with regularity less often than the average line...

% of trains arriving at regular intervals --weekday "wait assessment"-- between 6 am and midnight



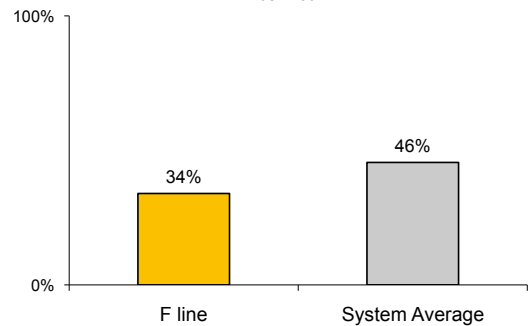
but its cars break down less often than those on the average line.

miles traveled between delays caused by mechanical failures, 2010



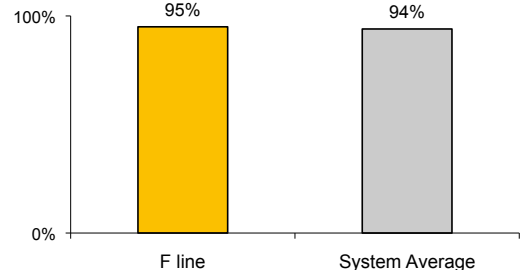
You're less likely to get a seat on the F.

% of passengers with seats at most crowded point during rush hour



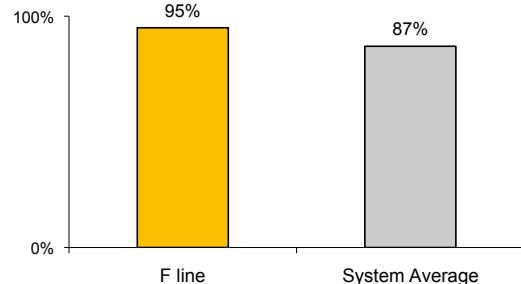
The F is as clean as the average line...

% of cars with "light or no interior dirtiness" as defined by NYC Transit



and performs above average on in-car announcements.

% of cars with correct announcements as defined by NYC Transit



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

G SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **No Rating**

The G line profile is based on the MTA New York City Transit information below. (There is no MetroCard Rating for the G. Its data on crowding can not be compared to other lines.) Full methodology is available at www.straphangers.org.

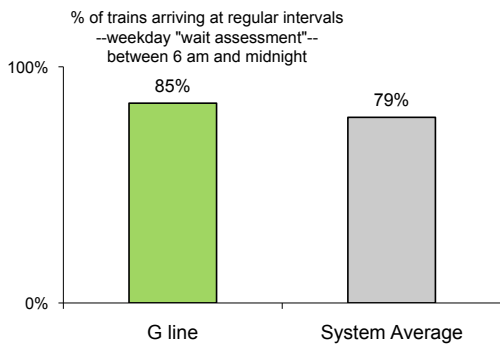
The G line is scheduled to come much less often than most subway lines...

scheduled minutes between weekday trains
as of December 2010

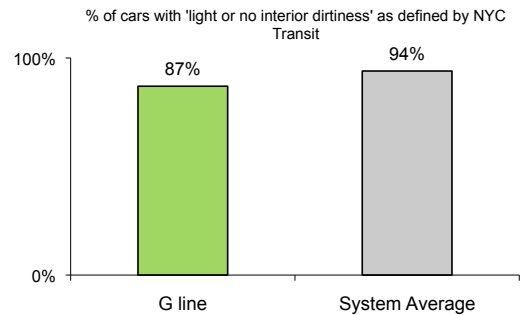
	AM Rush	Noon	PM Rush	Overnight
G line	6:30	10	10	20
System Average	5:10	8:32	5:33	20

Reliable crowding data for the G line is not available.

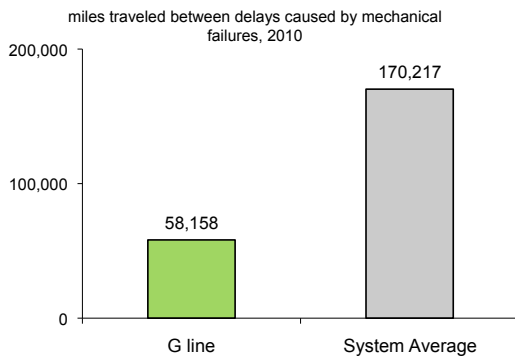
but arrives with above-average regularity.



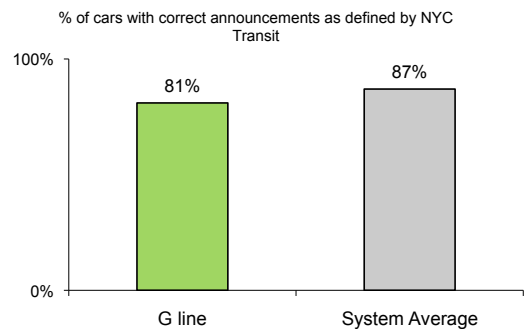
The G line is the least clean in the system...



Cars on the G break down much more often than those on the average line.



and performs below average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign J/Z SUBWAY LINE PROFILE



**Straphangers Campaign
MetroCard Rating \$1.45**

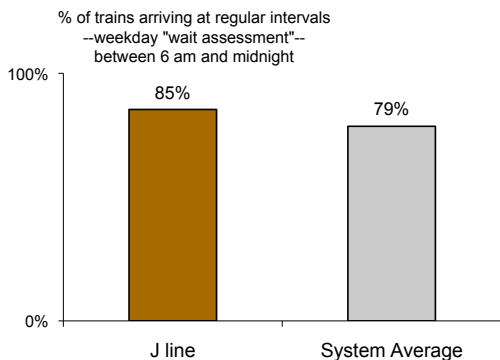
The J/Z lines rank best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The J & Z lines have more rush-hour but less midday service than the average line.

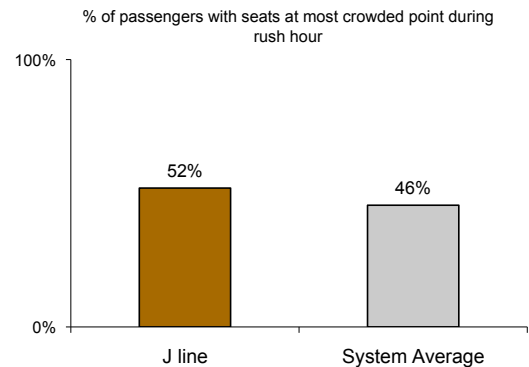
scheduled minutes between weekday trains
as of December 2010

	AM Rush	Noon	PM Rush	Overnight
J line	5	10	5	20
System Average	5:10	8:32	5:33	20

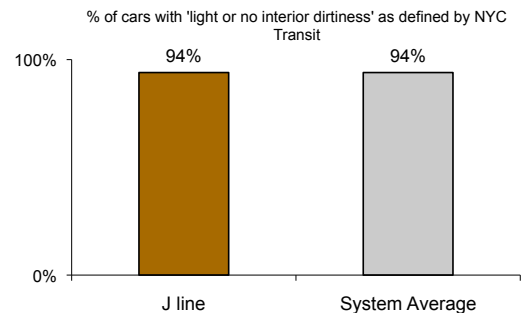
The J & Z arrive with the system's highest regularity...



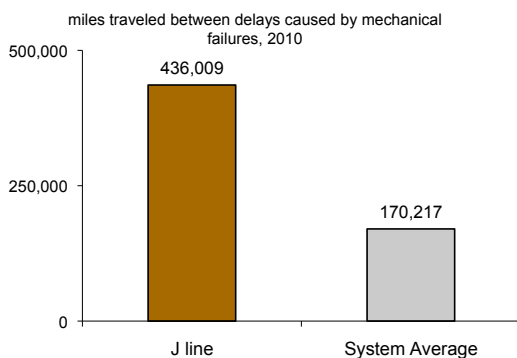
You're more likely to get a seat on the J & Z.



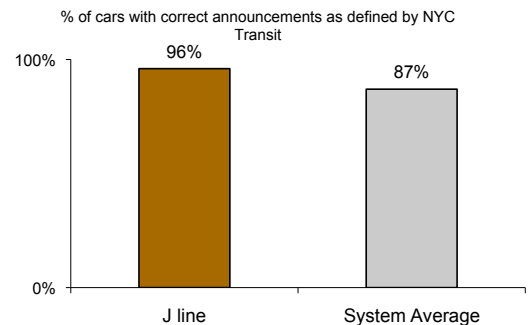
The J & Z are as clean as average...



and their cars break down much less often than those on the average line.



and perform above average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign



SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating \$1.25

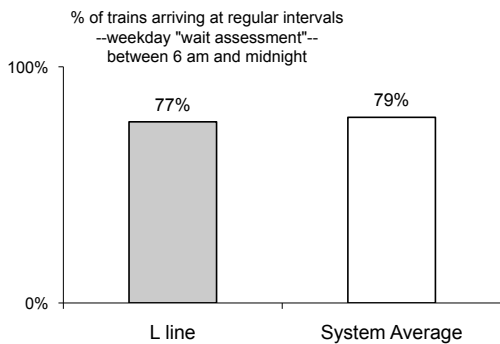
The L line ranks tied for 5th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The L line is scheduled to come more often than most subway lines...

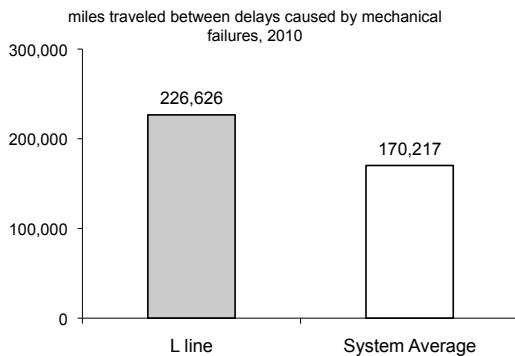
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
L line	3:30	7:30	4	20
System Average	5:10	8:32	5:33	20

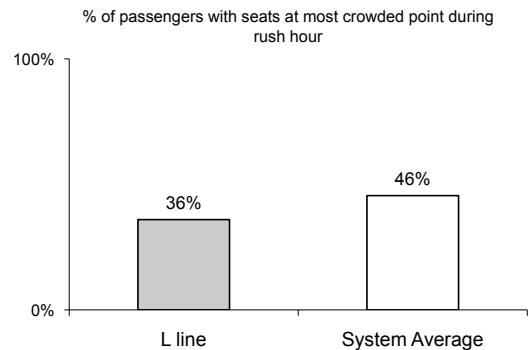
but arrives with below-average regularity.



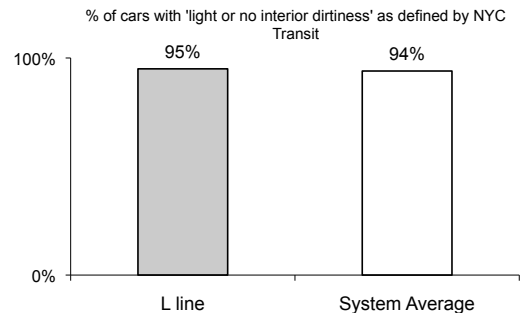
Cars on the L break down less often than those on the average line.



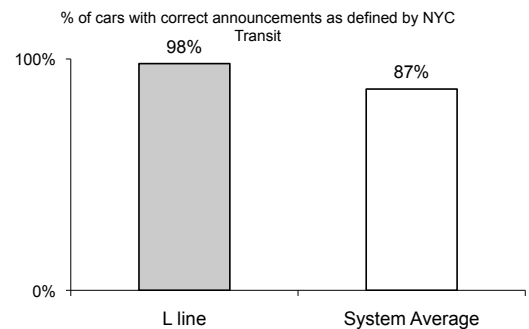
You're less likely to get a seat on the L.



The L line is as clean as average...



and performs above average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

M SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **No Rating**

The M line profile is based on the MTA New York City Transit information below.
 (Because of major changes to the route in 2010, there is no MetroCard Rating for the M.)
 Full methodology is available at www.straphangers.org.

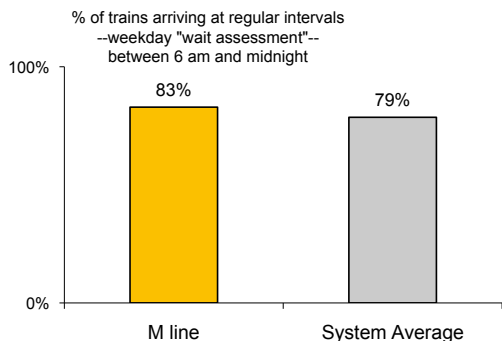
The M line has a below-average amount of daytime service.

scheduled minutes between weekday trains
 as of December 2010

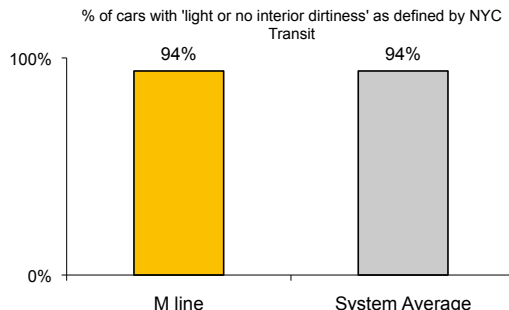
	AM Rush	Noon	PM Rush	Overnight
M line	8	10	9	20
System Average	5:10	8:32	5:33	20

Reliable crowding data for the revised M line route pattern is not available.

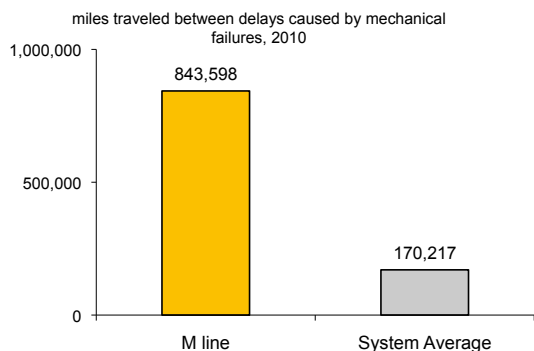
The M arrives with regularity more often than the average line...



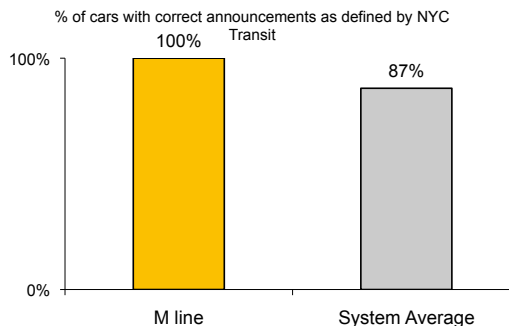
The M is as clean as the average line...



and its cars break down less often than those on any other line.



and performs perfectly on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

N SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **\$1.10**

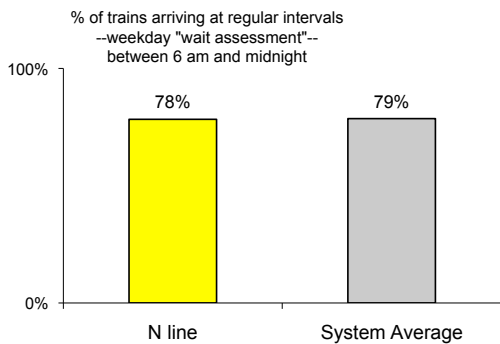
The N line ranks tied for 8th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The N line is scheduled to come less often than most subway lines...

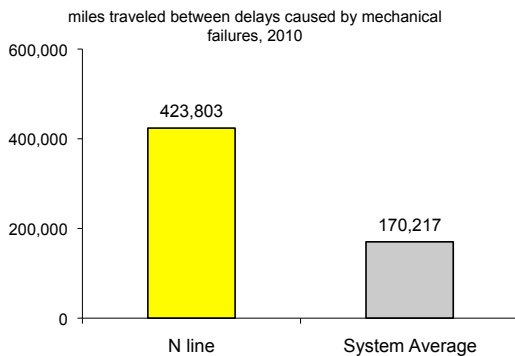
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
N line	7	10	7	20
System Average	5:10	8:32	5:33	20

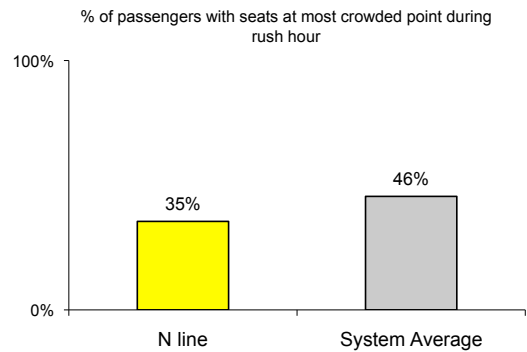
but arrives with average regularity.



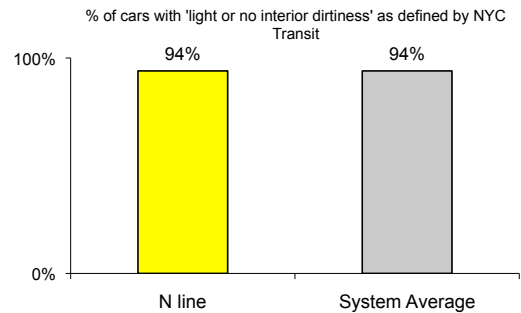
Cars on the N break down less often than those on the average line.



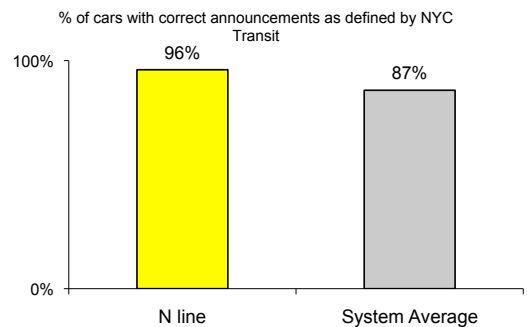
You're less likely to get a seat on the N.



The N line is as clean as average...



and performs above average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

Q SUBWAY LINE PROFILE



Straphangers Campaign MetroCard Rating **\$1.35**

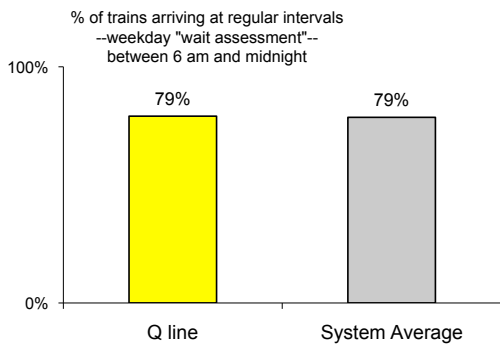
The Q line ranks tied for 2nd best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The Q line is scheduled to come less often than most subway lines...

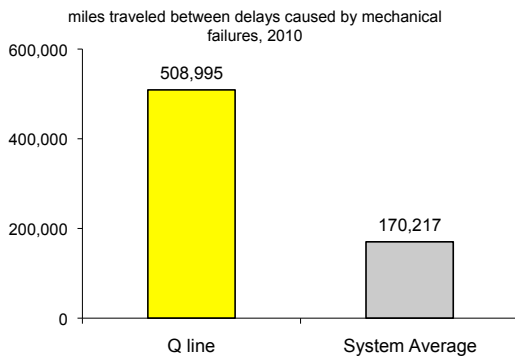
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
Q line	6	10	6	20
System Average	5:10	8:32	5:33	20

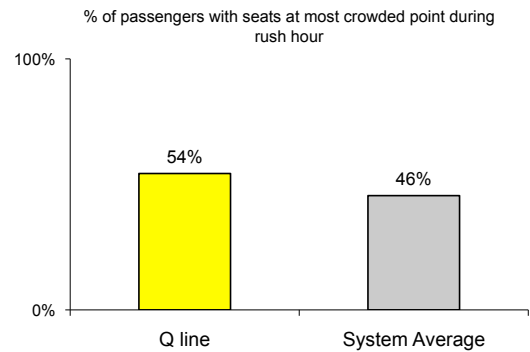
but arrives with average regularity.



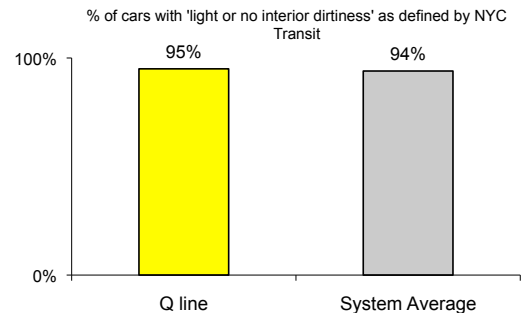
Cars on the Q break down much less often than those on the average line.



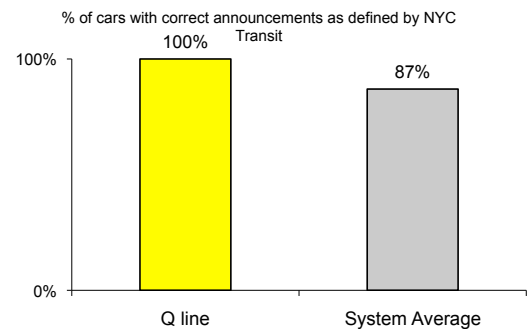
You're more likely to get a seat on the Q.



The Q line is as clean as average...



and performs perfectly on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Straphangers Campaign

R SUBWAY LINE PROFILE



Straphangers Campaign
MetroCard Rating **\$1.05**

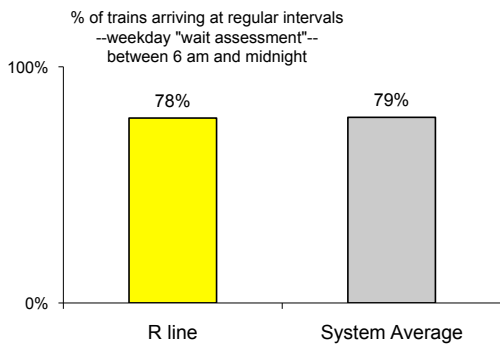
The R line ranks tied for 11th best of the 18 subway lines rated by the Straphangers Campaign. Our ranking is based on the MTA New York City Transit data below, using a method described at www.straphangers.org.

The R line is scheduled to come less often than most subway lines...

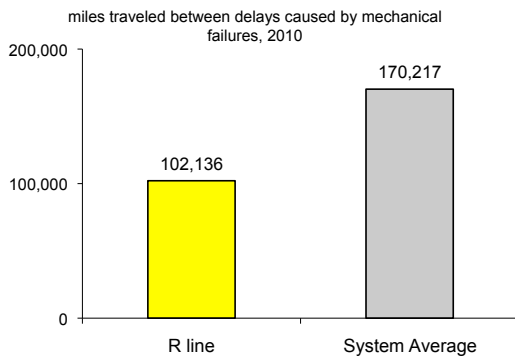
scheduled minutes between weekday trains as of December 2010

	AM Rush	Noon	PM Rush	Overnight
R line	6	10	6	20
System Average	5:10	8:32	5:33	20

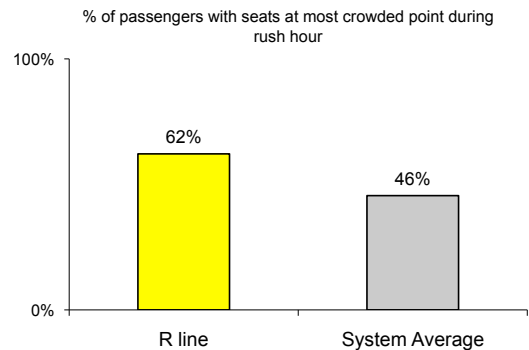
but arrives with average regularity.



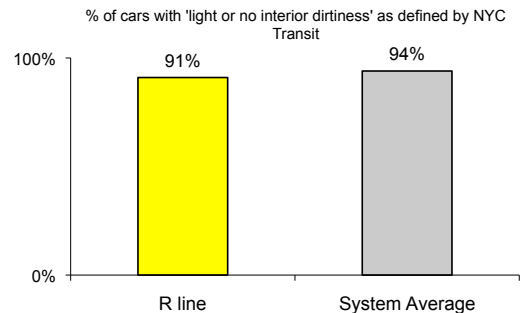
Cars on the R break down more often than those on the average line.



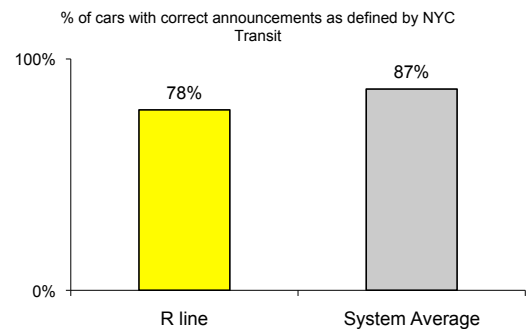
You're much more likely to get a seat on the R.



The R line is less clean than average...



and performs below average on in-car announcements.



Suggestions? Questions? Complaints? Call (718) 330-1234

Appendix I: Detailed Methodology

How We Developed Our Profiles and MetroCard Ratings

This appendix describes in detail the methodology used by the NYPIRG Straphangers Campaign to develop our profiles of New York City subway lines and our MetroCard Ratings.

Essentially, we reviewed six measures of transit performance compiled by MTA New York City Transit, presented them in concise, one-page, rider-friendly profiles, and then gave a MetroCard Rating based on their overall performance. We chose these six measures — which are fully described below — for several reasons. This included their importance to riders, as reflected in New York City Transit's polling of riders and in our own survey of 38 transit experts. Additional factors included the availability, reliability and comparability of the data.

The MetroCard Rating was developed in two steps, explained more fully below. First, we decided how much weight to give each of the six measures of transit services in our profiles. Then we placed each line on a scale that permits fair and consistent comparisons. Under that formula, a line whose 2010⁷ scores fell on average at the 50th percentile of lines for all six performance measures would earn a MetroCard Rating of \$1.15. Those scoring at the 95th percentile would receive a rating of \$2.25, the current base fare.

1. Presenting New York City Transit Data to Riders

We decided to report data in the form of concise one-page profiles for each subway line. That met our goal of presenting the information in a way that would be easily understandable to the riding public.

Below is a description of each of six measures of transit performance that we used. We have listed the published sources of the data; if no published source is listed, we received the data from MTA New York City Transit in electronic form. In 1997, New York City Transit officials reviewed a draft version of the profiles and concluded:

Although it could obviously be debated as to which indicators are most important to the transit customer, we feel that the measures that you selected for the profiles are a good barometer in generally representing a route's performance characteristics...Further, the format of your profiles...is clear and should cause no difficulty in the way the public interprets the information.⁸

An advance summary of the findings for the 2011 State of the Subways report was provided to MTA New York City Transit.

⁷ Data on scheduled service, service regularity, breakdown rate, interior cleanliness and in-car announcements was taken from MTA New York City Transit 2010 sources. On crowding, we cite 2009 MTA NYCT cordon count and 2010 passenger loading guidelines — the most recent data available at the time of this report's preparation. For the sake of brevity, we refer to data from sources cited in this report as '2010 data.'

⁸ The draft included the same six measures of service as the final version. Transit officials did note that for some lines, "it may be more useful to present the profiles by corridor rather than individual route...especially for such high-volume corridors as the Lexington Avenue express." (Source: Letter, to Gene Russianoff, staff attorney, Straphangers Campaign from Lois Tendler, Acting Chief of Operations Planning, MTA New York City Transit, April 17, 1997.) Since all the data we use is broken down by line, we felt the profiles should reflect this.

A. *Scheduled headways*

We measured amount of service based on the scheduled "headways" between trains for weekday morning rush, afternoon rush and midday hours. Headways are the number of minutes scheduled between train arrivals. For example, the 4 line is scheduled to arrive every four minutes during the weekday morning rush. Because virtually all subway lines operate at the same interval — 20 minutes — during late night hours, we did not include overnight headways in our analysis. This approach allowed us to include the B and C—two train lines that do not regularly operate during overnight hours.

For our profiles, we decided to have the morning and afternoon rush hour intervals each contribute 40% to the overall headways measurement; midday headways account for the remaining 20%. We felt that this fairly reflected the relative use of service. For any line which has different scheduled intervals for northbound and southbound trains, the average headway was considered. Due to changes in the way MTA New York City Transit reports its headway data, the amount of scheduled service figures cited in this report may not be comparable to those published in our thirteen previous reports. System average data was calculated by averaging data by time period from the 20 lines measured in this report. (Source: Subway Service Frequency (Headway in Minutes): By Route and Time of Day, A and B Divisions, December 12, 2010, MTA New York City Transit Subway Schedules Division of Operations Planning, Department of the Executive Vice President.)

B. *Regularity of Service*

Regularity of service measures the adherence of *actual* intervals to *scheduled* intervals between trains. A line with a *low* regularity, for example, would show either gaps in train service during some portion of the day, and/or train bunching at others.

In 2001, MTA New York City Transit created a new measure of this indicator, called *wait assessment*:

The percentage of service intervals is no more than the scheduled interval plus 2 minutes during the hours of 6 a.m. to 9 a.m. and 4 p.m. to 7 p.m., or plus 4 minutes during the hours of 9 a.m. to 4 p.m. and 7 p.m. to 9 p.m.

In 2008, transit officials modified this definition:

[Wait assessment] is the percent of instances that the time between trains does not exceed schedule by more than 2 minutes (peak) or 4 minutes (off-peak). The reporting time is 6:00 a.m. to midnight.

This reporting time (6 a.m. to midnight) represents a departure from the reporting time used by transit officials between 2001 and 2007. Further, 2009 data was published as 12-month, rather than 6-month, rolling averages.

In 2010, transit officials changed the definition again:

Wait assessment (WA), which is measured weekdays between 6:00 a.m. - midnight is defined as the percent of actual intervals between trains that are no more than the scheduled interval plus 25%.

Transit officials continue:

Beginning in July 2010 the 1 thru 6 line results reflect the current month (Dec. 2010) data for all train trips derived from ATS-A. All results for prior year and the current results for the 7, S 42nd St., BMT and IND divisions are based on a sample methodology and reported as a 12 month rolling average. Systemwide results reflect 12 month rolling average for all lines...IRT Division results reflects the 12 month weighted average of sample data and all ATS-A train trips for the 1 thru 6 lines averaged with the 12 month sample data for the 7 and S 42nd St.

(Source: Operations Performance Summary, Subway Weekday Wait Assessment (6 am – midnight) 12 Month Averages, January-December 2010, *MTA New York City Transit Committee Meeting Agenda*, February 2011, p. 3.4-3.5.)

C. Mean distance between failures (MDBF)

MTA New York City Transit states that MDBF measures subway car reliability and "is calculated as revenue car miles divided by the number of delay incidents attributed to car-related causes." In this report we cited data for the 12-month rolling average for the period ending December 2010. The system average quoted is the "fleet average" published by MTA New York City Transit. (Source: Car Reliability — Mean Distance between Failures by Line (Miles), *MTA New York City Transit Committee Meeting Agenda*, February 2011, p. 3.15.)

D. Chance of getting a seat

We developed a formula to calculate the chance of being able to get a seat at the most crowded point on each line. First, we identified each line's "instance of greatest crowding" using New York City Transit's 2009 *Weekday Cordon Count*. We did this by isolating for each line the most crowded 1-hour interval at the most crowded point entering or exiting Manhattan's Central Business District (CBD). Then we divided the number of seats on all cars on each line by the number of passengers during that 1-hour interval. For example, the 1 line was at its most crowded point exiting the CBD, uptown at West 66th Street, between 6:00 p.m. and 7:00 p.m. on the day the count was taken; the average number of passengers counted was 85.813 per car. Cars on the 1 line are of the class R62-A, a 51-foot A-subdivision car with 44 seats. Thus the ratio of the number of seats to the total number of passengers per car would be 44/85.813 or 52%. This figure, 52%, represents the chance that a rider will be able to get a seat on a train at the 1 line's most crowded point entering/exiting the CBD, during the most crowded 1-hour weekday interval. In cases where more than one car class was used on a line, we evaluated crowding based on the seating guidelines for the predominant type of car used on the line. As the G line does not enter the CBD, passenger loading data is not included in MTA New York City Transit's cordon count. For this reason, we report no crowding data for the G line in this report, and subsequently, calculate no MetroCard Rating for the G. In addition, no passenger crowding data has been made available for the M line following substantial 2010 changes to the route pattern. Therefore we report no crowding data, and subsequently, give no MetroCard Rating for the M line in this report. System average data was calculated by averaging the 'chance of getting a seat' scores of 19 lines cited in the cordon

count. (Source: New York City Transit Subdivision 'A' and 'B' Car Assignments December 12, 2010, and *Year 2009 Weekday Cordon Count*, MTA New York City Transit Division of Operations Planning, Department of the Vice President.)

E. Passenger Environment Surveys: Cleanliness and Announcements

New York City Transit conducts a periodic "Passenger Environment Survey" (PES) to measure the quality of the transit environment experienced by riders. It does this for subway cars, stations and buses and releases the results semi-annually. The PES is performed by "surveyors who are specifically trained for this function and who have no direct association with the departments affected by the survey evaluations. The surveying of...subway cars is conducted throughout each quarterly recording period to the extent necessary to depict a 'representative' sample of NYC Transit's vehicles."⁹ Our profiles represent the first time that PES findings have been presented to the public on a line-by-line basis. We included PES ratings on cleanliness and announcements because New York City Transit's own surveys of rider opinion show both are of major concern to riders.

(1) Interior cleanliness

The PES includes a rating on the cleanliness of the interior of subway cars while in passenger service. It defines a car with a light degree of dirtiness as one with "occasional 'ground in' spots, but generally clean." Interior cleanliness in our profile was measured as the sum of the total percentage of cars with "no dirtiness of car floors and seats," and those with "a light degree of dirtiness of car floors and seats" during the last six months of 2010. System averages calculated by Operations Planning were cited in this report. (Source: MTA New York City Transit's Department of Operations Planning — Systems Data and Research, Passenger Environment Survey data for the second half of 2010.)

(2) Adequacy of routine in-car announcements

In-car announcements are also monitored in the Passenger Environment Survey. Our profiles note the average percentage of cars with adequate "routine in-car announcements" for the last six months of 2010. PES rates announcements as adequate if they are "understandable" and "correct." Such announcements would include at least four of the five following items:

- next station announced;
- transfer options, if applicable;
- route designation announced (either letter or number corresponding to a train line);
- next station announced; and
- "stand clear of the closing doors" announced.

This represents a change in PES methodology made in the third quarter of 2000. System averages calculated by Operations Planning were cited in this report. (Source: Department of Operations Planning — Systems Data and Research, Passenger Environment Survey data for the second half of 2010.)

⁹ Source: MTA New York City Transit *Passenger Environment Survey*, Third Quarter, 1996, p. 1.

2. Developing a Straphangers Campaign MetroCard Rating

We decided to include one overall rating for each of 18 subway lines. The rating is intended as a shorthand tool to summarize all of the information reported in the profiles and to allow for comparisons among lines.

As described below, under the formula used, a line whose 2010 scores fell on average at the 50th percentile of all lines for all six performance measures would receive a MetroCard Rating of \$1.15. A line which matched the 95th percentile of this range would receive a line rating of \$2.25. However, some lines which ranked high on some measures of performance may have received only an average MetroCard rating due to poor relative performance in other areas. (See Figure 1.)

Some riders may find this scale too generous, believing that performance levels should be far better than they are now. Other riders, who value transit service over other ways to travel in New York City, may believe the subways and buses to be a bargain.¹⁰

The MetroCard rating does not seek to make a subjective value judgment of the worth of subway service. It is not based on economic factors, such as the cost of providing service or comparisons to the costs of other modes of transportation. Instead, it is only a yardstick that permits a simple and direct ranking of subway lines.

A. Ranking Subway Performance Indicators

We used two sources of information to formulate a scale of the relative importance of various subway line performance indicators. First, the Straphangers Campaign conducted a poll of 38 transit experts, activists and members of the riding public. We asked them to rank eight indicators of subway performance that opinion polls indicated were of major concern to riders. Second, we examined MTA New York City Transit's own rider opinion surveys. One performance indicator, crime, ranked high in both the Straphangers Campaign's poll and in the MTA rider surveys, but could not be included in the profile project because applicable data was not available on a line-by-line basis. A second measurement, "enroute schedule adherence," (commonly referred to as "on-time performance") was dropped from consideration because New York City Transit made changes to its definition and to the time periods surveyed.

Three lines — the Grand Central, the Franklin Avenue and the Rockaway Shuttle — were dropped from consideration because not all six measures of service were available for these lines. Due to the lack of reliable crowding data for the G and M lines, no MetroCard Rating was calculated for those lines.

The remaining 18 subway lines were evaluated on the basis of six indicators, all regularly measured by New York City Transit on a line-by-line basis. Each measure was assigned a percentage weight based on the priorities expressed by those polled as follows; the measures are grouped by the type of indicator:

¹⁰ For example, in critiquing an earlier draft of our profile, transit officials said: "After all, what alternative mode of transportation along Lexington Avenue can even remotely compare at a cost of \$1.50 to the speed, frequency, and we dare say, reliability of the subway service." (Source: Letter, April 17, 1997, to Gene Russianoff, staff attorney, Straphangers Campaign from Lois Tendler, Acting Chief of Operations Planning, MTA New York City Transit.)

Amount of service	(total: 30%)
<i>Scheduled headways</i>	30%
Dependability of service	(total: 35%)
<i>Regularity of service</i>	22.5%
<i>Mean distance between failures</i>	12.5%
Comfort/usability	(total: 35%)
<i>Chance of getting a seat</i>	15%
<i>Interior cleanliness</i>	10%
<i>Adequacy of in-car announcements</i>	10%
	(total = 100%)

Data and/or specific calculations on three of these indicators — chance of getting a seat, interior cleanliness and in-car announcements — have never before been released to the public on a line-by-line basis.

B. Calculating the MetroCard Rating

In our first five surveys, 1996 performance data served as a baseline. As we said in our 1997 report, Line Ratings "will allow us to use the same formula for ranking service on subway lines in the future. As such, it will be a fair and objective barometer for gauging whether service has improved, stayed the same, or deteriorated over time."

However, in 2001, 2003, 2004, 2005, 2008, 2009 and 2010, transit officials made changes in how performance indicators are measured and/or reported. The Straphangers Campaign unsuccessfully urged MTA New York City Transit to re-consider its new methodologies, because of our concerns about the fairness of these measures and the loss of comparability with past indicators. Transit officials also rejected our request to re-calculate measures back to 1996 in line with their adopted changes. As a result, in this report we were forced to redefine our baseline with current data, and considerable historical comparability was lost.

Due to these changes by New York City Transit in the measurement and reporting of data, we have established a new baseline this year — largely 2010 data published in this report — against which we hope to be able to compare future performance.

C. 2011 MetroCard Ratings

18 lines were rated on a linear scale for each of the six measurements used. A line in 2010 equaling the system best would receive a score of 100 for that indicator, while a 2010 line matching the system worst would receive a score of 0. Thus all lines in this report received a score for each measurement between 0 and 100. The lines' scores were then multiplied by the respective weights assigned each indicator. The six adjusted scores were then added up (see Figures 1 and 2), which use the 4 line as an example.

The summed totals were then placed on a logarithmic scale. This scale emphasizes the relative differences between scores nearest the top and bottom of the scale, and ensures that a small difference in performance between any two lines translates to a small difference between scores.

Our method reflects the odds, rather than the percentage chance, of any train on a given line meeting a basic level of satisfaction.^{11,12}

Finally, we converted the scale to a dollar-based line rating, to offer riders a simple basis for comparisons among lines.¹³ We calibrated this scale so that a line whose 2010 scores fell on average at the 50th percentile of all lines for all six performance measures would receive a rating of \$1.15. A line which matched the 95th percentile of this range would be rated \$2.25. Each figure was then rounded to the nearest 5¢. The actual scale used to convert summed raw scores to line ratings is shown on the following page, with the 4 line as an example. (See Figures 2 and 3.)

Because of changes in data reporting at New York City Transit, 2011 Straphangers MetroCard Ratings cannot be compared to ratings given in previous State of the Subways reports.

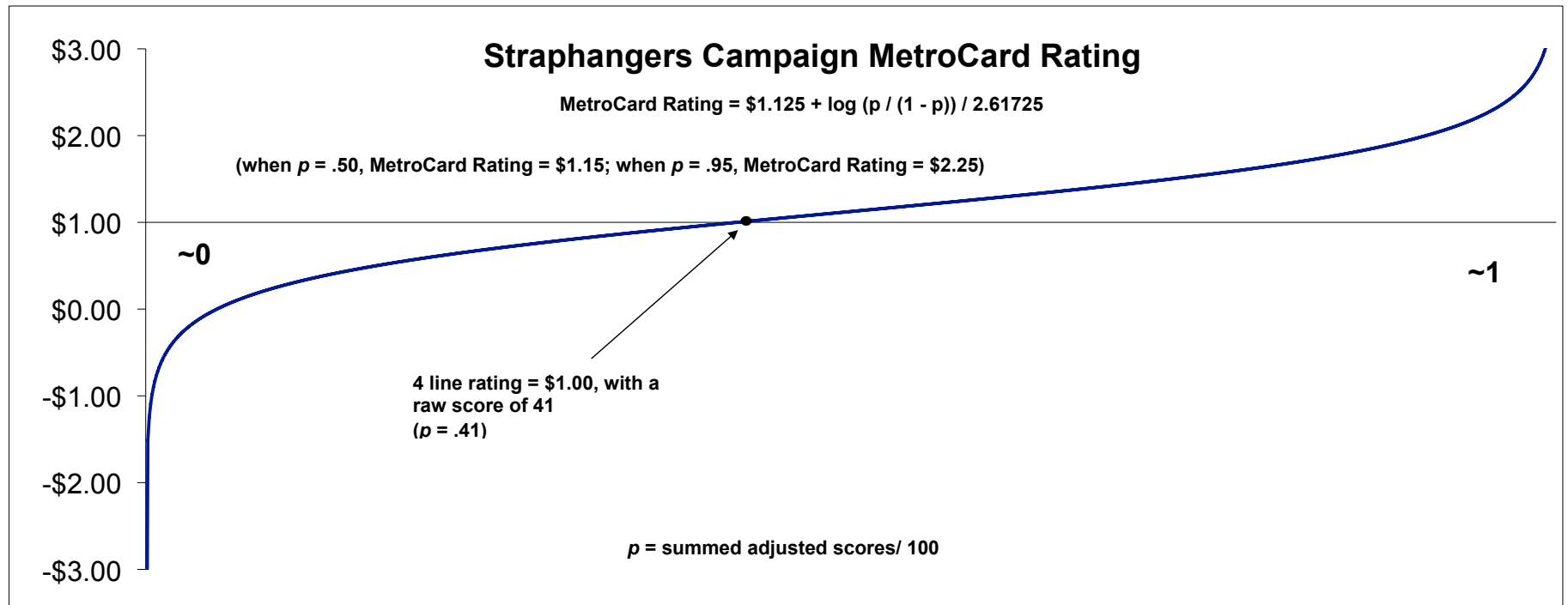
¹¹ J. H. Aldrich and F. D. Nelson, *Linear Probability, Logit and Probit Models*. Sage Publications, Beverly Hills, CA., 1984.

¹² G. Henderson, H. Adkins and P. Kwong, "Subway Reliability and the Odds of Getting There on Time," *Transportation Research Record 1297: Public Transit Research: Management and Planning*, 1991, p. 10-13.

¹³ This rating method is similar to the "hedonic" method of ranking items based on user satisfaction, as originally developed by Sherwin Rosen. (Source: S. Rosen, "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition," *Journal of Political Economy* 82, p. 34-55.)

Figures 2 and 3: Sample Straphangers Campaign MetroCard Rating

Indicator	Highest rating in system—2010	Lowest rating in system—2010	4 line value	4 line score	Percentage weight	4 line adjusted score
Scheduled Service	6 line	C line	AM rush — 4 min; noon — 8 min; PM rush — 4 min	71	30%	21
Service Regularity	85% regular	66% regular	68% regular	12	22.5%	3
Breakdown Rate	every 843,598 miles	every 54,838 miles	every 167,534 miles	14	12.5%	2
Crowding	70% seated	28% seated	33% seated	13	15%	2
Cleanliness	96% clean	87% clean	91% clean	44	10%	4
Announcements	100% adequate	72% adequate	97% adequate	89	10%	9
Summed adjusted score		4 line -- 41 pts (after rounding of all weighted indicator scores) -- 14th best in system				



Appendix II: Credits

Since 1979, the NYPIRG Straphangers Campaign has been a leading voice for New York City's millions of daily subway and bus riders. The Straphangers Campaign is a project of the New York Public Interest Research Group, Fund (NYPIRG).

The 2011 State of the Subways Report Card was made possible by the effort of many people.

The profiles and MetroCard Ratings were designed by Matt Glomski and Gene Russianoff of the Straphangers Campaign in collaboration with Li Howard, who designed the original profile mastheads. Nikhil Goyal provided technical assistance and website support. Matt Glomski analyzed data for the report. Gene Russianoff wrote the report.

Steven Romalewski, former director of NYPIRG's Community Mapping Assistance Project (CMAP), helped develop the profile criteria and refine our approach. Marty DeBenedictis of NYPIRG consulted on the management of data. Campaign Coordinator Cate Contino supervised editing, production and fact-checking and provided research support. Campaign Field Organizer Jason Chin-Fatt provided production assistance.

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Photo credit: Sabrina Porter, "Break of Day."