DASH

A-

Based on 12 routes

Headway Adherence

B

85%

Schedule Adherence

B+

89%

Arrival Frequency

B

24 min

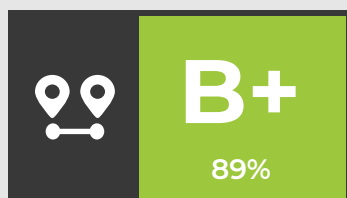## Data Integrity

A+

99%

SUMMARY

The system received a grade of A- for its overall performance in November 2022. This grade reflects the combined average scores for the four metrics we compute (headway adherence, schedule adherence, arrival frequency, and data integrity) for each of the system's 12 routes.

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	1%	0%	0%	1%
Over-spaced	17%	14%	15%	15%
OFF-SCHEDULE				
Too early	5%	6%	5%	6%
Too late	6%	4%	5%	5%
HEADWAYS				
Observed	14 min	28 min	29 min	24 min
Scheduled	11 min	30 min	30 min	27 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	11,617	13,068	5,305	27,558
Scheduled	11,711	13,157	5,399	27,791
Crowded	-- %	-- %	-- %	-- %

B+

ROUTE: 102
SYSTEM: DASH

TL;DR:

Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity
B+ 89%	**B** 84%	**B-** 31 min	**A+** 100%
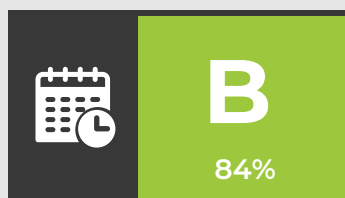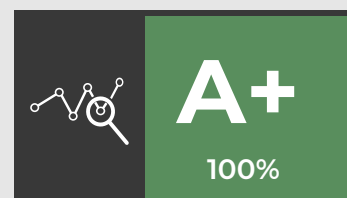
DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	-- %	0%
Over-spaced	13%	8%	-- %	11%
OFF-SCHEDULE				
Too early	11%	19%	-- %	15%
Too late	3%	1%	-- %	2%
HEADWAYS				
Observed	30 min	32 min	-- min	31 min
Scheduled	30 min	30 min	-- min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	585	498	--	1,083
Scheduled	588	500	--	1,088
Crowded	-- %	-- %	-- %	-- %

NOVEMBER 2022 PERFORMANCE REPORT

ROUTE: 103
SYSTEM: DASH

A-

TL;DR:

B+ 87%	**A-** 92%	**B-** 30 min	**A+** 99%
Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	-- %	0%
Over-spaced	15%	8%	-- %	13%
OFF-SCHEDULE				
Too early	5%	6%	-- %	5%
Too late	3%	1%	-- %	2%
HEADWAYS				
Observed	30 min	29 min	-- min	30 min
Scheduled	30 min	30 min	-- min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	578	211	--	784
Scheduled	588	211	--	794
Crowded	-- %	-- %	-- %	-- %

A-

ROUTE: 104
SYSTEM: DASH

TL;DR:

	Headway Adherence		Schedule Adherence		Arrival Frequency		Data Integrity
	B 86%		**A** 94%		**B-** 30 min		**A+** 99%

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	-- %	0%
Over-spaced	15%	14%	-- %	14%
OFF-SCHEDULE				
Too early	0%	1%	-- %	1%
Too late	6%	4%	-- %	5%
HEADWAYS				
Observed	30 min	30 min	-- min	30 min
Scheduled	30 min	30 min	-- min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	557	276	--	768
Scheduled	561	279	--	774
Crowded	-- %	-- %	-- %	-- %

aries **for transit**

NOVEMBER 2022 PERFORMANCE REPORT

ROUTE: 30
SYSTEM: DASH

A-

TL;DR:

B 84%	**B+** 89%	**A-** 18 min	**A+** 100%
Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	2%	0%	0%	1%
Over-spaced	17%	15%	15%	16%
OFF-SCHEDULE				
Too early	4%	4%	3%	4%
Too late	8%	6%	8%	8%
HEADWAYS				
Observed	11 min	29 min	30 min	18 min
Scheduled	10 min	30 min	30 min	20 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	2,017	1,538	544	3,469
Scheduled	2,027	1,547	548	3,485
Crowded	-- %	-- %	-- %	-- %

aries **for transit**

ROUTE: 31
SYSTEM: DASH

A-

TL;DR:

B 84%	B+ 89%	A 14 min	A+ 99%
Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	2%	1%	0%	1%
Over-spaced	17%	15%	19%	16%
OFF-SCHEDULE				
Too early	7%	5%	2%	5%
Too late	6%	4%	9%	6%
HEADWAYS				
Observed	10 min	18 min	20 min	14 min
Scheduled	10 min	15 min	16 min	15 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	1,962	2,157	1,029	4,598
Scheduled	1,975	2,174	1,043	4,632
Crowded	-- %	-- %	-- %	-- %

aries **for transit**

ROUTE: 32
SYSTEM: DASH
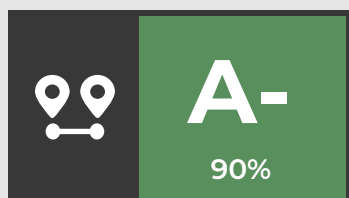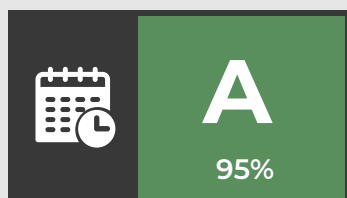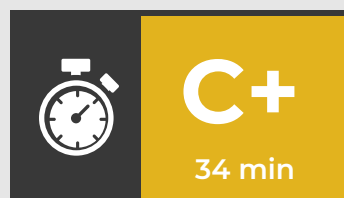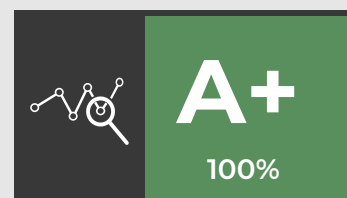
A-

TL;DR:

A- 90% Headway Adherence	**A** 95% Schedule Adherence	**C+** 34 min Arrival Frequency	**A+** 100% Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	11%	8%	10%	10%
OFF-SCHEDULE				
Too early	4%	3%	6%	4%
Too late	1%	0%	0%	1%
HEADWAYS				
Observed	31 min	56 min	60 min	34 min
Scheduled	30 min	60 min	60 min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	636	666	251	1,388
Scheduled	639	668	252	1,393
Crowded	-- %	-- %	-- %	-- %

ROUTE: 33
SYSTEM: DASH

A-

TL;DR:

B+ 87% Headway Adherence	**A** 93% Schedule Adherence	**B-** 31 min Arrival Frequency	**A+** 99% Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	13%	12%	17%	13%
OFF-SCHEDULE				
Too early	1%	3%	6%	3%
Too late	6%	4%	4%	5%
HEADWAYS				
Observed	30 min	30 min	35 min	31 min
Scheduled	30 min	30 min	30 min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	572	747	357	1,676
Scheduled	579	751	360	1,690
Crowded	-- %	-- %	-- %	-- %

aries for transit

ROUTE: 34
SYSTEM: DASH

B+

TL;DR:
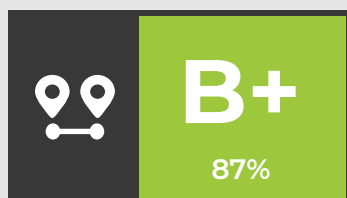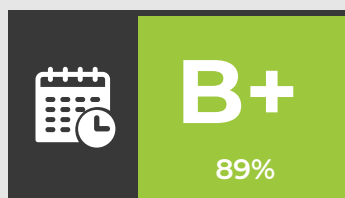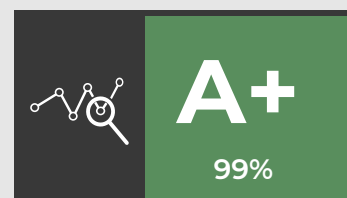
B+ 87%	**B+** 89%	**B-** 30 min
Headway Adherence	Schedule Adherence	Arrival Frequency

A+ 99%
Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	12%	14%	11%	13%
OFF-SCHEDULE				
Too early	4%	11%	11%	9%
Too late	2%	3%	2%	2%
HEADWAYS				
Observed	30 min	30 min	32 min	30 min
Scheduled	30 min	30 min	30 min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	587	892	368	1,845
Scheduled	601	899	368	1,866
Crowded	-- %	-- %	-- %	-- %

aries for transit

A

ROUTE: 35
SYSTEM: DASH

TL;DR:

Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity
B 84%	**A-** 91%	**A** 12 min	**A+** 99%

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	2%	1%	0%	1%
Over-spaced	16%	15%	15%	16%
OFF-SCHEDULE				
Too early	6%	5%	4%	5%
Too late	4%	4%	3%	4%
HEADWAYS				
Observed	10 min	11 min	16 min	12 min
Scheduled	10 min	10 min	15 min	10 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	2,090	2,799	1,028	5,239
Scheduled	2,107	2,822	1,064	5,292
Crowded	-- %	-- %	-- %	-- %

aries for transit

ROUTE: 36A
SYSTEM: DASH

B+

TL;DR:
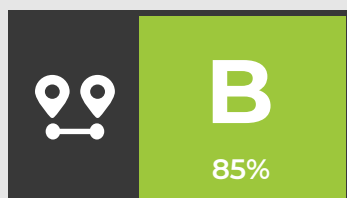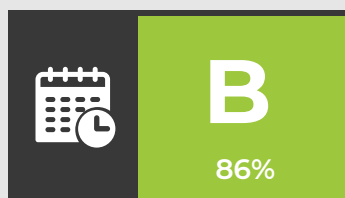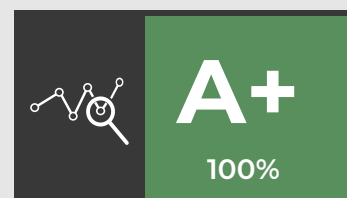
B 85%	B 86%	B- 30 min	A+ 100%
Headway Adherence	Schedule Adherence	Arrival Frequency	Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	20%	14%	12%	15%
OFF-SCHEDULE				
Too early	6%	9%	9%	8%
Too late	12%	3%	3%	6%
HEADWAYS				
Observed	30 min	30 min	30 min	30 min
Scheduled	30 min	30 min	30 min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	655	918	494	1,935
Scheduled	656	923	496	1,942
Crowded	-- %	-- %	-- %	-- %

aries for transit

ROUTE: 36B
SYSTEM: DASH

B+

TL;DR:
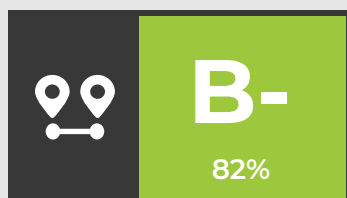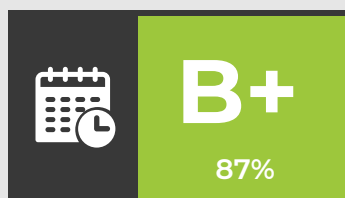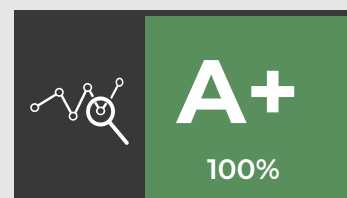
B- 82% Headway Adherence	**B+** 87% Schedule Adherence	**B-** 30 min Arrival Frequency	**A+** 100% Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	23%	16%	17%	18%
OFF-SCHEDULE				
Too early	3%	5%	5%	5%
Too late	17%	3%	7%	8%
HEADWAYS				
Observed	30 min	30 min	30 min	30 min
Scheduled	30 min	30 min	30 min	30 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	678	929	484	1,895
Scheduled	684	932	484	1,903
Crowded	-- %	-- %	-- %	-- %

ROUTE: KST
SYSTEM: DASH

A-

TL;DR:

	B 85%		**B** 83%		**A** 15 min		**A+** 98%
	Headway Adherence		Schedule Adherence		Arrival Frequency		Data Integrity

DETAILED BREAKDOWN:

	Peak	Off-peak	Weekend	Total
SPACING				
Bunched	0%	0%	0%	0%
Over-spaced	16%	13%	15%	15%
OFF-SCHEDULE				
Too early	8%	21%	12%	15%
Too late	2%	0%	2%	1%
HEADWAYS				
Observed	15 min	15 min	15 min	15 min
Scheduled	15 min	15 min	15 min	15 min
Goal	15 min	15 min	15 min	15 min
TRIPS				
Observed	700	1,437	750	2,878
Scheduled	706	1,451	784	2,932
Crowded	-- %	-- %	-- %	-- %

There are four primary metrics we use to compute letter grade for a given system or route: headway adherence, schedule adherence, arrival frequency, and data integrity. Each metric is assigned its own grade using a standard American 4.0 GPA grading scale[1], and the overall grade is calculated by averaging the four categories' percentile grades.
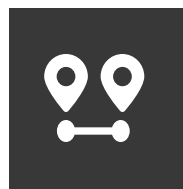
HEADWAY ADHERENCE
Percent of scheduled visits to each transit stop that occurred within 3 minutes[2] of the scheduled spacing window of the previous visit.

A headway adherence grade of A+ would require a value of 97% or higher.

SCHEDULE ADHERENCE
Percent of scheduled visits to each transit stop that occurred between 2 minutes early and 7 minutes late[2] compared to the scheduled time of the visit.

A schedule adherence grade of A+ would require a value of 97% or higher.

ARRIVAL FREQUENCY
Median observed time between scheduled transit stop visits at a given stop for a given route and trip direction.

To determine a percentile and letter grade, we compare the arrival frequency (in minutes) to the goal of 15 minutes[3]. Because an arrival frequency of exactly 15 minutes meets, but does not exceed, our minimum goal, this has been scaled to equate to a 93%, the minimum score necessary to receive an A. A grade of A+ requires an arrival frequency of 10 minutes or less[4].
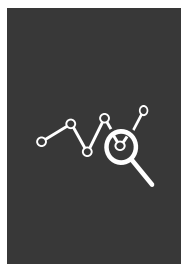
DATA INTEGRITY
Percent of transit trips scheduled to have been running that we observed to have actually run. A missing trip can occur when a vehicle is not running when it's scheduled to, or when a vehicle is actually running but is not reporting its position properly due to human error or equipment failure.

A data integrity grade of A+ would require a value of 97% or higher.

aries for transit

SECONDARY METRICS

We also compute a number of sub-metrics that offer more context about a particular grade by providing additional levels of detail. These sub-metrics are not explicitly assigned grade values, but rather are used to provide a clearer picture of overall performance.

SPACING

Bunched: Percent of scheduled visits to each transit stop that occurred within 25%[5] of the scheduled time between the visit and the previous visit to the same transit stop. *A lower percentage is better.*

Over-spaced: Percent of scheduled visits to each transit stop that occurred more than 3 minutes later[2] than the scheduled time between the visit and the previous visit to the same transit stop. *A lower percentage is better.*

OFF-SCHEDULE

Too early: Percent of scheduled visits to each transit stop that occurred more than 2 minutes earlier[2] than the scheduled time of the visit. *A lower percentage is better.*

Too late: Percent of scheduled visits to each transit stop that occurred more than 7 minutes later[2] than the scheduled time of the visit. *A lower percentage is better.*

HEADWAYS

Observed: Median observed time between scheduled transit stop visits at a given stop for a given route and trip direction. *A lower number is better.*

Scheduled: Median scheduled time between transit stop visits at a given stop for a given route and trip direction. *A lower number is better.*

Goal: An ideal median time between transit stop visits. We define this as 15 minutes[3] at all times of day every day, regardless of existing route configurations and other details that may make achieving this goal difficult or impossible under current conditions. This metric's purpose is to provide a baseline for comparing service levels across different transit systems, routes, and service periods.

aries for transit

SECONDARY METRICS

TRIPS

Observed: Number of scheduled trips that we actually observed occur. This value is proportional to Data Integrity, so in practice, this number will be smaller than the scheduled number of trips over the same time period unless Data Integrity is 100%. *A higher number is better.*

Scheduled: Number of trips that were scheduled to occur. *A higher number is better.*

Crowded: Percent of scheduled visits to each transit stop that were made by a "full" vehicle, where occupancy levels that determine "fullness" are defined by the transit agency that manages the transit system[6]. *A lower percentage is better.*
(Note that not all transit agencies report vehicle crowding levels in real time.)

All of our Secondary Metrics are broken out into service periods by time of week and day:

Peak: All scheduled transit stop visits that occurred or were scheduled to occur between 6-9am and 3-7pm[7], Monday through Friday.

Off-peak: All scheduled transit stop visits that occurred or were scheduled to occur outside of the peak hours described above, Monday through Friday.

Weekend: All scheduled transit stop visits that occurred or were scheduled to occur on Saturdays and Sundays.

Total: All scheduled transit stop visits that occurred or were scheduled to occur across all times of week and times of day.

aries for transit

1 Standard American 4.0 GPA grading scale:
https://pages.collegeboard.org/how-to-convert-gpa-4.0-scale

2 We use all the on-time performance thresholds defined by WMATA for its Metrobus service. See "Metrobus On-Time Performance" in Appendix D of WMATA's Q3 FY20 Metro Performance Report for details.
https://www.wmata.com/about/records/scorecard/upload/MetroPerformanceReport_Q3FY2020.pdf#page=48

3 We use the definition of "high frequency bus service" from the Bus Transformation Project's "Bus System Today" report.
https://bustransformationproject.com/wp-content/uploads/2019/01/20190118-Bus-System-Today_FINAL.pdf#page=22

4 We specify a 10 minute arrival frequency based on the highest tier of levels of service in transit-dependent areas as defined by the Bus Transformation Project.
https://bustransformationproject.com/wp-content/uploads/2019/02/SAP-Presentation-18-11-05_updated2.13.19.pdf#page=18

5 We use the bunching threshold defined by the Bus Turnaround Coalition that's used in all their route-level report cards. Click "See Our Methodology" at the bottom of the Bus Turnaround Coalition's "Report Cards" page for details.
http://busturnaround.nyc/report-cards/

6 Occupancy status, when provided, is defined by each transit agency and specified in their GTFS-RT data.
https://developers.google.com/transit/gtfs-realtime/reference#enum-occupancystatus

7 We use the time of day thresholds for weekdays defined by the Bus Transformation Project. See "Daily Ridership by Time of Day" on the "The Bus System and its Riders Today" page of the Bus Transformation Project's website for details.
http://bustransformationproject.com/resources/the-bus-system-and-its-riders-today/