

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

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**GREGORY T. ANGELO, *et al.*,**

**Plaintiffs,**

**v.**

**DISTRICT OF COLUMBIA, *et al.*,**

**Defendants.**

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**Civil Action No. 22-CV-01878 (RDM)**

**DEFENDANTS' LIST OF EXHIBITS IN SUPPORT  
OF OPPOSITION TO PLAINTIFFS' APPLICATION FOR  
PRELIMINARY INJUNCTION AND MOTION FOR SUMMARY JUDGMENT**

A. Declaration of Andrew J. Saindon

**Public Transit in the District**

B. Declaration of Heather Allison Davis

C. Metro 2019 System Map

D. Metrobus System Maps (eff. 2021)

E. Metro Snapshot 2022

F. Declaration of Carla Longshore

G. DC Circulator Brochure

H. Map of Federal & District Government Properties, Government of the District of Columbia Office of Planning (Sept. 9, 2022)

**The Metro Law**

I. Excerpt from Council of the District of Columbia, Committee of the Whole, Report on Bill 20-0930, "License to Carry a Pistol Amendment Act" at 3 (Dec. 2, 2014), *available at* <https://tinyurl.com/5cz7kakx>

### **Historians**

- J. Declaration of Zachary Schrag
- K. Declaration of Brennan Gardner Rivas

### **Historical Background**

- L. Rules and Regulations for Running the Trains on the North Pennsylvania Railroad, adopted June 1, 1875

### **Conditions on Public Transit in the District**

- M. Mike Murillo, “Metro Riders Endure Insufferable Crowding Thursday,” *WTOP News*, June 24, 2016, <https://tinyurl.com/3d42hy7n>
- N. Rosa Cartagena, “Video: Metro is Crowded Again, Ew,” *Washingtonian*, July 28, 2021, <https://tinyurl.com/32dbnuv9>
- O. Martin Di Caro, “Platform Crowding Puts Metro ‘So Close To A Deadly Incident,’ Says Complaint,” *WAMU* 88.5, Dec. 1, 2015, [tinyurl.com/2924dn2r](https://tinyurl.com/2924dn2r)
- P. Bethany Peck, “6 Tips (From a Local) For Riding Metro,” *March for Life*, Jan. 20, 2014, <https://tinyurl.com/4sfcmzdu>
- Q. Martin Di Caro, “Metro Sends Mixed Messages About Crowded X2 Buses,” *WAMU* 88.5, July 1, 2016, <https://tinyurl.com/46y3n2rw>
- R. Debbi Wilgoren, “Obama Joins Crowd on Mall for Free Concert,” *Washington Post*, Jan. 18, 2009, 2009 WLNR 27060901
- S. Robert Thomas, “Is It Your Fault the Metro Train is Jammed?,” *Washington Post*, Aug. 6, 2015, 2015 WLNR 23192775
- T. Lena H. Sun, “Metro Car Trial Run Offers A Ride on the Short Line,” *Washington Post*, Feb. 8, 2007, 2007 WLNR 2852995
- U. Washington Metropolitan Area Transit Authority Performance Report Q4/FY 2021 (Sept. 23, 2021), <https://tinyurl.com/mp7kectv>
- V. “Dangers of Riding Drunk on Metro: New Video Shows Passengers Falling off Escalators, onto Tracks,” *NBC News 4 Washington*, Dec. 30, 2013, <https://tinyurl.com/3ve8mhv7>
- W. FY19 Metro Performance Report, <https://tinyurl.com/y3ys5p3j>



- X. Keith Laing, “Miller Lite sponsoring New Year’s Eve DC Metro rides,” *The Hill*, Dec. 17, 2015, <https://tinyurl.com/2h63s3xw>

#### **Public Transit As School Bus System**

- Y. Abigail Hauslohner, “D.C. Students Will Be Riding Metro For Free This Year,” *Washington Post*, Aug. 17, 2015, <https://tinyurl.com/yfbp48t3>
- Z. *Trends in Distance to School by Where Student Lives*, Office of the Deputy Mayor for Education, <https://edscape.dc.gov/node/1363801>
- AA. Urban Institute Student Transportation Working Group, *The Road to School: How Far Students Travel to School in the Choice-Rich Cities of Denver, Detroit, New Orleans, New York City, and Washington, DC* (2018)

#### **Special Events in the District**

- BB. David Dildine, “Inaugural Road Closures: What’s Closed When?,” *WTOP News*, Jan. 18, 2017, <https://tinyurl.com/h7vz2hu5>
- CC. Washington, DC, Fourth of July Celebrations: Closures, *National Park Service* updated June 29, 2022, <https://tinyurl.com/herb5v23>
- DD. “March for Life Returns to Washington DC: What to Know, Street Closures,” *NBC4 Washington*, updated Jan. 21, 2022, <https://tinyurl.com/3m4zxdh9>

#### **MTPD Screens**

- EE. Metro News Release, *Metro Transit Police to begin bag inspection program*, Oct. 27, 2008, <https://tinyurl.com/2k56he37>
- FF. Prince of Petworth, “A few uniforms said anti-terrorism, others TSA.’ Random Bag Checks Resumed at the Columbia Heights Metro Last Night,” *PoPville*, Feb. 11, 2020, <https://tinyurl.com/33t8bb6b>

# EXHIBIT A

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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GREGORY T. ANGELO, *et al.*,

Plaintiffs,

v.

DISTRICT OF COLUMBIA, *et al.*,

Defendants.

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Civil Action No. 1:22-cv-01878-RDM

**DECLARATION OF ANDREW J. SAINDON**

Pursuant to 28 U.S.C. § 1746, I, Andrew J. Saindon, declare and state as follows:

1. I am over the age of eighteen (18) years, competent to testify to the matters contained in this declaration, and testify based on my personal knowledge and information.

2. I am a Senior Assistant Attorney General for the District of Columbia. I have worked as an attorney at the Office of the Attorney General for the District of Columbia, or its predecessor, since 2000. I am lead counsel for the Defendants in this case. I have been trial counsel for the District in almost every case in this Court (and others) challenging the District's regulation of firearms under the Second Amendment since *District of Columbia v. Heller*, 554 U.S. 570 (2008), including *Heller v. District of Columbia*, Civil Action No. 1:08-cv-01289 (JEB), *Tracey Hanson*, Civil Action No. 1:09-cv-00454 (RMU), *Palmer v. District of Columbia*, Civil Action No. 1:09-cv-01482 (FJS), *Lane v. Holder*, Civil Action No. 11-0503 (E.D. Va.), *Wrenn v. District of Columbia*, Civil Action No. 1:15-cv-00162 (CKK), *Grace v. District of Columbia*, Civil Action No. 1:15-cv-02234 (RJL), *Wright v. District of Columbia*, Civil Action No. 1:16-cv-01556 (JEB), *Heller v. District of Columbia*, Civil Action No. 1:21-cv-02376

(APM), *Heller v. District of Columbia*, Civil Action No. 1:22-cv-01894 (DLF), and *Hanson v. District of Columbia*, Civil Action No. 1:22-cv-02256 (RC).

3. This declaration is submitted pursuant to Rule 56(d) in response to the Court's Minute Order dated July 15, 2022, and in opposition to Plaintiffs' request to advance the trial on the merits and consolidate it with a hearing on the motion for preliminary injunction. *See* Pls.' Mem. of Points and Authorities in Supp. of Appl. for Prelim. Inj. [6-1] at 50.

4. This matter has been before the Court, and Defendants, only since June 30, 2022, Compl. [1]; Plaintiffs filed their request for emergency, preliminary relief [6] on July 11, 2022, and the Court granted Defendants an extension to oppose the motion, with a deadline of September 16, 2022, *see* Minute Order of July 15, 2022.

5. Defendants cannot present facts essential to justify their opposition to Plaintiffs' request for consolidation and, apparently, summary judgment within the time allotted as the existing record is incomplete.

6. To date, the only discovery taken in this case has been six interrogatories tailored to exploring the nature and extent of Plaintiffs' alleged injuries; as permitted by the Court, the interrogatories were served on July 14, 2022, and Plaintiffs responded on July 29, 2022. Plaintiffs' responses revealed, among other things, the estimated frequency with which Plaintiffs use the Metro system, which apparently varies significantly from Plaintiff to Plaintiff; that none of the Plaintiffs has ever been assaulted on the Metro or any other public transportation system; and that, since obtaining their concealed-carry licenses from the Metropolitan Police Department, none of the Plaintiffs (or their family members) has been subject to the threat of death or serious bodily harm or a theft of property. *See* Pls.' Answer to Defs.' Interrogs. (copy attached). Defendants have not had the opportunity to depose Plaintiffs or obtain documentation

from them with respect to their answers or take any other discovery related to Plaintiffs' alleged injuries or any other matter.

7. Moreover, despite enlisting the assistance of multiple expert historians, Defendants require significantly more time to develop a full historical picture of firearm regulations analogous to the one challenged here, and to allow the Court to complete the analysis of this Nation's historic tradition as required by *New York State Rifle & Pistol Association, Inc. v. Bruen*, 597 U.S. \_\_\_, 142 S. Ct. 2111 (2022).

8. As stated in the declarations from historians Zachary Schrag and Brennan Gardner Rivas accompanying Defendants' opposition, researching and developing anything like a comprehensive historical record of analogous firearms regulations is a project that will require many months, at a minimum. *See, e.g.*, Schrag Dec. ¶ 6 (60 days insufficient time to "adequately research the 'Nation's historical tradition' of firearm regulation on mass transit"); Rivas Decl. ¶ 26 ("It is simply unrealistic to expect a historian, or a team of historians, to complete a comprehensive survey of the relevant historical materials in 60 days.").

9. The declarations of Drs. Schrag and Rivas each set out in further detail the reasons why significantly more time is needed to complete the relevant historical research, including the need for time-consuming original archival research.

I declare under the penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on September 15, 2022

/s/ Andrew J. Saindon  
Andrew J. Saindon

**IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

**GREGORY T. ANGELO, ET AL.**

Plaintiffs,

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**DISTRICT OF COLUMBIA, ET AL.**

Defendants.

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Civil Action No. 22-cv-1878 RDM

**ANSWERS TO INTERROGATORIES**

Plaintiffs, by counsel, provide their answers to the interrogatories tendered by the District”

1. Identify your employment (if employed) and the method(s) used to travel to and from your place(s) of employment for the last five (5) years.

**ANSWER**

Gregory T. Angelo: Current employer: New Tolerance Campaign; I work fully remote so I do not take the Metro to or from work -- however, I often travel for meetings, several times per week and take the Metro (approximately 3x per week). When I worked on Capitol Hill and at the White House, I took the Metro to and from work every day (10x/week). This does not include the many times I take the Metro to run personal errands or to go out with friends (2-4x each weekend).

Tyler Yzaquirre: In the last five years I’ve worked: at the Center for Urban Renewal and Education in Washington, D.C. (current employment) where my method of travel to and from my place of employment has been D.C. Metro; I previously worked at Mueller Streamline, a job which required extensive travel to customer premises in Maryland, DC and Virginia. My mode of travel was via personal automobile. For most of that time I resided in the State of Delaware. Prior to that position, while residing in Washington, D.C. I worked at Harry’s

Restaurant in Washington, D.C. where my method of travel to and from my place of employment was via D.C. Metro.

Robert M. Miller: I am a Senior Financial Economist for the Federal Deposit Insurance Corporation (FDIC). I have not worked in the office since 2020. From 2015 through 2019, I regularly used public transit to get to and from work. Depending on my needs for the particular day, I alternated my travel to and from work between Metro train and Loudoun County Transit commuter bus. When taking Metro, I boarded the Silver line train at the Wiehle-Reston Metro Station to Farragut West where I disembarked and walked a few blocks to my workplace.

Cameron M. Erickson: For the last three years, between 2020 and 2022, I have been employed by the House of Representatives. Prior to that, from 2019 through 2020, I worked at a law firm as a Public Policy Analyst for one year. From 2018-2019, I worked as a Policy Analyst at a political consulting firm. At present, I work as a Legislative Assistant in a Member's office in the House. My predominate mode of transportation to and from work has been the Metro system, with which I currently use Federal government transit benefits.

2. Please rank, from most utilized to least utilized, the top three method(s) you used to travel to and from your place(s) of employment for the last five years, and the approximate daily cost(s) of those method(s).

**ANSWER:**

For all Plaintiffs, see answer to interrogatory 1.

Angelo: Metro bus. Approximately \$5. Other modes of transportation NA.

Yzaguirre: Personal vehicle, \$25; D.C. Metro System, \$5; D.C. Scooter, \$8.

Miller: Loudoun County Commuter Bus, \$21; Metro train, 12.60; Personal vehicle (extremely rare). \$46.

Erickson: Metro system, \$5, I also occasionally use Uber, cost varies but is significantly more expensive than Metro.

3. Please estimate how many times you have ridden public transportation in the

District of Columbia, including but not limited to the Metrorail transit system, on a monthly basis, for each month during the years 2019 through and including 2022 (to date).

**OBJECTION:**

Calls for speculation and guess work.

**ANSWER:**

Subject to the objection:

Angelo: An average of 24 times a month from 2019 to 2022.

Yzaguirre: July 1 – July 18, 2022: 30 times  
June 2022: 40 times  
May 2022: 15 times  
April 2022: 10 times  
March 2022: 5 times  
February 2022: 5 times  
January 2022: 5 times  
January 2021 – December 2021: 10 times each month  
January 2020 – June 2020: 0 times each month  
July 2020 – December 2020: 5 times each month  
January 2019 – December 2019: 35 times each month

Miller: Since nearly every place I wished to go in Washington, D.C. was closed because of COVID-19 from 2020 to 2022, my travel using public transit in DC was very limited, mainly for personal appointments inside DC. My SmarTrip Card account logging my Metro usage does not contain usage information prior to June 1, 2020 so I have no way to estimate my usage with any reasonable degree of certitude. For 2019, I traveled to, from, and within DC on public transit approximately 45 times per month.

Erickson: The following are best guesses.



January, 2019 – May 2019: 10 times each month  
June, 2019 – December, 2019: 10 times each month  
January, 2020 – May, 2020: 25 times each month  
June, 2020 – December, 2020: 15 times each month  
January, 2021 – May, 2021: 20 times each month  
June, 2021 – November, 2021: 15 times each month  
December, 2021: 5 times  
January, 2022: 15 times  
February, 2022: 10 times  
March, 2022: 10 times  
April, 2022: 7 times  
May, 2022: 8 times  
June, 2022: 16 times  
July, 2022 (as of the date of the interrogatories): 7 times

4. Have you ever been assaulted on public transportation in the District of Columbia? If so, identify each incident in detail.

**ANSWER:**

Angelo: I have not been directly attacked on the Metro, but I was on the Metro in July of 2020 at a time when few people were riding it. I was on a Metro car with approximately 5 other passengers, one of whom started acting belligerent and yelling at other passengers. He directed his anger at one rider in particular (they did not seem to know one another), and because that passenger had “looked at” him, he proceeded to walk toward the rider and pulled out a switchblade. All of the other passengers on the car were very frightened (myself included) and bolted for the doors as soon as the Metro arrived at the next stop. All of us felt very helpless until we were able to exit the car. Additionally, on October 12, 2019, a boy died after being stabbed at the Capitol South Metro Station in the middle of the day at 12:37pm. At the time, the Capitol South Metro Station was a station I used every day to get to and from work.

Yzaguirre: No.

Miller: No.

Erickson: No.

All Plaintiffs are aware that violent crime occurs with regularity on the Metro system.

5. Have you ever been assaulted on any public transportation system? If so, identify each incident in detail.

**ANSWER:**

Angelo: See answer to interrogatory 4, above.

Yzaguirre: No.

Miller: No.

Erickson: No.

All Plaintiffs are aware that violent crimes occur with regularity on the Metro system.

6. Since obtaining your concealed-carry license from MPD, have you (or any family member) been subject to a threat of death or serious bodily harm, or a theft of property? If you answer affirmatively, please describe each instance in which you (or any family member) were subject to a specific threat of death or serious bodily harm, or a theft of property, including in your response the firearm you deployed (if any) and the number of rounds fired.

**ANSWER:**

Angelo: See answer to interrogatory 4 above.

Yzaguirre: No.

Miller: No.

Erickson: No.

Respectfully submitted

**GREGORY T. ANGELO**

**TYLER YZAGUIRRE**

**ROBERT M. MILLER**

**CAMERON M. ERICKSON**

By: /s/ George L. Lyon, Jr.  
George L. Lyon, Jr. (D.C. Bar No. 388678)  
Arsenal Attorneys  
1929 Biltmore Street NW  
Washington, DC 20009  
202-669-0442, fax 202-483-9267  
gll@arsenalattorneys.com

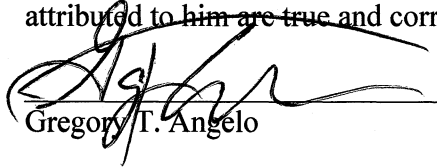
Matthew J. Bergstrom (D.C. Bar. No. 989706)  
Arsenal Attorneys  
4000 Legato Road, Suite 1100  
Fairfax, VA 22033  
800-819-0608  
mjb@arsenalattorneys.com

*Attorneys for Plaintiffs*

Dated: July 29, 2022

**DECLARATION UNDER PENALTY OF PERJURY**

The undersigned under penalty of perjury declares that the above answers to interrogatories attributed to him are true and correct to the best of his knowledge, information and belief.

  
Gregory T. Angelo

\_\_\_\_\_  
Tyler Yzaguirre

\_\_\_\_\_  
Robert M. Miller

\_\_\_\_\_  
Cameron M. Erickson

***CERTIFICATE OF SERVICE***

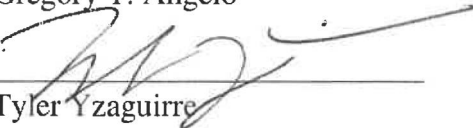
I, George L. Lyon, Jr., a member of the bar of this court, certify that I served the foregoing document on all counsel of record for Defendants via email, on or before the 29th day of July, 2022.

/s/ George L. Lyon, Jr., DC Bar 388678

**DECLARATION UNDER PENALTY OF PERJURY**

The undersigned under penalty of perjury declares that the above answers to interrogatories attributed to him are true and correct to the best of his knowledge, information and belief.

\_\_\_\_\_  
Gregory T. Angelo

  
\_\_\_\_\_  
Tyler Yzaguirre

\_\_\_\_\_  
Robert M. Miller

\_\_\_\_\_  
Cameron M. Erickson

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\_\_\_\_\_  
Tyler Yzaguirre

\_\_\_\_\_  
Robert M. Miller

\_\_\_\_\_  
Cameron M. Erickson

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/s/ George L. Lyon, Jr., DC Bar 388678

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\_\_\_\_\_  
Gregory T. Angelo

\_\_\_\_\_  
Tyler Yzaguirre



Robert M. Miller

\_\_\_\_\_  
Cameron M. Erickson

***CERTIFICATE OF SERVICE***

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/s/ George L. Lyon, Jr., DC Bar 388678

# **EXHIBIT B**



**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

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**GREGORY T. ANGELO, *et al.*,**

**Plaintiffs,**

**v.**

**DISTRICT OF COLUMBIA, *et al.*,**

**Defendants.**

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**Civil Action No. 22-CV-01878 (RDM)**

**DECLARATION OF ALLISON HEATHER DAVIS**

Pursuant to 28 U.S.C. § 1746, I, Allison Heather Davis, declare as follows:

1. I am the Vice President of the Office of Planning at the Washington Metropolitan Area Transit Authority (WMATA). I am over the age of 18 and competent to render the testimony contained herein based upon my personal knowledge, information provided to me by other WMATA employees, and documents that I have reviewed.

2. I have worked in this role at WMATA since March 2022 and in the Office of Planning since 2011.

3. WMATA operates a system of Metrorail trains and Metrobuses in the District of Columbia and the surrounding metropolitan area in Maryland and Virginia. WMATA also operates MetroAccess, a shared ride service for individuals with qualifying disabilities traveling within WMATA's service area.

4. The Metrorail system is the third largest heavy rail transit system in the United States. The Metrorail system has 118 miles of tracks, six rail lines, and 91 stations. Many of those stations and a significant amount of the track are located underground.

5. In order to get access to a Metrorail station, a passenger must enter the system through faregates using a SmarTrip card or the SmarTrip mobile app.

6. Each Metrorail station is staffed with a station manager during hours of operation.

7. In June 2019, average weekday ridership on Metrorail was 663,000. The COVID-19 pandemic reduced ridership dramatically, but ridership is rebounding. In June 2022, average weekday Metrorail ridership was 258,000.

8. Under WMATA's service standards, optimal passenger loads during the peak period and in the peak direction is between 80 and 100 passengers per Metrorail train car. A car is considered "crowded" if it has between 101 and 120 passengers and "very crowded" if it has more than 120 passengers. A crowded Metrorail train would have approximately 1,000 passengers onboard.

9. During service disruptions or special events, there can be around 1,000 people on a Metro platform at a time.

10. More than half of Metrorail stations serve federal facilities. Metrorail and Metrobus provide access to the White House, the Capitol, the Supreme Court, the National Mall, and many other key federal facilities, tourist sites, and historic landmarks throughout the District.

11. Before the COVID-19 pandemic, approximately one third of Metrorail's peak-period commuters were federal employees.

12. During popular events, there is very high traffic on Metrorail. The highest Metrorail system usage occurred on the day of the 2009 presidential inauguration when more than 1.1 million rides were taken. The second highest usage occurred on the day of the 2017 Women's March on Washington when more than 1 million rides were taken.

13. On July 4, 2022, nearly 4,500 people exited Smithsonian Station in the hour before the fireworks. On the busiest Saturday of the Cherry Blossom Festival on March 26, 2022, 7,500 people passed through Smithsonian Station during the busiest hour of the day. On May 13, 2022, about 2,300 people entered Gallery Place-Chinatown Station during the hour after the Capitals game ended.

14. The Metrobus system is the sixth largest bus network in the United States. The Metrobus system includes 11,500 bus stops and over 1,600 buses.

15. In order to ride a Metrobus, a passenger pays with cash or taps a SmarTrip card or uses the SmarTrip mobile app when entering the bus.

16. Pre-pandemic, in June 2019, average weekday ridership on the Metrobus was 374,000. In June 2022, average weekday ridership on the Metrobus was 265,000.

17. Under WMATA's service guidelines, Metrobus routes where the buses operate more than 20 minutes apart should generally have a maximum load of 100% seated capacity and routes where buses operate less than 20 minutes apart should generally have a maximum load of 120% seated capacity.

18. A 40-foot Metrobus has a seated capacity of 40 passengers and a maximum capacity close to 50 passengers per bus. A 60-foot articulated Metrobus has a seated capacity of 60 passengers and a maximum capacity of over 70 passengers per bus.

19. WMATA operates MetroAccess, a shared ride service for individuals with qualifying disabilities traveling within WMATA's service area. In June 2019, the average weekday MetroAccess ridership was 8,363. In June 2022, the average weekday MetroAccess ridership was 4,409.

20. WMATA offers reduced fares to individuals with qualifying disabilities, people over the age of 65, and veterans with a certain level of disability.

21. Schoolchildren in the District of Columbia can ride WMATA vehicles for free for school-related activities through the Kids Ride Free Program. In the 2019–2020 school year, approximately 50,000 children participated in the Program. In the 2021–2022 school year, approximately 34,000 children participated in the Program.

22. WMATA also partners with 28 colleges and universities to offer subsidized rides to students on WMATA vehicles through the U-Pass Program. These universities are either located in the District, Maryland, or Virginia or have satellite campuses located in WMATA's service area. American University and George Washington University both participate in the Program.

23. Metrorail and Metrobus provide access to universities throughout the District of Columbia, including American University, George Washington University, Georgetown University, Howard University, and Catholic University.

24. WMATA is patrolled by the Metro Transit Police Department (MTPD). MTPD officers have jurisdiction throughout the 1,500 square mile transit zone that includes Maryland, Virginia, and the District of Columbia for crimes that occur in or against WMATA facilities.

25. There are currently 400 MTPD officers on the force, 36 of which are recruits in various stages of the police academy.

26. MTPD officers patrol throughout WMATA's service area.

I declare under penalty of perjury that the foregoing is true and correct.

Allison Davis  
E012991 WMATA

Digitally signed by Allison  
Davis E012991 WMATA  
Date: 2022.09.11  
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Allison H. Davis  
Vice President, Office of Planning  
Washington Metropolitan Area Transportation Authority

September 11, 2022  
DATED

# EXHIBIT C



# Snow Service Map

Legend

RD

Red Line • Glenmont / Shady Grove

OR

Orange Line • New Carrollton / Vienna

BL

Blue Line • Franconia-Springfield / Largo Town Center

GR

Green Line • Branch Ave / Greenbelt

YL

Yellow Line • Huntington / Greenbelt

SV

Silver Line • Wiehle-Reston East / Largo Town Center

Station Features

Bus to Airport

Parking

Hospital

Airport

Connecting Rail Systems

AMTRAK

VRE

MARC

Transfer Station

Station in Service

Under Construction

Suspended Service

Station Closed for Snow

Metrorail  
Operating Times

Mon-Thu  
5am-midnight

Fri  
5am-3am

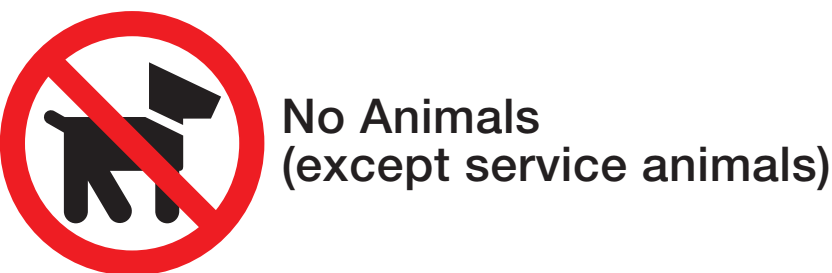
Sat  
7am-3am

Sun  
7am-midnight

Times are approximate

Metro is accessible.

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY © 2019



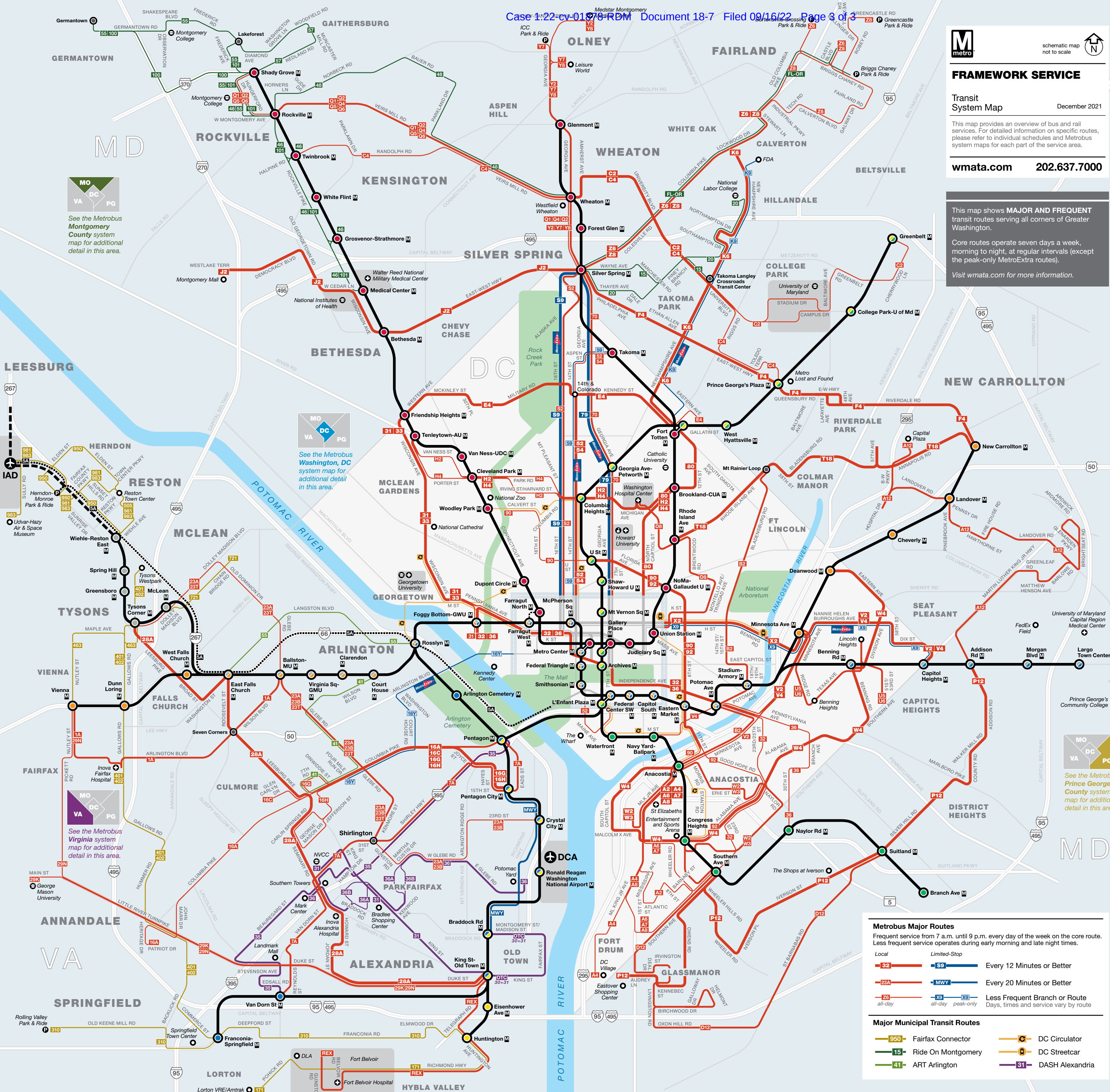


# EXHIBIT D









# METROBUS ROUTES

The table shows which routes operate during which service periods. Information is approximate and may vary by route. For complete details, consult the timetable for your route.

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>DULLES AIRPORT LINE</b>	5A L'Enfant Plaza/Dulles Airport	•	•	•
<b>COLUMBIA PIKE LINE</b>	168 Franklin Sq/Culmore	-	•	•
<b>WISCONSIN AVE LINE</b>	31 Friendship Heights	•	•	•
31 Washington Circle	•	•	•	•
31 Friendship Heights	•	•	•	•
31 Potomac Park	•	•	•	•
31 Friendship Heights	•	•	•	•
31 Potomac Park	•	•	•	•
31 Friendship Heights	•	•	•	•
31 Potomac Park	•	•	•	•
<b>BALLSTON-FARRAGUT SQUARE LINE</b>	58B Ballston-Mt/ Farragut West	•	•	•
<b>MT PLEASANT LINE</b>	42 Mt Pleasant/Kennedy Center	•	•	•
<b>14TH ST LINE</b>	52 14th St/Colorado Ave NW	•	•	•
54 14th St/New York Ave NW	•	•	•	•
52 Takoma	•	•	•	•
54 Takoma	•	•	•	•
<b>14TH ST METROEXTRA</b>	59 Takoma	-	-	-
<b>FORT TOTTEN-PETWORTH LINE</b>	60 Fort Totten/ Georgia Ave-Petworth	•	•	•
<b>TAKOMA-PETWORTH LINE</b>	62 Takoma/ Georgia Ave-Petworth	•	•	•
63 Takoma	•	•	•	•
<b>FORT TOTTEN-PETWORTH LINE</b>	64 Fort Totten/ Federal Triangle	•	•	•
<b>GEORGIA AVE-7TH ST LINE</b>	70 Silver Spring/Archives	•	•	•
<b>SOUTHWEST WATERFRONT LINE</b>	74 Mt Vernon Sq/SW Waterfront	•	•	•

**Metrobus Frequent Service**  
Service Runs Every 12 minutes or Better 7:00am to 9:00pm Every Day  
Service Runs Every 20 minutes or Better 7:00am to 9:00pm Every Day

• Routes combine to provide frequent service on this section  
• Service available  
• Limited service

• No service  
• Late-night service  
• Route not shown on map  
• Weekend service operated by Ride On

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>GEORGIA AVE-7TH ST LINE</b>	79 Silver Spring/Archives	•	•	•
<b>NORTH CAPITOL ST LINE</b>	80 Fort Totten/McPherson Sq	•	•	•
<b>COLLEGE PARK LINE</b>	83 Rhode Island Ave/Cherry Hill	•	•	•
86 Rhode Island Ave/Calverton	•	•	•	•
<b>U ST-GARFIELD LINE</b>	90 MLK Jr Ave/Good Hope Rd	•	•	•
92 13th St NW	•	•	•	•
90 Duke Ellington Bridge/Anacostia	•	•	•	•
92 Reeves Center/Congress Heights	•	•	•	•
<b>EAST CAPITOL ST LINE</b>	96 Capitol Heights/Tenleytown-AU	•	•	•
<b>ANACOSTIA-CONGRESS HEIGHTS LINE</b>	A2 Anacostia	•	•	•
A6 MLK Jr Ave & Randall Pl	•	•	•	•
A8 Anacostia	•	•	•	•
A6 Anacostia/Livingston	•	•	•	•
A7 Anacostia/Livingston	•	•	•	•
A8 Anacostia/Livingston	•	•	•	•
<b>ANACOSTIA-FORT DRUM LINE</b>	B4 USGO/Anacostia/DC Village	•	•	•
<b>ANACOSTIA-ALABAMA AVE LINE</b>	B2 Anacostia	•	•	•
<b>GLOVER PARK-DUPONT CIRCLE LINE</b>	D2 Glover Park/Dupont Circle	•	•	•
<b>IVY CITY-FRANKLIN SQUARE LINE</b>	D4 Ivy City/Franklin Sq	•	•	•
<b>SIBLEY HOSPITAL-STADIUM ARMORY LINE</b>	D6 Stadium-Armory	•	•	•
<b>HOSPITAL CENTER LINE</b>	D8 Union Station	•	•	•

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>SOUTHERN AVE-SUITLAND LINE</b>	D12 Southern Ave/Suitland	•	•	•
<b>OXON HILL LINE</b>	D14 Southern Ave/Suitland	•	•	•
<b>IVY CITY-FORT TOTTEN LINE</b>	E2 Fort Totten/Ivy City	•	•	•
<b>MILITARY RD LINE</b>	E4 Friendship Heights/Fort Totten	•	•	•
<b>CHILLUM RD LINE</b>	F1 Takoma/Cheverly	•	•	•
<b>F2 Takoma/Cheverly</b>	•	•	•	•
<b>NEW CARROLLTON-FORT TOTTEN LINE</b>	F6 Fort Totten/New Carrollton	•	•	•
<b>SHERIFF RD-CAPITOL HEIGHTS LINE</b>	F14 Naylor Rd/New Carrollton	•	•	•
<b>P ST-LEODROT PARK LINE</b>	G2 Howard University/Georgetown University	•	•	•
<b>RHODE ISLAND AVE LINE</b>	G4 Rhode Island Ave/Avondale	•	•	•
<b>CROSTOWN LINE</b>	H2 16th St NW	•	•	•
H4 Brookland-CUA	•	•	•	•
<b>BROOKLAND-FORT LINCOLN LINE</b>	H6 Brookland-CUA/Fort Lincoln	•	•	•
<b>PARK RD-BROOKLAND LINE</b>	H8 Rhode Island Ave/Mt Pleasant	•	•	•
<b>H9 Rhode Island Ave/Fort Dr &amp; 1st St</b>	•	•	•	•
<b>TAKOMA-FORT TOTTEN LINE</b>	K2 Fort Totten/White Oak	•	•	•
<b>NEW HAMPSHIRE AVE LINE</b>	K6 Fort Totten/White Oak	•	•	•
<b>NEW HAMPSHIRE AVE METROEXTRA</b>	K9 Fort Totten/White Oak	•	•	•

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>CONNECTICUT AVE LINE</b>	L2 Chevy Chase Circle/Farragut West	•	•	•
<b>CONNECTICUT AVE-MARYLAND LINE</b>	L8 Friendship Heights/Aspen Hill	•	•	•
<b>NEBRASKA AVE LINE</b>	M2 Sibley Hospital/Western & Oregon Aves	•	•	•
<b>FAIRFAX VILLAGE LINE</b>	M6 Potomac Ave/Fairfax Village	•	•	•
<b>MASSACHUSETTS AVE LINE</b>	N2 Friendship Heights	•	•	•
N4 Friendship Heights/Calverton	•	•	•	•
N6 Friendship Heights/Naylor Rd	•	•	•	•
<b>ANACOSTIA-ECCKINGTON LINE</b>	P6 Anacostia/Rhode Island Ave	•	•	•
<b>EASTOVER-ADDISON RD LINE</b>	P12 Addison Rd/Eastover	•	•	•
<b>RIGGS RD LINE</b>	R1 Fort Totten/Adelphi	•	•	•
R2 Fort Totten/Calverton	•	•	•	•
<b>QUEENS CHAPEL RD LINE</b>	R4 Brookland-CUA/Highway	•	•	•
<b>16TH ST LINE</b>	S2 Silver Spring/Federal Triangle	•	•	•
<b>16TH ST METROEXTRA</b>	S8 Silver Spring/McPherson Sq	•	•	•
<b>RIVER RD LINE</b>	T2 Friendship Heights/Rockville	•	•	•
<b>RHODE ISLAND AVE LINE</b>	T14 Rhode Island Ave/New Carrollton	•	•	•
<b>ANNAPOLIS RD LINE</b>	T18 Rhode Island Ave/New Carrollton	•	•	•
<b>SHERIFF RD-RIVER TERRACE LINE</b>	U4 Minnesota Ave/Sheriff Rd/River Terrace	•	•	•

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>MARSHALL HEIGHTS LINE</b>	U5 Minnesota Ave	•	•	•
U6 Marshall Heights/Lincoln Hgts	•	•	•	•
U5 Minnesota Ave	•	•	•	•
U6 Marshall Heights/Lincoln Hgts	•	•	•	•
<b>DEANWOOD-MINNESOTA AVE LINE</b>	U7 Deanwood/Minnesota & Ridge	•	•	•
<b>CAPITOL HEIGHTS-MINNESOTA AVE LINE</b>	V2 Capitol Heights/Anacostia	•	•	•
V4 Capitol Heights/Penn Aves	•	•	•	•
V2 Capitol Heights/Anacostia	•	•	•	•
V4 Capitol Heights/Navy Yard	•	•	•	•
<b>BENNING HEIGHTS-ALABAMA AVE LINE</b>	W7 Benning Heights/Minnesota Ave	•	•	•
V8 Benning Heights/Minnesota Ave	•	•	•	•
<b>SHIPLEY TERRACE-FORT DRUM LINE</b>	W1 Fort Drum/Southern Ave	•	•	•
<b>UNITED MEDICAL CENTER LINE</b>	W2 Anacostia/United Medical Ctr	•	•	•
W3 United Medical Ctr/Anacostia	•	•	•	•
<b>DEANWOOD-ALABAMA AVE LINE</b>	W4 Anacostia/Deanwood	•	•	•
<b>ANACOSTIA-BLUE PLAINS LINE</b>	W5 Anacostia/Deanwood	•	•	•
<b>GARFIELD LOOP LINE</b>	W6 Anacostia/Garfield	•	•	•
W8 Garfield-Anacostia	•	•	•	•
<b>BENNING RD-H ST LINE</b>	X2 Minnesota Ave/McPherson Sq	•	•	•
<b>MARYLAND AVE LINE</b>	X8 Union Station/Carver Terrace	•	•	•
<b>BENNING RD-H ST METROEXTRA</b>	X9 Capitol Heights/Metro Center	•	•	•
Minnesota Ave/Metro Center	•	•	•	•

Route	Between/and	MON-FRI	SAT	SUN/HOL
<b>METROBUS SUPPLEMENTAL ROUTES</b>				
A31 Anacostia High School	•	•	•	•
A32 Anacostia High School	•	•	•	•
A33 Anacostia High School	•	•	•	•
D31 Deal Middle School	•	•	•	•
D32 Deal Middle School	•	•	•	•
D33 Deal Middle School	•	•	•	•
D34 Deal Middle School	•	•	•	•
D51 Duke Ellington School of the Arts	•	•	•	•
S39 Sousa Middle School	•	•	•	•
S41 Phelps High School	•	•	•	•
W48 Wilson High School	•	•	•	•
W47 Wilson High School	•	•	•	•
X3 Benning Rd	•	•	•	•
<b>DC CIRCULATOR</b>				
<b>Route</b>	<b>Between/and</b>	<b>MON-FRI</b>	<b>SAT</b>	<b>SUN/HOL</b>
C Eastern Market/L'Enfant Plaza	•	•	•	•
C McPherson Sq/Woodley Park	•	•	•	•
C Rosslyn/Dupont Circle	•	•	•	•
C Union Station/Congress Heights	•	•	•	•
C Union Station/Georgetown	•	•	•	•
C Union Station/National Mall	•	•	•	•
<b>DC STREETCAR</b>				
<b>Route</b>	<b>Between/and</b>	<b>MON-FRI</b>	<b>SAT</b>	<b>SUN/HOL</b>
C Union Station/Oklahoma Ave & Benning Rd	•	•	•	•

# FARES

**Metrorail Fares**  
Effective September 5, 2021

**Peak Fares** with SmarTrip® or cash  
Minimum \$2.25  
Maximum \$6.00  
*In effect weekdays from opening to 9:30 a.m., 3:00-7:00 p.m.*

**Off-Peak Fares** with SmarTrip® or cash  
Weekday Minimum \$2.00  
Weekday Maximum \$3.85  
Weekend Single Trip \$2.00  
*In effect all other times.*

**Senior/Disabled**  
Half of the peak fare on weekdays and \$1.00 on weekends when using a Senior/Disabled SmarTrip® card. These cards are not available in stations.

**Metrobus Fares**  
Effective September 5, 2021

**Regular Fare** with SmarTrip® or cash  
Regular Fare Senior/Disabled \$1.00  
Express Fare \$4.25  
Express Fare Senior/Disabled \$2.10  
Airport Express Buses (5A) \$7.50  
Airport Express Bus Fare Senior/Disabled \$3.75

# General fare facts

If you connect between rail and bus, the bus ride is free for all routes except Express service.

All monthly passes include unlimited trips on Metrobus at no extra charge.


Senior/Disabled fares are good at all times for people with valid Metro ID and/or Medicare card and a photo ID card.

If you pay in cash, please have exact change. Metrobus operators do not carry cash.

Up to two children, 4 years and younger, ride free with each paying customer.

Fares are subject to change. Visit [wmata.com](http://wmata.com) or call Customer Information at 202-637-7000 TTY (202-638-3780) to verify fares.


# TARIFAS

**Tarifas del Metrorail**  
Efectivo a partir de 5 septiembre, 2021

**Tarifas de horario pico** con SmarTrip® o dinero en efectivo  
Mínima \$2.25  
Máxima \$6.00  
*En efecto durante días de semana de la apertura hasta las 9:30 a.m., 3:00-7:00 p.m., y fines de semana hasta el cierre.*

**Tarifas reducidas del Metrorail** con SmarTrip® o dinero en efectivo  
Mínimo en días entre semana \$2.00  
Máximo en días entre semana \$3.85  
Viaje de ida de fin de semana \$2.00  
*En efecto todo el resto del tiempo.*

**Adultos de la tercera edad/personas con discapacidades**  
La mitad de la tarifa de la hora pico los días entre semana y \$1.00 los fines de semana cuando se usa una tarjeta SmarTrip® para adultos de la tercera edad/personas con discapacidades. Estas tarjetas no están disponibles en estaciones.

**Tarifas del Metrobus**  
Efectivo a partir de 5 septiembre, 2021

**Tarifa regular** con SmarTrip® o dinero en efectivo  
Persona mayor/discapacitada \$1.00  
Tarifa express \$4.25  
Persona mayor/discapacitada \$2.10  
Autobuses Express para el Aeropuerto (5A, B30) \$7.50  
Persona mayor/discapacitada \$3.75

# Datos generales de las tarifas

La tarifa para las Personas mayores/discapacitadas funciona todo el tiempo con una identificación válida de Metro y/o con la tarjeta de Medicare y una tarjeta de identificación con fotografía.

Si paga la tarifa en efectivo, por favor de tener el cambio exacto. Los conductores del Metrobus no tienen dinero en efectivo.

Con cada pasajero que pague pueden viajar gratis hasta un máximo de dos niños de 4 años o menores.

Las tarifas podrían cambiar. Visite la página del Internet de Metro [wmata.com](http://wmata.com) o llame a información al cliente al 202-637-7000 TTY (202-638-3780) para verificar las tarifas.

# metroAlerts

Through MetroAlerts, you can be notified of Metro service disruptions via email or text messages. MetroAlerts can be sent to computers, cellular phones, pagers or personal digital assistants capable of receiving data. MetroAlerts are limited to 140 characters to prevent them from being truncated when received as text messages. If further information on the incident is available, it is published on the website and a link to that information is included in the MetroAlert.

# KNOW MORE. KNOW FIRST.

Sign up today at [wmata.com/MetroAlerts](http://wmata.com/MetroAlerts)

# The convenient way to pay!

Use a SmarTrip® card to pay to ride Metrorail and Metrobus.

A SmarTrip® card costs only \$2 and you can store up to \$300 in value on it.

Buy a SmarTrip® card at any Metrorail station, Metro sales office or online at [wmata.com](http://wmata.com).

# ¡La manera más conveniente de pagar!

Usa una tarjeta SmarTrip® para pagar su pasaje de Metrorail y Metrobus.

La tarjeta SmarTrip® tiene un costo de solamente \$2 y puede almacenar hasta un valor de \$300.

Compre la tarjeta SmarTrip® en cualquier estación de Metro, oficina de ventas del Metro o en la página de Internet [wmata.com](http://wmata.com).

# Metro Station Bus Connections in WASHINGTON, DC

Metro Station	Lines	Bus Connections
Anacostia	•	90, A2, A4, A6, A7, A8, B2, P6, V2, W2, W3, W4, W5, W6, W8, Circ
Archives	•	32, 33, 36, 70, 74, 79, P6
Benning Rd	•	96, U5, U6, V7, W8, V4
Brookland-CUA	•	90, G8, H2, H4, H6, H8, H9, R4
Capitol Heights	•	96, A12, F14, V2, X9, The Bus: 24, 25
Capitol South	•	32, 36
Cleveland Park	•	H2, H4, L2
Columbia Heights	•	52, 54, 59, H2, H4, H8, S2, S9, Circ
Congress Heights	•	92, V7, W2, W3, W4, Circ
Deanwood	•	R12, U7, V14, W4
Dupont Circle	•	42, D2, D6, G2, N2, N4, N6, Circ
Eastern Market	•	32, 36, 90, 92, Circ
Farragut North	•	3Y, 16Y, 32, 33, 36, 38B, 42, 43, D6, G8, L2, N2, N4, N6, S9, Circ
Farragut West	•	3Y, 16Y, 32, 33, 36, 38B, 42, 43, D6, G8, L2, N2, N4, N6, S9, Circ
Federal Center SW	•	32, 36, P6
Federal Triangle	•	32, 33, 36, 52, 59, 63, 64, S2
Foggy Bottom-	•	31, 32, 33, 42, 43, GWU, 36, 38B, Circ
Fort Totten	•	64, 80, E2, E4, F6, K2, K6, K9, R1, R2
Friendship Heights	•	31, 33, E4, L8, N2, N4, N6, T2, Ride On: 1, 11, 23, 29, 34
Gallery Place	•	70, 74, 79, 80, D6, P6, X2, X9
Georgia Ave-Petworth	•	60, 62, 63, 64, 70, 79, H8
Judiciary Sq	•	80, D6, X2

Metro Station	Lines	Bus Connections
L'Enfant Plaza	•	30S, 32, 36, 52, 74, Circ
McPherson Sq	•	32, 33, 36, 52, 54, 59, 80, D4, D6, G8, S2, S9, X2, Circ
Metro Center	•	52, 54, 59, 63, 64, 80, D6, G8, P6, S2, X2, X9
Minnesota Ave	•	U4, U5, U6, U7, V2, V4, V7, W8, X2, X9
Mt Vernon Sq	•	70, 79, G8, Circ
Navy Yard-Ballpark	•	74, P6, V4, Circ
NoMa-Gallaudet U	•	90, 92
Potomac Ave	•	32, 36, B2, M6, V4
Rhode Island Ave	•	83, 86, D8, G8, H8, H9, P6, T14, T18
Shaw-Howard U	•	70, 79, 90, 92, 96, G2, G8
Smithsonian	•	52, Circ
Southern Ave	•	32, A2, D12, D13, D14, NH1, P12, P18, W1, W14, The Bus: 33, 35, 37
Stadium-Armory	•	96, B2, D6
Takoma	•	52, 54, 59, 62, 63, F1, F2, K2
Tenleytown-AU	•	31, 33, 96, H2, H4, M4
U St	•	52, 54, 59, 63, 64, 90, 92, 96
Union Station	•	96, 98, D6, D8, X2, X8, X9, Circ, Streetcar
Van Ness-UDC	•	H2, L2
Waterfront	•	74, P6
Woodley Park	•	96, L2, Circ

- Metro Blue Line
- Metro Orange Line
- Metro Silver Line
- Metro Green Line
- Metro Red Line
- Metro Yellow Line

# busETA

With busETA, you'll know when your bus is arriving at your stop in real-time. All you need is a phone or access to the internet, your route number and your bus stop number.

# Features:

- Real-time bus arrival information is updated every 30 seconds
- Displays up to three next buses to arrive
- Shows both time and distance for next bus arrival
- Shows how many stops away a bus is located
- Conveniently lists available nearby routes based on your location
- Available across all mobile and desktop applications

Go to [buseta.wmata.com](http://buseta.wmata.com)  
Enter an intersection, bus route or Stop ID #.

Don't miss another bus!

[buseta.wmata.com](http://buseta.wmata.com)

# REAL TIME!

Metro offers tools for up-to-the-minute service updates. Visit [wmata.com](http://wmata.com) to learn more about busETA, MetroAlerts, and other real-time resources.

busETA  
with  
metroAlerts

# INFORMATION

For info on Metro routes, schedules, and fares, visit us online or call:

[wmata.com](http://wmata.com) | 202.637.7000  
202.638.3780 TTY

# LOCAL TRANSIT SYSTEMS

DC Circulator  
[dccirculator.com](http://dccirculator.com) | 202.671.2020

DC Streetcar  
[dcstreetcar.com](http://dcstreetcar.com) | 202.741.0254

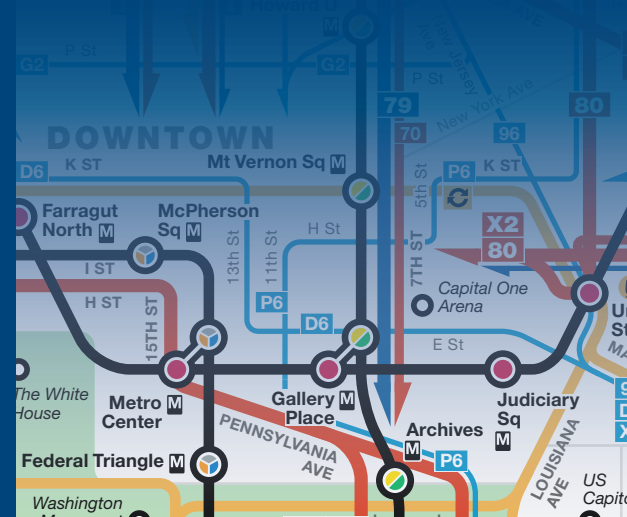
Washington Metropolitan Area Transit Authority  
600 Fifth St NW  
Washington, DC 20001

# Metrobus System Map

# WASHINGTON, DC

Includes Bus and Rail service provided by Metro and local transit systems.

EFFECTIVE DECEMBER 2021





# **EXHIBIT E**

# METRO SNAPSHOT 2022

## THE BASICS

- Third largest heavy rail transit system and sixth largest bus network in the U.S.
- 12,000 employees (~8,700 MD, 1,800 VA & 1,500 DC)
- Metrorail: 118 miles of track, 6 rail lines, 91 stations, 1,200+ railcars
- Metrobus: 11,500 bus stops, 1,600+ buses
- In 2022, Metro continues to rebound from the Covid-19 pandemic, which began in March 2020 and reduced transit ridership dramatically. Customers are returning to transit in 2022, with the number of people riding Metro in May 2021 nearly doubling the ridership from one year earlier. From May 2021 to May 2022, the number of people riding Metro doubled again.
- FY2022 ridership: 99.7 million trips. Rail: 40.7 million (41%), Bus: 58 million (58%), MetroAccess: 966,471 (1%)



## DOING OUR PART

- Bus fleet reliability is 8,830 miles between failure.
- Escalator performance is at 92.9% availability and elevator performance is at 97.6% availability.
- 94% of MetroAccess trips arrive on time.
- In 2022, we will complete a four-year Platform Improvement Project, reconstructing platforms and making other improvements at 20 stations.
- We will open new stations in 2022 along the Silver Line Extension and Potomac Yard Station on the Blue/Yellow lines.
- Continued our focus on customer and rider safety as the region rebounds from the Covid-19 pandemic by handing out more than 2.7 million masks to riders and implementing strong cleaning, health, and safety protocols.
- Unveiled plans for the system's first all-electric bus garage, a major step toward transitioning to a fully zero-emission fleet by 2045 as part of our Zero-Emission Bus Transition Plan.
- Continued our fare modernization program – which allows customers to tap, pay, and ride – for a more efficient commute. Installation of upgraded faregates has reached more than 50% of all stations.
- Received a Gold Standard Award for transit security from the Transportation Security Administration for the fourth time. Attained high scores across all 17 transit security categories evaluated by TSA.

## METRO'S ECONOMIC IMPACT ON THE REGION

- 54% of our region's jobs are within a half-mile of a Metro station or Metrobus stop.
- 28% of the region's property tax base is located within a half-mile of a Metrorail station.
- More than half of Metrorail stations serve federal facilities. Prior to the pandemic, approximately one-third of Metrorail's peak period commuters were federal employees.



## FINANCES

- Total FY23 approved budget: \$4.8 billion
- Operating budget: \$2.4 billion
- Capital budget: \$2.4 billion in safety, service, and reliability investments
- Capital Improvement Program: FY2022-27 6-year investments total: \$13.9 billion



# **EXHIBIT F**

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

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**GREGORY T. ANGELO, *et al.*,**

**Plaintiffs,**

**v.**

**DISTRICT OF COLUMBIA, *et al.*,**

**Defendants.**

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**Civil Action No. 1:22-cv-01878-RDM**

**DECLARATION OF CARLA LONGSHORE**

Pursuant to 28 U.S.C. § 1746, I, Carla Longshore, declare as follows:

1. I am the Associate Director of the Transit Delivery Division at the District Department of Transportation (DDOT). I am over the age of 18 and competent to render the testimony contained herein based upon my personal knowledge, information provided to me by other DDOT employees, and documents that I have reviewed.

2. I have worked in this role at DDOT since April 2021. Prior to my current position, I worked as the Deputy Associate Director for Transit Delivery from March 2018 through April 2021.

3. DDOT oversees two public transportation systems, the DC Circulator and DC Streetcar, in the District of Columbia. Both systems saw a significant decrease in ridership during the COVID-19 pandemic.

4. The DC Circulator runs six routes throughout the District. One DC Circulator route stops in Rosslyn, Virginia; all other DC Circulator stops are located within the District.

5. One DC Circulator route circles the National Mall. This route provides access to 29 sports fields, 14 museums, and 13 monuments and memorials, including the Washington

Monument, the Lincoln Memorial, the Vietnam Veterans Memorial, and the Martin Luther King Jr. Memorial.

6. The Georgetown-Union Station and Dupont Circle-Rosslyn routes both travel close to Georgetown University and George Washington University. The Georgetown-Union Station route also travels near the White House.

7. In June 2019, passengers took 564,044 trips on the DC Circulator. In June 2022, passengers took 151,524 rides on the DC Circulator. The most heavily trafficked DC Circulator route in June 2022 was the Georgetown-Union Station route, which made up 69,030 of those trips.

8. The DC Circulator provides access to Nationals Stadium and Audi Field on the Eastern Market-L'Enfant Plaza route. On days of baseball games and soccer games, the DC Circulator provides extended service on this route.

9. The DC Circulator will add a new route in 2023. This route will be in Ward 7 and the DC Circulator Transportation Development Plan estimates it will have 1,262,477 annual riders. Along the intended route, there are 23 schools and 5 hospitals and primary care centers.

10. The DC Streetcar currently runs on one route starting at Union Station and running along H Street and Benning Road, Northeast. In June 2019, passengers took 97,220 trips on the DC Circulator. In June 2022, passengers took 22,333 trips on the DC Streetcar.

11. The District of Columbia does not operate school buses, except for students with certain disabilities. DDOT offers the Kids Ride Free Program that allows elementary and secondary school students to ride for free on Metrobus, Metrorail, and the DC Circulator to travel to and from school and for other school related trips.

12. During the 2019–2020 school year, 50,012 students participated in the Kids Ride Free Program. During the 2021–2022 school year, 33,608 students participated in the Kids Ride Free Program.

13. Elementary and secondary schools throughout the District typically provide Kids Ride Free SmarTrip cards directly to attending students.

14. DDOT also provides a \$70 monthly transit benefit to District residents who are over the age of 18, ineligible for the Kids Ride Free Program, and actively enrolled in a program approved by the Office of the State Superintendent of Education. This transit benefit, known as the Adult Learner Transit Subsidy, can be used on Metrorail, Metro bus, and the DC Circulator within the District of Columbia.

I declare under penalty of perjury that the foregoing is true and correct.

Carla Longshore

Digitally signed by Carla Longshore  
DN: cn=Carla Longshore, o=District Department of  
Transportation, ou, email=carla.longshore@dc.gov, c=US  
Date: 2022.09.15 17:03:48 -04'00'

Carla Longshore  
Associate Director, Transit Delivery Division  
District Department of Transportation

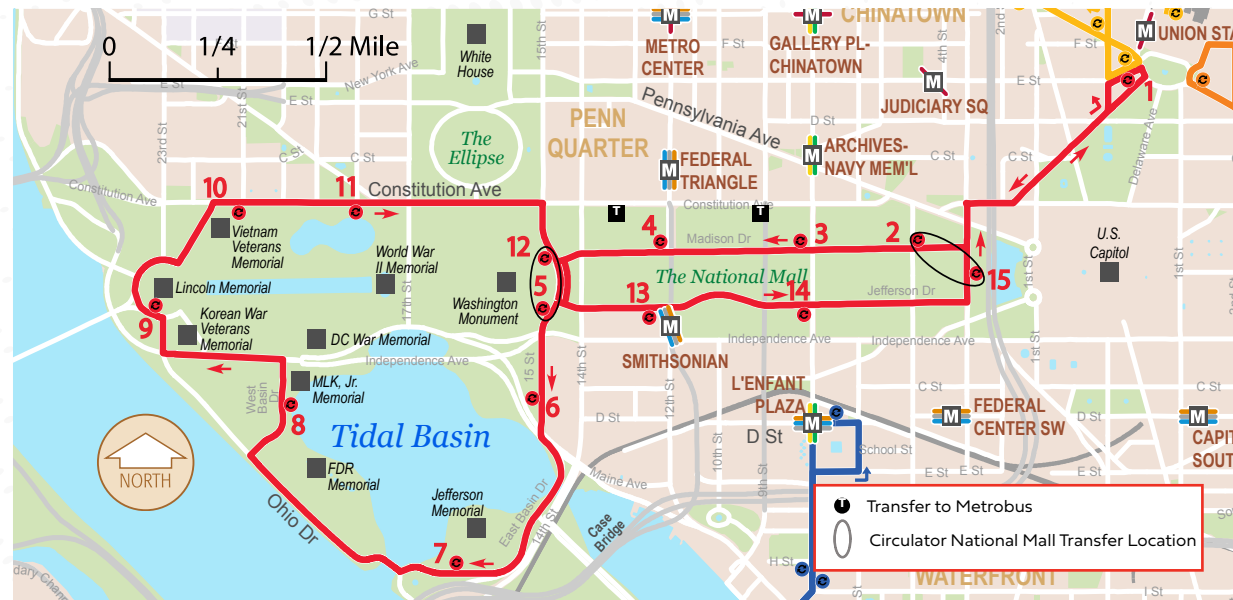
9/15/2022

DATED

# EXHIBIT G



# DC CIRCULATOR NATIONAL MALL SERVICE



## STOPS ON THE NATIONAL MALL

- |  |   |   |
|--|---|---|
| <p><b>1 Union Station</b><br/>E St. NE / Columbus Circle</p> <p><b>2 National Gallery of Art</b><br/>Madison Dr. NW / 4th St.</p> <p><b>3 National Gallery of Art Sculpture Garden</b><br/>Madison Dr. NW / 7th St.</p> <p><b>4 National Museum of American History / National Museum of Natural History</b><br/>Madison Dr. NW / 12th St.</p> <p><b>5 Washington Monument / National Museum of African American History and Culture</b><br/>15th St. SW / Jefferson Dr.</p> | <p><b>6 Holocaust Memorial Museum / Bureau of Engraving and Printing</b><br/>15th St. SW near Maine Ave.</p> <p><b>7 Thomas Jefferson Memorial</b><br/>E. Basin Dr. SW at Jefferson Memorial</p> <p><b>8 Martin Luther King, Jr. Memorial / Franklin Delano Roosevelt Memorial</b><br/>W. Basin Dr. SW near Independence Ave.</p> <p><b>9 Lincoln Memorial / Korean War Veterans Memorial</b><br/>Lincoln Memorial Circle SW</p> <p><b>10 Vietnam Veterans Memorial</b><br/>Constitution Ave. NW / 21st St.</p> | <p><b>11 World War II Memorial / Constitution Gardens</b><br/>Constitution Ave. NW / 18th St.</p> <p><b>12 Washington Monument / National Museum of African American History and Culture</b><br/>15th St. NW / Madison Dr.</p> <p><b>13 Smithsonian Visitor Center</b><br/>Jefferson Dr. SW / 12th St.</p> <p><b>14 National Air and Space Museum / Hirshhorn Museum and Sculpture Garden</b><br/>Jefferson Dr. SW / 7th St.</p> <p><b>15 United States Capitol / U.S. Botanic Garden / National Museum of the American Indian</b><br/>3rd St. NW near Madison Dr. NW</p> |
|--|---|---|

## FARES

**Regular:** \$1.00

**Senior/Disabled:** 50¢

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Students ride free with a Kids Ride Free SmarTrip® card

**Children under 5:**  
free with paying adult

**Transfers:** available only when you pay with a SmarTrip® card

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- **To Metrobus (within two hours):** 75¢ (or step-up to current Metrobus fare)
- **To DC Circulator (within two hours):** free
- **To or from Metrorail:** 50¢ discount

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# Map and Information Guide



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**UPDATED MARCH 2022**

**d. DC** GOVERNMENT OF THE DISTRICT OF COLUMBIA  
MURIEL BOWSER, MAYOR





## HOW TO RIDE

1. Each bus stop is marked with the DC Circulator flag above where you should wait for the bus to arrive.
2. Find out when the next bus is arriving with BusTime! DC Circulator's **BusTime** app provides real-time information for passengers to track bus locations. Visit [bustime.dccirculator.com](https://bustime.dccirculator.com) or the DC Circulator website on your phone or computer, and click on the **BusTime** icon. Buses arrive in 10-minute intervals during normal service conditions.
3. The final destination for each bus is displayed in bright LED lights above the front windshield.
4. Have your payment ready when the bus approaches. See back panel for payment details.
5. Enjoy a comfortable ride. Notify the driver when your stop is approaching by pressing one of the stop buttons located throughout the bus.

# irculator

Buses run every 10 minutes on the following schedule:

### **DUPONT CIRCLE–GEORGETOWN – ROSSLYN**

Monday – Thursday: 6am–Midnight  
Friday: 6am–3am  
Saturday: 7am–3am  
Sunday: 7am–Midnight

### **GEORGETOWN – UNION STATION**

Monday – Thursday: 6am–Midnight  
Friday: 6am–3am  
Saturday: 7am–3am  
Sunday: 7am–Midnight

### **WOODLEY PARK – ADAMS MORGAN – MCPHERSON SQUARE METRO**

Monday – Thursday: 6am–Midnight  
Friday: 6am–3:30am  
Saturday: 7am–3:30am  
Sunday: 7am–Midnight

### **EASTERN MARKET – L'ENFANT PLAZA**

Monday – Friday: 6am–9pm  
Saturday – Sunday: 7am–9pm

*\* Special detours and extended service on Nationals and DC United game days*

### **CONGRESS HEIGHTS – UNION STATION**

Monday – Friday: 6am–9pm  
Saturday – Sunday: 7am–9pm

### **NATIONAL MALL ROUTE**

**Winter Hours (October – March):**

Monday – Friday: 7am–7pm  
Saturday – Sunday: 9am–7pm

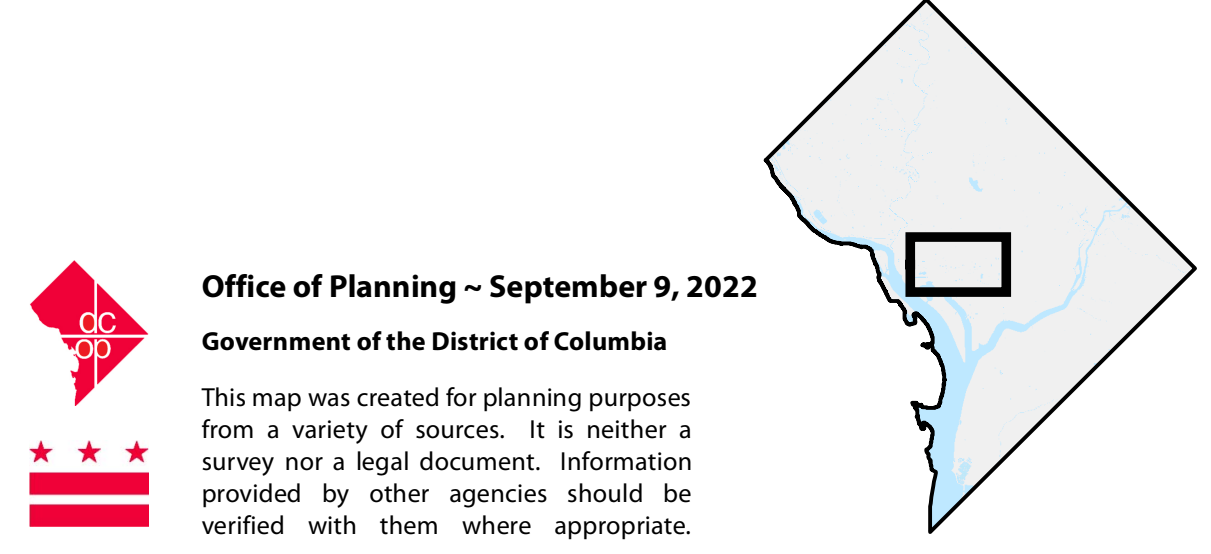
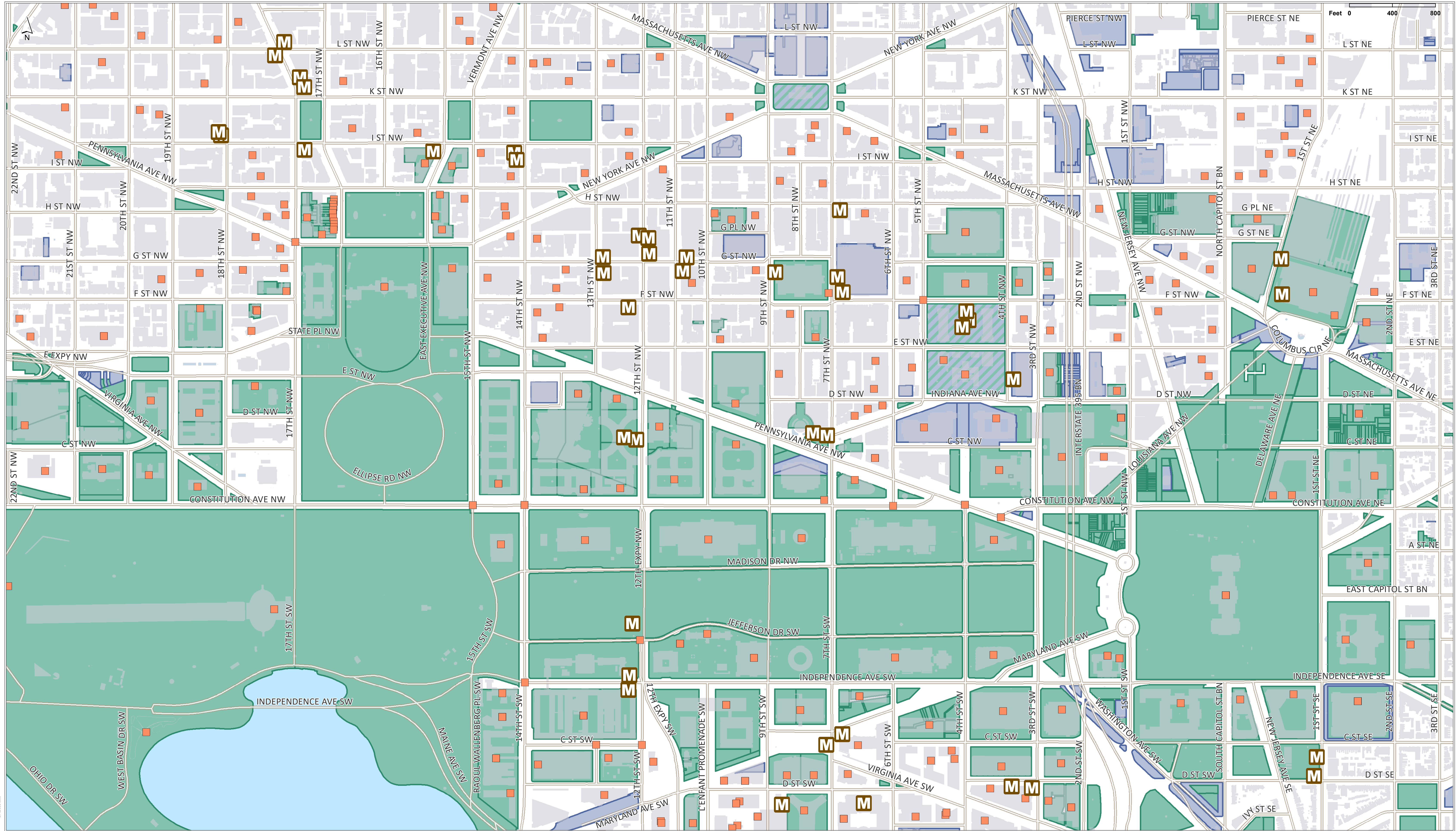
**Summer Hours (April– September):**



Monday – Friday: 7am–8pm  
Saturday – Sunday: 9am–8pm




*\*Summer hours might start earlier than April due to the Cherry Blossom festivities. See website for more details.*

# EXHIBIT H





-  **GSA Locations**
-  **Metro Station Entrances**

-  **District Property**
-  **Federal Property**
-  **Federal & District Property**

## Federal & District Government Properties

# EXHIBIT I




**COUNCIL OF THE DISTRICT OF COLUMBIA  
COMMITTEE OF THE WHOLE  
COMMITTEE REPORT**

1350 Pennsylvania Avenue, NW, Washington, DC 20004

2014 DEC 12 AM 9:10

OFFICE OF THE  
SECRETARY

**TO:** All Councilmembers

**FROM:** Chairman Phil Mendelson   
Committee of the Whole

**DATE:** December 2, 2014

**SUBJECT:** Report on Bill 20-930, "License to Carry a Pistol Amendment Act of 2014"

The Committee of the Whole, to which Bill 20-930, "License to Carry a Pistol Amendment Act of 2014" was referred, reports favorably thereon with amendments, and recommends approval by the Council.

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**I. BACKGROUND AND NEED**

Bill 20-930, License to Carry a Pistol Amendment Act of 2014, was introduced on September 23, 2014 by Chairman Mendelson and Councilmember Wells, co-sponsored by Councilmembers Orange, Barry, and Bonds, and referred to the Committee on the Judiciary and Public Safety. On October 20, 2014, Bill 20-930 was re-referred sequentially to the Committee on the Judiciary and Public Safety and then to the Committee of the Whole.

The Committee of the Whole, to which Bill 20-930, the "License to Carry a Pistol Amendment Act of 2014" was sequentially referred, reports favorably thereon with amendments, and recommends approval by the Council. The Committee adopts as its own the report on Bill

20-930 adopted by the Committee on the Judiciary and Public Safety November 25, 2014, including Section I for the purposes of this Background and Need section.<sup>1</sup>

Bill 20-930 is guided by the following policy themes. First, that the District can no longer maintain a “complete ban on the carrying of handguns in public.” Second, that to protect the public safety, there must be a vetting process to minimize the likelihood that a person who is legally authorized to carry a handgun will cause injury to another. Third, that the bill must be sensitive to the needs of law enforcement; the MPD, Secret Service, and Capitol Police stated that legal concealed carry will make their ability to protect the public and dignitaries more difficult; accordingly, the bill enumerates sensitive places and activities where carrying is restricted. Fourth, that the consequent regulatory structure must strike a balance – e.g., between the public safety and the Second Amendment right to keep and bear arms; and between the Second Amendment and the First Amendment right of assembly. Fifth, that the Second Amendment constrains the government’s ability to restrict firearms, but that constraint does not apply to property owners; accordingly, with this Bill any property owner (or person in control of the property, such as a tenant) is free to prohibit a licensee from carrying on his or her property.

The vetting process includes a number of requirements, some of which may not be obvious. For instance, the training requirement includes “situational awareness, conflict management, and use of deadly force.” It is not enough that one knows how to use a firearm; it is important to know when not to use it; it is important to know how to de-escalate a situation, or when firing defensively may harm persons or property other than the target. In this same vein, the bill requires that the licensee “possesses the proper knowledge, skills, and attitude to carry a concealed pistol.” As explained to the Committee by George Lyon, a certified NRA training instructor:

[T]he NRA expects us to ‘teach students the basic knowledge, skills and attitude necessary for the safe and proficient use of pistols, rifles and shotguns.’ ...[B]ecause skills involve use of a potentially deadly tool, a proper attitude is necessary to ensure that [the] tool is handled safely, responsibly and ethically.

...

Attitude would refer primarily to the commitment to safety, willingness to abide by the law, in general the willingness to responsibly own and carry a firearm.

We judge these [sic] in NRA courses by evaluating the student during the conduct of the class through interactive teaching, by observing the student doing firearms manipulation in the classroom and on the range.<sup>2</sup>

<sup>1</sup> See BILL 20-930, LICENSE TO CARRY A PISTOL AMENDMENT ACT OF 2014, REPORT OF THE COUNCIL OF THE DISTRICT OF COLUMBIA COMMITTEE ON THE JUDICIARY AND PUBLIC SAFETY 1-19 (2014) [hereinafter J&PS REPORT] (on file with the Committee of the Whole and attached to this report).

<sup>2</sup> Email from George Lyon to Jessica Jacobs, Legislative Counsel, Committee of the Whole (Oct. 18, 2014, 3:01 PM EST) (on file with the Committee of the Whole).

The vetting process also requires an in-person interview at MPD headquarters. In addition to the reasons set forth in the Judiciary Committee's November 25th report, the in-person interview enables MPD to gain a true perception of the applicant to validate what he or she has stated on paper, such as: no proclivity toward violence, no mental illness, no malevolent reason for obtaining a carry permit, and a proper attitude. The Committee remembers a report several years ago from the MPD Lieutenant then in charge of firearms registration about an applicant who was unusually anxious to obtain a registration certificate and soon thereafter committed an act of violence. It is important that there be in-person contact as an extra step to ensure safety.

The Committees have sought to be responsive to law enforcement while not going so far as to render the ability to carry theoretical, but impossible. For instance, the Secret Service initially requested language in the bill prohibiting licensees from carrying within 200 feet of any foreign diplomatic missions and their grounds, which would have made it very difficult for a licensee – who has already been vetted as safe to carry – to be able to move about the District.

Because the District has so many high-value targets, and because Bill 20-930 does not go as far as requested by MPD, Secret Service, and the Capitol Police to create restrictions and overlapping buffer zones, it is possible that police presence will grow and other security measures will be taken in a city that already is heavily patrolled and protected by more than two dozen law enforcement entities. There should be a limit to this – another reason the Bill is more restrictive than the carrying laws in other states. Otherwise, an expanding presence of law enforcement, especially in the dense urban setting that characterizes the District, will cross a line between providing public safety and infringing upon a sense of freedom. Citizens of the United States take pride in the freedom granted to them through the Constitution – freedom of expression, freedom of movement. But increasing the posting of armed officers, or clearing streets of all automobiles and restricting pedestrian movement except through checkpoints, tips urban living away from the freedom and openness we value in our society. At some point constitutional freedoms such as the First Amendment must serve as a check on the Second Amendment.

The bill prohibits carrying on any public transportation vehicle, including the Metrorail transit system and its stations. The Judiciary Committee's report notes that WMATA requested this (and a theme underlying this bill is that a property owner, in this case WMATA, may prohibit carrying), and also that public transportation in the District is often crowded and the use of a weapon in such a confined space would most certainly result in injury to innocent bystanders. Moreover, crowding in confined spaces such as a Metro rail car or bus can lead to jostling and pickpocketing, and people sometimes get frustrated or angry and small spats will break out.

One change in the Committee of the Whole print from the Judiciary Committee print concerns the ability to carry in an ABC-licensed establishment. The evidence around the dangers of alcohol consumption and guns is well documented. A survey of state law finds that numerous states have some form of restriction around carrying and alcohol-serving



establishments. Moreover, a survey of websites that serve the concealed carry community suggest a consensus that drinking and carrying is a bad idea. Accordingly, the Committee of the Whole print makes two changes to the Judiciary print: (1) it permits carrying in ordinary restaurants (unless, of course, the owner says no), but (2) it alters section 906 to create a bright line that simply prohibits drinking and carrying.

The Committee received a letter from Daniel W. Webster, Professor and Director, Johns Hopkins University Bloomberg School of Public Health, Center for Gun Policy and Research, which is attached to this report. Mr. Webster's letter amplifies findings in the report of the Committee on the Judiciary and Public Safety on Bill 20-930 regarding studies indicating that gun carrying does not increase public safety or reduce crime.

As the Judiciary report states, Bill 20-930 restores language first adopted by Congress in 1932: the Chief of Police may issue a license to carry if the applicant has a good reason to fear injury to his person or property or has any other proper reason for carrying. Although on page four of its report the committee states that the District has been regulating firearms since the Congressional act of 1932, the Committee report notes elsewhere that the process of regulating the carrying of pistols in the District of Columbia dates back to at least 1857, when the law required a person to have "reasonable cause to fear an assault or other injury or violence to his person." Given the jurisprudence unsettled since *Heller*, the committees consider it important that longstanding law be carried forward with this bill, law that was adopted when the District was under direct and daily federal control.

Gun advocates argue that the Second Amendment grants an individualized right of self-defense. For instance, in *Palmer*, Judge Scullin wrote: "Finally, 'both *Heller* and *McDonald* identif[ied] the 'core component' of the right as self-defense, which necessarily 'take[s] place wherever [a] person happens to be,' whether in a back alley or on the back deck.'" <sup>3</sup> If we assume, *arguendo*, that this interpretation is correct, Bill 20-930 is nevertheless an appropriate response, balancing an individual's right of self-defense with the duty of government to assure order and protect the public safety. Indeed, the exponentially increased lethality of firearms since 1791, when the Second Amendment was ratified, requires restrictions on the ability to use firearms for self-defense. Further, the evolution of municipal police – the District's Metropolitan Police Force, for example, did not come into existence until 1861 – alters the need for individuals to provide for their own self-defense. <sup>4</sup> In short, Bill 20-930 allows for self-defense, but the individualized need has changed with the evolution of municipal police.

Bill 20-930 offers a reasonable, balanced approach to protecting the public safety and meeting an individual's specific need for self-defense. The Committee on the Judiciary crafted the legislation with an eye on the opinions of the Second, Third and Fourth U.S. Circuit Courts

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<sup>3</sup> *Tom G. Palmer v. District of Columbia*, July 24, 2014 (docket entry 51 on July 26, 2014), case no. 1:09-cv-01482-FJS, at 12-13, U.S. District Court for the District of Columbia (citations omitted).

<sup>4</sup> The creation of MPD in 1861 was modeled after the New York City Police Department, established in 1845, which itself was modeled after the Metropolitan Police Service (Greater London) which had been established in 1829. Municipal police departments were non-existent in the 18<sup>th</sup> century when the Bill of Rights was written.

of Appeals (as well as differing opinions from the Seventh and Ninth Circuits). The Committee of the Whole agrees that the Bill comports with the requirements of the Second Amendment of the U.S. Constitution. This Committee recommends approval by the Council.

## II. LEGISLATIVE CHRONOLOGY

September 23, 2014	Bill 20-930, "License to Carry a Pistol Amendment Act of 2014" is introduced by Chairman Mendelson and Councilmember Wells.
September 23, 2014	Bill 20-930 is referred to the Committee on the Judiciary and Public Safety.
September 26, 2014	Abbreviated Notice of Intent to Act on Bill 20-930 is published in the <i>District of Columbia Register</i> .
September 26, 2014	Notice of a Public Hearing is published in the <i>District of Columbia Register</i> .
October 16, 2014	The Committee on the Judiciary and Public Safety holds a public hearing on Bill 20-930.
October 20, 2014	Bill 20-930 is re-referred sequentially to the Committee on the Judiciary and Public Safety and the Committee of the Whole.
October 24, 2014	The re-referral is published.
November 25, 2014	The Committee on the Judiciary and Public Safety marks-up Bill 20-930.
December 2, 2014	The Committee of the Whole marks-up Bill 20-930.

## III. POSITION OF THE EXECUTIVE

The Committee incorporates by reference Section III in the Committee on the Judiciary and Public Safety's Report on Bill 20-930.<sup>5</sup>

## IV. COMMENTS OF ADVISORY NEIGHBORHOOD COMMISSIONS

The Committee incorporates by reference Section IV in the Committee on the Judiciary and Public Safety's Report on Bill 20-930.<sup>6</sup>

<sup>5</sup> See J&PS REPORT, *supra* note 1, at 20.

<sup>6</sup> See J&PS REPORT, *supra* note 1, at 21.

## V. SUMMARY OF TESTIMONY

The Committee incorporates by reference Section V in the Committee on the Judiciary and Public Safety's Report on Bill 20-930.<sup>7</sup> In addition, following the filing of that committee's report, the Committee received an additional letter on Bill 20-930, summarized below.

*Daniel W. Webster, Professor and Director, Johns Hopkins University Bloomberg School of Public Health, Center for Gun Policy and Research*, submitted a letter to the Committee regarding Bill 20-930. Mr. Webster emphasized the need for empirical data in policy-making regarding firearms and the need for research into the scope, causes, and prevention of gun violence. He discussed the conflicting research that exists with regard to "Right-to-Carry (RTC)," or "Shall Issue" concealed carry laws. He described publications by economist John Lott, Jr. that claim that RTC laws reduce violent crime, but also referenced several other studies that debunk Mr. Lott's findings, and pointed to findings that estimate a nearly 33% increase in assaults with firearms associated with RTC laws. Mr. Webster stated that the data suggests that laws providing law enforcement with discretion in issuing permits to carry concealed firearms protect against gun violence.

Mr. Webster also proposed several amendments to Bill 20-930 regarding the legislation's Freedom of Information Act exception, in order to allow bona fide and confidential research on gun ownership and use in the District. Mr. Webster proposed that the legislation be amended to either: a) allow certain journalists or researchers to review registration or concealed carry records confidentially, b) allow the release of registration or concealed carry licensing records, with personally identifying information redacted, or c) retain the general prohibition on releasing firearm records, but permit law enforcement to confirm to the media whether an individual involved in a gun crime has a concealed carry permit, similar to Oregon law; and require the release of an annual report to include aggregate data on the number of concealed carry applications received, and the number of permits issued, renewed, suspended, revoked, or denied, similar to law in Ohio.

## VI. IMPACT ON EXISTING LAW

The Committee of the Whole incorporates by reference Section VI in the Committee on the Judiciary and Public Safety's Report on Bill 20-930.<sup>8</sup>

## VII. FISCAL IMPACT

The attached December 2, 2014 fiscal impact statement from the District's Chief Financial Officer (CFO) states that funds are sufficient in the FY 2015 through FY 2018 budget and financial plan to implement Bill 20-930. The CFO notes that all licensing provisions

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<sup>7</sup> See J&PS REPORT, *supra* note 1, at 21-26.

<sup>8</sup> See J&PS REPORT, *supra* note 1, at 26.

associated with a concealed carry permit have been implemented with the Metropolitan Police Department's existing resources, and no new resources are required over the four-year financial plan period. The CFO further states that the Deputy Mayor for Public Safety, with legal support from the Office of the Attorney General (OAG), will be responsible for implementing the Concealed Pistol Licensing Review Board. While the Deputy Mayor's office expects to meet the requirements of the Board with existing resources, at this time it is difficult to project what the Board's work load might be. According to the CFO, the District should closely monitor the number of hearing requests, since a significant number of hearings would pressure the resources of the Deputy Mayor and OAG, requiring additional funds or staff.

### VIII. SECTION-BY-SECTION ANALYSIS

The Committee incorporates by reference Section VIII in the Committee on the Judiciary and Public Safety's Report on Bill 20-930,<sup>9</sup> and makes the following changes:

#### Section 2

*Subsection (f)* New section 906, in the new Title IX of the Firearms Control Regulations Act of 1975 as approved by the Committee on Public Safety and the Judiciary, is amended to add a new subsection (a) that prohibits consuming alcohol while carrying a pistol, or carrying while alcohol is still present in a licensee's blood, urine, or breath. This language creates a bright line rule providing clarity for a licensee who is permitted to carry in a location such as a restaurant where alcohol may be served.

The Committee Print also amends new section 907(a)(7) as approved by the Committee on Public Safety and the Judiciary. That committee's print contained a prohibition on carrying a concealed pistol on "any premises, or portion thereof, licensed under Title 25 of the District of Columbia Official Code, where alcoholic beverages are served, or are sold and consumed on premises, but not including premises with small-sample tasting permits issued pursuant to D.C. Official Code § 25-118." The Committee finds that provision to be overbroad, and amends the language to instead prohibit the carrying of concealed pistols in "[a]ny premises, or portion thereof, where alcohol is served, or sold and consumed on the premises, pursuant to a license issued under Title 25 of the District of Columbia Code; provided, that this prohibition shall not apply to premises operating under a CR, DR, CH, DH, temporary, or caterer license, or premises with small-sample tasting permits issued pursuant to D.C. Official Code § 25-118, unless otherwise prohibited pursuant to section 907(b)(3) of this act." This amendment ensures that establishments

<sup>9</sup> See J&PS REPORT, *supra* note 1, at 27-34.

licensed as a restaurant, or operating with a catering license, will not have an automatic prohibition on the carrying of concealed pistols. The Committee notes that any private establishment still retains the option of prohibiting carrying on their premises by either posting conspicuous signage announcing such prohibition, or by personally communicating such prohibition to a licensee, pursuant to section 907(b)(3).

Regarding new section 909(b) as approved by the Committee on the Judiciary and Public Safety, the Committee Print expands slightly on the requirements of the public report regarding licensees, in light of recommendations made by Daniel W. Webster in his attached letter. The Committee Print adds to the list of items to be included in the report the number of applications received during the previous 2 year period, as well as the number of licenses that have been renewed, suspended, revoked, or denied.

#### Section 5

The Committee notes that the fiscal impact statement adopted in the Committee Print reflects Bill 20-930 as amended by the Committee.

### IX. COMMITTEE ACTION

On December 2, 2014, the Committee of the Whole (COW) met to consider Bill 20-930, "License to Carry a Pistol Amendment Act of 2014." The meeting was called to order at 11:44 am, and Bill 20-930 was item III-F on the agenda. After ascertaining a quorum (Chairman Mendelson and Councilmembers Alexander, Bonds, Bowser, Catania, Cheh, Evans, Graham, Grosso, McDuffie, Orange and Wells present), Chairman Mendelson moved the committee print with leave for staff to make technical and conforming changes. During an opportunity for discussion, Councilmember Cheh noted that she was concerned that the provision for residential properties that presumes that carrying pistols are prohibited unless otherwise permitted is reversed for private businesses, which need to take an affirmative step to prohibit the carrying of pistols. She stated that the provision for private businesses should be the same as for private residences, but she deferred to Chairman Mendelson's judgment. Following an opportunity for further discussion, the vote on the print passed 11 to one (Chairman Mendelson and Councilmembers Alexander, Bonds, Bowser, Catania, Cheh, Evans, Graham, McDuffie, Orange and Wells voting aye; Councilmember Grosso voting nay). Chairman Mendelson then moved the report, including the November 25, 2014 report of the Committee on the Judiciary and Public Safety incorporated by reference, with leave for staff to make technical, conforming, and editorial changes. The vote on the report passed 11 to one (Chairman Mendelson and Councilmembers Alexander, Bonds, Bowser, Catania, Cheh, Evans, Graham, McDuffie, Orange and Wells voting aye; Councilmember Grosso voting nay). The meeting adjourned at 2:22 pm.

Committee of the Whole  
Report on Bill 20-930

December 2, 2014  
Page 9 of 9

## X. ATTACHMENTS

1. Committee on the Judiciary and Public Safety's Report on Bill 20-930.
2. Bill 20-930 as introduced.
3. Letter from Daniel W. Webster of the Johns Hopkins Bloomberg School of Public Health's Center for Gun Policy and Research.
4. Fiscal Impact Statement for Bill 20-930.
5. Legal Sufficiency Determination.
6. Comparative Print for Bill 20-930.
7. Committee Print for Bill 20-930.

# EXHIBIT J



UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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**GREGORY T. ANGELO, *et al.*,**

**Plaintiffs,**

**v.**

**DISTRICT OF COLUMBIA, *et al.*,**

**Defendants.**

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**Civil Action No. 1:22-cv-01878 (RDM)**

**DECLARATION OF ZACHARY SCHRAG**

Pursuant to 28 U.S.C. § 1746, I, Zachary Schrag, declare under penalty of perjury that the following is true and correct:

1. I am a professor of history at George Mason University. I have personal knowledge of the facts set forth in this declaration, and if called upon as a witness, I could and would testify competently as to those facts.

2. I have been retained by the Office of the Attorney General for the District of Columbia as an expert in the process of historical research. I also have expertise in the history of mass transit in America.

3. In the wake of the Supreme Court's June 2022 decision in *New York State Rifle & Pistol Association, Inc. v. Bruen*,<sup>1</sup> the District is presently defending multiple lawsuits challenging its gun regulations, including this one, *Angelo v. District of Columbia*, a challenge to a law that prohibits concealed-carry licensees on public transportation in the District from carrying loaded pistols on their person. I have read the Supreme Court's decision in *Bruen* and the Plaintiffs' complaint in *Angelo*.

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<sup>1</sup> 597 U.S. \_\_\_, 142 S. Ct. 2111 (2022).



4. The District has asked me to explain the work that would be required to “demonstrate that the [District’s public transit] regulation is consistent with this Nation’s historical tradition of firearm regulation,” as I understand *Bruen* to require. The scope of such work is plainly vast. And, to be clear, I have not been engaged to *answer* the difficult historical questions associated with the inquiry posed by *Bruen*, only to explain the process of historical research that would be entailed, including the kinds of questions a qualified historian would ask, the variety of sources that should be consulted and the means of accessing them, and the challenges associated with analyzing historical materials.

5. I have also been asked by the District to provide examples of how I might research the history of firearms regulation on mass transit, specifically.

6. Finally, the District has asked whether I or a team of historians could adequately research the “Nation’s historical tradition” of firearm regulation on mass transit within 60 days. The answer is “no,” as I explain below.

7. I completed most of my work on this declaration without charge, and beginning on August 30, 2022, I have been compensated for my additional work on this declaration at a rate of \$75 per hour.

#### **Background and Qualifications**

8. In 2002, I earned my PhD in history at Columbia University. Since then, I have been employed full-time as a history professor. In 2004, I joined the history faculty at George Mason University, where I now serve as a professor of history and as the director of the MA program in history. I regularly teach a section of our master’s-level seminar on research methods, and I have taught undergraduate versions as well. I have advised seven doctoral

dissertations and served on additional doctoral committees. A true and correct copy of my curriculum vitae is attached as **Exhibit A** to this declaration.

9. I have authored multiple journal articles, book chapters, essays, and other publications on history, and I am the author of three books on the history of the United States: *The Great Society Subway: A History of the Washington Metro* (The Johns Hopkins University Press, 2006); *Ethical Imperialism: Institutional Review Boards and the Social Sciences, 1965-2009* (The Johns Hopkins University Press, 2010); and *The Fires of Philadelphia: Citizen-Soldiers, Nativists, and the 1844 Riots over the Soul of a Nation* (Pegasus Books, 2021).

10. I am also the author of *The Princeton Guide to Historical Research* (Princeton University Press, 2021), a peer-reviewed work that explains the methods used by historians to understand the past. To write that book, I examined other historians' practices and drew on my own decades of experience conducting my research, teaching undergraduate and graduate courses on research methods, and supervising doctoral dissertations.

### **The Process of Historical Research Required by *Bruen***

#### **I. Formulating a Research Question**

11. The *Bruen* opinion presents a general topic: the "Nation's historical tradition" of firearms regulation, including "historical analogies." Translating such a *topic* into a research *question* is the historian's most consequential task, and one of the most difficult.

12. A first task is to determine the geographical scope of a historical question. Any plan for historical research in response to post-*Bruen* litigation will need to determine the relevance of events outside of North America. Even if the plan is limited to within one continent, historians must make choices about geographical scope, for firearms have been at

times regulated by local, colonial, state, federal, and Tribal bodies, and they have been controlled by non-state actors as well.

13. A second major task is to determine the chronological scope of an investigation. *Bruen* mentioned historical sources spanning eight centuries, and the *Angelo* complaint references colonial statutes from as early as 1619. Counsel for the District has asked me to assume that any research plan should begin with the founding era, also include at least the late Nineteenth century (around the time of the ratification of the Fourteenth Amendment), and whatever other periods would capture the introduction of analogous technology or spaces.

14. As I understand it, “urban mass transit,” like the Washington Metro system, generally refers to scheduled intra-city service on a fixed route in shared vehicles. Such systems appeared in the United States as early as the 1830’s, with the introduction of omnibuses (stagecoaches modified for local service) and horsecars (which ran instead on iron rails). Gated, underground systems with dense masses of people, like the Washington Metro, did not appear in the United States until the turn of the twentieth Century (in Boston, in 1897).<sup>2</sup>

15. Taken together, these points suggest a research plan that spans four centuries, including the colonial period in American history, the founding era, the early and late nineteenth century, and the early twentieth century.

16. The third and most important scoping choice concerns people. For centuries, most historical research posed questions about powerful men with official positions: monarchs, generals, and cabinet ministers. But generations of historians have worked to expand our

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<sup>2</sup> Zachary M. Schrag, “Urban Mass Transit in the U.S.,” in *EH.Net Encyclopedia*, edited by Robert Whaples, <http://www.eh.net/encyclopedia/contents/schrag.mass.transit.us.php>; Zachary M. Schrag, “Subways,” in *The Oxford Encyclopedia of the History of American Science, Medicine, and Technology* (Oxford University Press, 2015).

understanding of the past by including other groups: artists, intellectuals, business leaders, engineers, women, workers, members of minority groups, and so forth. Conceivably, a history of firearms regulation could embrace not only the stories of legislators and jurists, but also firearms manufacturers, users, victims, advocates, and opponents.

17. Similarly, any study of the history of mass transit requires attention to a range of voices. Mass transit in America was provided almost exclusively by private actors and companies until the mid-twentieth century, when control shifted almost exclusively to state and local governments until the late twentieth century, and it has existed in a variety of forms and places in the United States. Many mass transit systems have combined public and private actors, through franchise agreements or other contracts, or through commission oversight of private firms.<sup>3</sup> In some cases, private transit companies were tasked with public duties beyond passenger transportation, such as paving streets and removing snow.<sup>4</sup> A history of any regulation on mass transit would properly consider the stories of commuters, conductors, transit police, and the like.

## II. Identifying Relevant Sources

18. Once historians have defined the questions they wish to answer, they must identify the sources they will use to do so.

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<sup>3</sup> Leon Leighton, “Review of the Public Service Commission and the Transit Commission in the New York Courts,” *St. John’s Law Review* 3, no. 1 (1929 1928): 42–103.

<sup>4</sup> Jay Young, “Mass Transit in 19th- and 20th-Century America,” in *The Oxford Encyclopedia of American Urban History* (Oxford University Press, 2019); William Jordan Patty, “Transit, Labor, and the Transition to Public Ownership in Atlanta and Oakland” (PhD diss. George Mason University, 2021); Zachary M. Schrag, “‘The Bus Is Young and Honest’: Transportation Politics, Technical Choice, and the Motorization of Manhattan Surface Transit, 1919-1936,” *Technology and Culture* 41, no. 1 (2000): 59–61.

19. The first step is to read existing scholarship, also known as secondary sources. Historians use a range of tools to determine what others have written. Bibliographic databases, published book reviews, and databases with the full text of journal articles are good places to start. Historians will often seek help at this stage from other scholars, including librarians. They will also read the footnotes of any scholarship they consult, leading to a lengthening chain of citation.<sup>5</sup> Existing scholarship will answer many questions, refine others, and pose new ones. In order to expand our understanding of the past, historians go beyond that scholarship and explore primary sources: documents or other material created by participants in or witnesses to the events one wishes to study.

20. In *The Princeton Guide to Historical Research*, I take two chapters, totaling fifty pages, to simply list the many types of primary sources commonly used by historians, so I will not try to repeat that here. Briefly put, historians rely mostly on textual sources, which may exist as books, serials, government documents, unpublished manuscripts, or other formats. In addition, they sweep in non-textual sources, such as quantitative data, maps, photographs, images, and physical artifacts.

21. Legal historians and courts are appropriately interested in statutory and case law. An act of legislation or a court order records a decision, but not necessarily the reasoning behind that decision. To be sure, legislative debates, accompanying reports, and court opinions sometimes help us understand the reason for a decision, but we often must look to unofficial sources as well.

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<sup>5</sup> Alexandra Chassanoff, "Historians and the Use of Primary Source Materials in the Digital Age," *American Archivist* 76 (September 2013): 460.

22. The *Angelo* complaint, with its many references to laws of previous centuries, shows how historians might seek to understand a law within a broader historical context. “Americans carried arms to prevent their gatherings from becoming soft targets,” the *Angelo* complaint states, citing a Massachusetts law from 1637.<sup>6</sup> What it does not mention is that Massachusetts passed that law in the midst of a military conflict that shattered traditional Pequot and English restraints on violence.<sup>7</sup> So, in order to understand the intent of the law cited in the complaint, a historian would want to consult primary or secondary sources about that war and its effect on Massachusetts colonists’ understanding of firearms.

23. Relatively recent research by Hidetaka Hirota provides another example. To understand how New York and Massachusetts developed their immigration policy in the 1850s (then mostly a state, rather than federal, responsibility), Hirota considered not only the actions of courts and legislatures, but also the actions of immigration officials, shipmasters, immigration officials, guardians of the poor, foreign consuls, and immigrants themselves. To do so, he consulted many published statutes and court opinions from various years and states, which he then contextualized using official reports, newspapers, and some archival papers, such as the records of the mayor of New York City.<sup>8</sup> All of this helps us understand why the legislatures passed the statutes they did.

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6. The *Angelo* complaint dates this law to March 9, 1636, when in fact it was enacted in the year we would refer to as 1637. For an explanation of how earlier generations dated events taking place between January 1 and March 25, prior to 1752, see Connecticut State Library, “LibGuides Home: Colonial Records & Topics: 1752 Calendar Change,” accessed August 5, 2022, <https://libguides.ctstatelibrary.org/hg/colonialresearch/calendar>.

<sup>7</sup> Ronald Dale Karr, ““Why Should You Be So Furious?”: The Violence of the Pequot War,” *Journal of American History* 85, no. 3 (1998): 876–909, <https://doi.org/10.2307/2567215>.

<sup>8</sup> Hidetaka Hirota, *Expelling the Poor: Atlantic Seaboard States and the Nineteenth-Century Origins of American Immigration Policy* (Oxford University Press, 2017), chapter 3.



24. Even then, we must do more to understand the effect of those statutes on the lives of Americans, and their enforcement not only by agents of the state but also by community norms. Historians have demonstrated that both state and federal governments have relied on voluntary compliance or coercion, and the aid of non-state actors, to achieve their ends. To understand how, for example, conscription functioned in the world wars, we must look beyond the statute books and published regulations to newspapers, journals, institutional histories, soldiers' letters, and even the lyrics of popular songs.<sup>9</sup>

25. In my own work on the Philadelphia Nativist riots of 1844, I cite two examples of firearms regulation that took place not in the statehouse, but on the street. On May 7, 1844, the day after a lethal riot, the mayor of Philadelphia noticed a man at a rally sitting on a double-barreled gun and ordered a police officer to confiscate it, though it was later returned. Two months later, the sheriff of Philadelphia County led a search of a Catholic church, during which he confiscated a great many more arms of various types.<sup>10</sup> These events eventually featured in criminal cases that were reported in newspapers, months after the confiscations, suggesting a need to look beyond the statutes to understand how Americans understood state police power.<sup>11</sup>

26. If I were designing a research plan to study the Nation's historical tradition of firearms regulation on mass transit, in addition to code books and legal treatises, I would expect

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<sup>9</sup> Christopher Capozzola, *Uncle Sam Wants You: World War I and the Making of the Modern American Citizen*, 1 edition (New York; Oxford: Oxford University Press, 2010), chapter 4; James T. Sparrow, *Warfare State: World War II Americans and the Age of Big Government* (New York: Oxford University Press, 2011), chapter 6.

<sup>10</sup> Zachary M. Schrag, *The Fires of Philadelphia: Citizen-Soldiers, Nativists, and the 1844 Riots over the Soul of a Nation* (New York: Pegasus, 2021), 114, 207.

<sup>11</sup> Alexander Elkins, "'At Once Judge, Jury, and Executioner': Rioting and Policing in Philadelphia, 1838-1964," *Bulletin of the German Historical Institute* 54 (Spring 2014): 67-90; Gary Gerstle, *Liberty and Coercion: The Paradox of American Government from the Founding to the Present* (Princeton University Press, 2017), chapter 2.

to examine newspaper accounts, corporate charters, unpublished legal records, and travelers' accounts, even works of literature, in search of formal and informal rules, and in attempt to understand social norms and expectations.<sup>12</sup> These sources would also be needed to understand what sort of societal problems were associated with mass transit across time, and how they were addressed. Non-textual sources such as data, maps, or photographs could also be of interest in exploring the differences among various kinds of urban spaces where mass transit systems exist, such as the spaces they commonly travel through, or the nature of the systems themselves, such as the density of users or storage of baggage. Such information would be useful in assessing which systems should be considered analogous to the Washington Metro.

### III. Accessing the Sources Identified

27. Having identified the kinds of sources they are seeking, historians must figure out how to access them. The electronic databases developed in the past quarter century are amazing but also seductively easy. In recent years, journalists have made embarrassing missteps by failing to consider the ways that a simple text search can yield profoundly misleading results, if one fails to consider the ways that terminology shifts over time.<sup>13</sup> For instance, a search for "shotguns" in one decade might not turn up any results, if people of that period referred to such weapons as "fowling pieces." Moreover, one may need to run the same search in multiple databases. For example, no single database sweeps in all of the nineteenth-century US

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<sup>12</sup> Models for such work include Michael W. Brooks, *Subway City: Riding the Trains, Reading New York* (Rutgers University Press, 1997); Wolfgang Schivelbusch, *The Railway Journey: The Industrialization of Time and Space in the Nineteenth Century* (University of California Press, 2014); John R. Stilgoe, *Metropolitan Corridor: Railroads and the American Scene* (Yale University Press, 1985).

<sup>13</sup> Karin Wulf, "What Naomi Wolf and Cokie Roberts Teach Us about the Need for Historians," *Washington Post*, June 11, 2019; Lauren MacIvor Thompson, "Women Have Always Had Abortions," *New York Times*, December 13, 2019.

newspapers that have been digitized. To study antebellum Pennsylvania, I consulted digitized Pennsylvania newspapers in at least seven databases.<sup>14</sup> And for each database search, one likely needs to enter multiple, related terms, and may need to return to search again as new relevant terms are discovered.

28. Complicating matters further, these digital databases rely on computerized, optical character recognition, usually performed not on original print copies but rather on often blotchy microfilm. Because of the small typefaces and cramped layouts of eighteenth- and nineteenth-century texts, this is a highly unreliable process; a historian searching for a particular keyword may get fewer than half of the relevant results. A historian must therefore spend time comparing results to page images in order to understand what results are and are not showing up, and to devise search strategies to compensate.

29. And digitized sources represent only a small fraction of the available evidence. While digitization projects, such as Google Books and HathiTrust, have made it easier than ever to access texts published before 1923, they do not cover all publications, and they typically offer only glimpses of works that may still be protected by copyright. And they do not sweep in the bulk of non-textual sources, such as maps, artworks, and photographs, though other databases may reproduce these.

30. The most time-consuming form of historical research is archival research, which refers to the examination of original documents preserved by specialized institutions.

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<sup>14</sup> This includes America's Historical Newspapers, Chronicling America, GenealogyBank.com, Newspapers.com, Nineteenth Century U.S. Newspapers, Pennsylvania Historic Newspapers, and the Villanova Digital Library. Additional titles do not exist in digital form, so I consulted them on microfilm or in the original print. And titles from other states and countries required additional database searches.

31. Just locating archival sources is a task in itself, for archival sources often reside in unexpected places. For example, one might expect the work of a federal body to be preserved in the U.S. National Archives, an institution specifically created to preserve materials created by the federal government. In fact, as the Archives explains, it only preserves between 1 and 3 percent of those materials, so historians must often look elsewhere to trace even a federal story.<sup>15</sup>

32. In my own work, to understand the work of the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, I had to spend long hours at the Bioethics Research Library at Georgetown University, which preserves materials prepared for the commission's meetings. I also traveled to the Graduate Theological Union in California to review additional materials deposited there by one of the commission members. In both cases, private institutions are preserving public records. While this example concerns a federal body, I have faced the same challenges at the state and local levels.

33. Once relevant collections have been located, mining them may not be simple. These materials do not circulate, so a researcher must travel to the archive, or hire a local assistant. Many reading rooms are open for limited hours. For example, my own school, George Mason University, has a Special Collections Research Center that contains the papers of the American Public Transportation Association, from 1898 to 1999. The collection includes 189 boxes. To review their contents, a researcher must pre-register with the Center and make an appointment. Under normal circumstances, the division is open between the hours of 10 a.m. and 1 p.m. or 1:30 to 4:30 p.m., Monday through Friday. As of September 2022, however, staff shortages have greatly reduced opening hours, sometimes to one day per week. Only one cart of

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<sup>15</sup> “What Is the National Archives and Records Administration?,” National Archives, August 15, 2016, <https://www.archives.gov/about>.

boxes may be reviewed per appointment, and, presently, only three researchers are allowed in the reading room at a time.

34. Most significantly, once archives are located and accessed, archival research often resembles panning for gold—seeking the glint of treasure amid much larger volumes of worthless dirt. A box of documents may have a single page of relevant material, or none at all, or duplicates of material one has already seen, which can be even worse than finding nothing since they consume the time needed to check that they are, in fact, duplicates. Handwriting may be hard to decipher. Bound volumes may be missing pages or runs of serials may be missing issues. Historians try to work around such gaps by finding comparable information elsewhere, but this takes additional time.

35. But archived sources may also turn out to be the richest veins. As noted above, Hirota explored city, state, and federal archives (as well as some in the United Kingdom) to document official actions and deliberations not recorded in published sources. Other historians use official archives to demonstrate how a law operated in practice. For example, our current understanding of Reconstruction depends in part on the letters to Southern governors that Eric Foner first read in the 1970s. As he has explained, those letters had been stuffed in boxes for a century, and many of them were “total junk.” But scattered among the total junk were accounts of the actual operations of Reconstruction governments.<sup>16</sup>

36. My own understanding of the antebellum militia benefited greatly from reading the unpublished diary of Colonel Augustus Pleasonton, preserved by the Historical Society of Pennsylvania. For example, at points, Pleasonton details the negotiations among state and federal officers about the types and quantities of ammunition to be issued to the volunteer militia

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<sup>16</sup> Eric Foner, “Black History and the Reconstruction Era,” *Souls* 8 (2006): 198.



when deployed for riot duty, details that were not, to my knowledge, included in any printed texts of the time.<sup>17</sup>

#### IV. Analyzing Source Materials

37. Having gained access to the sources one will consult, the next step is to read them (or, in the case of non-textual sources, to view, listen to, or otherwise extract information from them). And while historians are experimenting with computer-aided methods of analysis, to a large extent they still rely on the time-consuming work of thorough reading.<sup>18</sup>

38. A major challenge in this process is to identify patterns that emerge from the evidence, and to devise interpretations that best fit the available facts. Historians seek to understand complexity, considering both the major trends of a period and important exceptions.

39. Another key task is to read evidence critically, rather than taking sources at face value. Historians understand that people create sources with an agenda, whether they are trying to win votes, sell a product or service, persuade loved ones to act in a certain way, gather information, or to craft an artistic rendering of the world around them. To divine such agendas, historians consider the intended audience, and the explicit or implicit messages a source conveys. They consider a source's credibility, its stylistic nuances, and the context in which it was created. And they compare sources to one another, especially looking for evidence of change or continuity over time. All of this takes time.

40. An investigation of the relevant historical traditions of firearms regulation—across centuries and the Nation—will likely also require collaboration of multiple scholars with

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<sup>17</sup> Augustus James Pleasonton, *Diary, 1838–1844*, entries for June 10, 1838, December 7, 1838, and July 6, 1844, Historical Society of Pennsylvania.

<sup>18</sup> Mats Fridlund, Mila Oiva, and Petri Paju, eds., *Digital Histories: Emergent Approaches within the New Digital History* (Helsinki University Press, 2020); Robert A. Caro, *Working* (Knopf Doubleday Publishing Group, 2019), 11.

distinct approaches and expertise, as historians tend to specialize by period, place, or subject matter in smaller portfolios than that. Collaborative work would likely produce the best results, but adds to the time required, since it requires the coordination of efforts, the sharing of drafts, and eventually the compilation of multiple documents into a single, coherent format.

### **Time Required to Research the Historical Tradition of Firearms on Mass Transit**

41. As indicated above, the District has asked me whether I believe a professional historian—or even a team of us—could adequately research the questions presented in *Bruen*, as applied to the space and technology of mass transit, or relevantly similar analogues (*inter-city* transit, for example), within 60 days. I do not.

42. To answer the questions raised by *Bruen* will require attention to a wider range of sources than those typically found in legal databases. Again, a historian would start with the existing scholarship to learn what other historians have already found about a given topic and what sources they used to develop those findings. To build on that work, he or she would dive into primary sources, including print and digital sources, and perhaps archival manuscript sources as well. *Bruen* refers to regulations concerning “18th- and 19th-century ‘sensitive places’” and states that “courts can use analogies to . . . historical regulations of ‘sensitive places’ to determine that modern regulations prohibiting the carry of firearms in new and analogous sensitive places are constitutionally permissible.” Understanding how 18th- and 19th-century Americans thought about a place’s sensitivity is a large task that could require substantial primary-source research, which generally takes longer to complete than research using secondary sources. And the entire process is iterative. Just as a footnote in a scholarly source can lead one to a primary source, so might reading a primary source spark questions—

Who is this person? What is the event being referred to here?—that are best answered by a return to published scholarship, and so on and so forth.

43. On top of this, most historians with PhDs work as professors, whose schedules are determined by their teaching duties.<sup>19</sup> The best time for them to be able to contribute their expertise would be between semesters: December, January, and the summer months. A deadline in the middle of a fall or spring semester, such as the present deadline to respond here, risks depriving the court of their best work.

### **Conclusion**

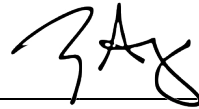
44. History is for everyone. Asking what choices in the past led to our present circumstances is a basic human characteristic, and we all share stories of ourselves, our families, our communities, and our countries. At the same time, the most reliable histories require methodical investigation of the sort taught most frequently in graduate programs in history. Historians must craft worthy research questions that they will refine as they proceed, assess existing scholarship on a subject, identify and access primary sources that can help answer their questions, read those sources with care and curiosity, and report their findings in clear prose. Each step takes patience, deliberation, and a willingness to go down paths that may turn out to be dead ends. To do their best work, historians cannot be rushed.

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<sup>19</sup> Emily Swafford and Dylan Ruediger, “Every Historian Counts,” *Perspectives on History*, September 2018, <https://www.historians.org/publications-and-directories/perspectives-on-history/september-2018/every-historian-counts-a-new-aha-database-analyzes-careers-for-phds>.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on September 14, 2022, at Arlington, Virginia.

A handwritten signature in black ink, appearing to read 'ZAS', is positioned above a horizontal line.

Zachary M. Schrag

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**Education**

Columbia University. Ph.D. (History), 2002. M. Phil., 1999. M.A., 1997.

Harvard University. A.B. *magna cum laude* (Social Studies), 1992.

**Employment**

George Mason University. Department of History and Art History.  
Professor, 2012 to present.

Associate Professor, 2009-2012. Assistant Professor, 2004-2009.

Columbia University. Department of History.

Assistant Professor (term appointment). 2003-2004.

Baruch College, City University of New York. Department of History.

Substitute Assistant Professor. 2002-2003.

**Books**

2021 *The Princeton Guide to Historical Research*.  
Princeton: Princeton University Press.

2021 *The Fires of Philadelphia: Citizen-Soldiers, Nativists, and the 1844 Riots Over the Soul of a Nation*. New York: Pegasus Books.

2010 *Ethical Imperialism: Institutional Review Boards and the Social Sciences, 1965-2009*.  
Baltimore: The Johns Hopkins University Press.

Korean translation by Panmun Co. Ltd, 2014. Chinese translation by Wu-Nan Book Inc.,  
2016. Paperback edition, Johns Hopkins University Press, 2017.

2006 *The Great Society Subway: A History of the Washington Metro*.  
Baltimore: The Johns Hopkins University Press.  
Paperback edition, with new preface, Johns Hopkins University Press, 2014.

**Refereed Journal Articles**

2021 Scott W. Berg and Zachary M. Schrag, "It Takes Two: Combining English and History to Team Teach Narrative Writing," *Journal of American History* 107, no. 4 (March 2021): 968–73.

2020 "Interviewing Everyman: William Sheridan Allen, Theodore Rosengarten, and the Allure of Pseudonymous History," *Rethinking History* 24 (2020): 69–93.

2009 "How Talking Became Human Subjects Research: The Federal Regulation of the Social Sciences, 1965-1991." *Journal of Policy History* 21 (Winter 2009): 3-37. [Material later incorporated into *Ethical Imperialism*.]

2000 "'The Bus is Young and Honest': Transportation Politics, Technical Choice, and the Motorization of Manhattan Surface Transit, 1919-1936," *Technology and Culture* 41 (January 2000): 51-79.



### Invited Journal Articles and Book Chapters

- 2022 “‘Things That Should Look Permanent Forever’: The Challenges of Preserving the Washington Metro.” *APT Bulletin: The Journal of Preservation Technology* 53 no. 1 (2022), 21-29.
- 2019 “Vexed Again: Social Scientists and the Revision of the Common Rule, 2011-2018.” *Journal of Law, Medicine & Ethics* 47 (2019): 254-263.
- 2016 “Ethical Pluralism: Scholarly Societies and the Regulation of Research Ethics,” in *The Ethics Rupture: Exploring Alternatives to Formal Research-Ethics Review*, edited by Will C. van den Hoonaard and Ann Hamilton. Toronto: University of Toronto Press, 2016.
- 2014 “What Is This Thing Called Research?” in *Human Subjects Research Regulation: Perspectives on the Future*, eds. I. Glenn Cohen and Holly Fernandez Lynch. Cambridge: MIT Press, 2014.
- 2013 “‘Rather Strong Advisory’: William Walton’s Commission and the Challenge of the FBI Building,” in *Civic Art: A Centennial History of the U.S. Commission of Fine Arts*, edited by Thomas Luebke. University of Massachusetts Press, 2013.
- 2012 “Transportation and the Uniting of the Nation,” in *To Promote the National Welfare: The Case for Big Government*, edited by Steve Conn. New York: Oxford University Press, 2012.
- 2011 “The Case Against Ethics Review in the Social Sciences.” *Research Ethics* 7 (2011): 120–131.
- 2009 “The Making of an Auto-Dependent Edge City: The Case of Fairfax County, Virginia,” in Daniel Rubey, ed. *Redefining Suburban Studies: Searching for New Paradigms*. Hempstead, New York: Center for Suburban Studies at Hofstra University, 2009. [Adapted from *The Great Society Subway*, chapter 9.]
- 2004 “The Freeway Fight in Washington, D.C.: The Three Sisters Bridge in Three Administrations,” *Journal of Urban History* 30 (July 2004): 648-673. [Material later incorporated into *The Great Society Subway*, chapter 5.]
- 2001 “Mapping Metro, 1955-1968: Urban, Suburban, and Metropolitan Alternatives,” *Washington History* 13 (Spring/Summer 2001): 4-23, 90-92. [Material later incorporated into *The Great Society Subway*.]

### Reports, Essays, and Journalism

- 2021 “Martyrs to the Nation,” *Slate Magazine*, September 1, 2021.
- “Autobiography with Scholarly Trimmings,” *Perspectives Daily* (blog), July 13, 2021.
- “When Philadelphia Became a Battlefield, Its Surgeons Bore Witness,” *Nursing Clio* (blog), June 22, 2021, nursingclio.org
- “In 1844, Nativist Protestants Burned Churches in the Name of Religious Liberty,” *History News Network*, May 30, 2021, hnn.us
- “Tucker Carlson’s Cries about Immigrants Have a Disturbing 19th-Century Parallel,” *Washington Post: Made by History* (blog), May 17, 2021.
- “5 Paragraphs in Defense of 5 Paragraphs,” *Inside Higher Ed*, April 28, 2021.
- 2018 “Lewis Levin Wasn’t Nice,” *Tablet Magazine*, October 22, 2018.

- "Subway Stories: DC Metro and the Problem of Maintenance," *AHA Today*, January 4, 2018.
- 2016 "How Congress Undercut Its Own City's Subway System," *POLITICO Magazine*, March 16, 2016.
- 2015 "Will the Federal Government Finally Deregulate Oral History?," *American Historian*, November 2015, 20-22.
- 2014 "You Can't Ask That." *Washington Monthly*, September/October 2014.
- 2012 "Regulation of Research on Human Subjects: Academic Freedom and the Institutional Review Board." Report of a subcommittee of the American Association of University Professors Committee A on Academic Freedom and Tenure. With Judith Jarvis Thomson, Catherine Elgin, David A. Hyman, Jonathan Knight, and B. Robert Kreiser. Published, September 2012. Final version, March 2013.
- 2012 "The Ethical Imperialism of Moral Science," *Bioethics Forum*, January 4, 2012.
- 2011 "Virginia's History Textbooks Still Aren't Accurate—The Publishers Need to Get Historians Involved," *History News Network*, October 3, 2011.
- "Obama's Impossible Request," *Bioethics Forum*, January 19, 2011.
- 2010 "Milestone: Peter S. Craig," *Washington History* 22 (2010): 97-98.
- "Belmont's Ethical Malpractice," *Bioethics Forum*, November 30, 2010.
- 2009 "UIC IRB Asserts Power Over Oral History," *Illinois Academe*, Spring 2009.
- 2007 "Thinking Big: Lessons from the Washington Metro," *TR News* 249 (March-April 2007): 18-20.
- "Ethical Training for Oral Historians," *Perspectives: Newsletter of the American Historical Association*, March 2007.
- 2006 "How Metro Shapes D.C.," *Washington Post*, May 7, 2006.

### Awards and Grants

- 2022 George Mason University. Rick Holt Active Transportation Advocate Award.
- 2010 *Journal of Policy History*. Ellis Hawley Prize.
- 2009 Library of Congress. Kluge Fellowship.
- 2008 George Mason University. Mathy Junior Faculty Award.
- 2003 Society for American City and Regional Planning History. John Reys Prize.
- 2001 National Science Foundation, Program in Science and Technology Studies. Dissertation Grant.
- Gerald R. Ford Foundation. Travel Grant to Gerald R. Ford Library.
- 2000 Columbia University. Public Policy Fellowship
- 1997 Columbia University. President's Fellowship
- 1996 Columbia University. Richard Hofstadter Fellowship.

## Editorial Positions

- 2013 *Journal of Empirical Research on Human Research Ethics*. Appointed to advisory board, July 2013
- 2011 *Journal of Policy History*. Guest editor of volume 23, issue 1 (January 2011). Special issue on human subjects regulations in several countries.
- 2009 Historical Society of Washington, D.C.  
Editor, *Washington History*, volumes 21 and 22 (2009 and 2010). Editorial board member, 2005-2014.
- 2008 *Journal of Urban History*. Editorial board member. 2008-2013.

## New Media

- 2011 HistoryProfessor.Org: Zachary Schrag's Guidelines for History Students.
- 2006 Institutional Review Blog, <http://institutionalreviewblog.com/>. Active 2006-2017.
- 2005 The Mason Historiographiki, <http://chnm.gmu.edu/courses/schrag/wiki/>.
- 2001 "Building the Washington Metro: An Online Exhibit." Center for History & New Media, George Mason University, <http://chnm.gmu.edu/metro>.

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- 2014 "Subways." *Oxford Encyclopedia of the History of Science, Medicine, and Technology in America*, edited by Hugh Richard Sloten. New York: Oxford University Press, 2014.
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- 2008 "Designing the Washington Metro," in *Architecture: Celebrating the Past, Designing for the Future*, edited by Nancy B. Solomon. New York: Visual Reference, 2008.
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- 2001 "Metrorail System (Metro)," in *Capital IA: Industrial Archeology of Washington, D.C.*, edited by Sara Amy Leach. Washington: Society for Industrial Archeology, Montgomery C. Meigs Original Chapter, 2001.
- 1999 "Stephen D. Bechtel," in *The Scribner Encyclopedia of American Lives*, vol. 2, edited by Kenneth T. Jackson. New York: Charles Scribner's Sons Reference Books, 1999.

## Reviews

- 2020 "Outsourcing Ethics," review of *Regulating Human Research: IRBs from Peer Review to Compliance Bureaucracy* by Sarah Babb. *Academe*, Fall 2020, 55-58.
- Last Subway: The Long Wait for the Next Train in New York City*, by Philip Mark Plotch. *Transport Reviews* 40 (2020): 810-811.

- 2018 *Privacy and the Past: Research, Law, Archives, Ethics*, by Susan C. Lawrence. *Journal of the History of Medicine and Allied Sciences* 73 (January 2018): 118-120.
- 2017 *Balanced Ethics Review: A Guide for Institutional Review Board Members*, by Simon N. Whitney. *Oral History Review* 44 (Summer/Fall 2017): 433-435.
- 2015 *The Ethics Police?: The Struggle to Make Human Research Safe*, by Robert L. Klitzman. *Society* 52 (2015): 503-506.
- 2012 *Behind Closed Doors: IRBs and the Making of Ethical Research*, by Laura Stark. *American Journal of Sociology* 118 (September 2012): 494-496.
- The Seduction of Ethics: Transforming the Social Sciences*, by Will C. van den Hoonaard. *Contemporary Sociology: A Journal of Reviews* 41 (September 2012): 678-679.
- 2011 *Urban Mass Transit: The Life Story of a Technology*, by Robert C. Post *Transfers: New Mobility Studies* 1 (Spring 2011): 155-157.
- 2008 *Generation on Fire: Voices of Protest from the 1960s: An Oral History*, by Jeff Kisseloff. *Oral History Review* 35 (Summer-Fall 2008): 229-231.
- The Pentagon: A History*, by Steve Vogel. *Virginia Magazine of History and Biography* 116 (2008): 205-207.
- 2007 *Transport of Delight: The Mythical Conception of Rail Transit in Los Angeles*, by Jonathan Richmond. *Journal of Transport History* 28 (September 2007): 328-330.
- The Merchant of Power: Sam Insull, Thomas Edison, and the Creation of the Modern Metropolis*, by John F. Wasik. *Technology and Culture* 48 (January 2007): 218-219.
- 2006 *Capital Drawings: Architectural Designs for Washington, D.C., from the Library of Congress*, by C. Ford Peatross, ed. H-DC, H-Net Reviews, August 2006.
- "America on the Move," permanent exhibit, Smithsonian Institution, National Museum of American History, Behring Center, *CRM: The Journal of Heritage Stewardship* 3 (Winter 2006): 116-117.
- 2005 *The Electric Vehicle: Technology and Expectations in the Automobile Age*, by Gijs Mom. *Enterprise and Society* 6 (December 2005): 710-712.
- Washington as It Was: Photographs by Theodor Horydczak, 1923-1959  
<<http://memory.loc.gov/ammem/thchtml/thhome.html>>, created and maintained by the Prints and Photographs Division, Library of Congress, Washington, D.C, *Journal of American History* 92 (September 2005): 710-711.
- "The L'Enfant Plan Artistically Considered" (reviews of Iris Miller, *Washington in Maps*, James M. Goode and Laura Burd Schiavo, *Washington Images*, and Joseph R. Passonneau, *Washington through Two Centuries*). *Journal of Planning History* 4 (August 2005): 280-285.
- Neon Metropolis: How Las Vegas Started the Twenty-First Century*, by Hal Rothman. *American Studies* 46 (Summer 2005): 208-209.
- 2004 *From Warfare to Welfare: Defense Intellectuals and Urban Problems in Cold War America*, by Jennifer S. Light. *Technology and Culture* 45 (October 2004): 885-886.
- Places of Their Own: African American Suburbanization in the Twentieth Century*, by Andrew Wiese. *Journal of Economic History* 64 (September 2004): 903-905.

- 2003 *Tunneling to the Future: The Story of the Great Subway Expansion That Saved New York*, by Peter Derrick. *Urban History* 30 (May 2003): 155-157.
- The Human Tradition in Urban America*, by Roger Biles, ed. H-Urban, H-Net Reviews, May 2003.
- The Notebook of an Amateur Politician: And How He Began the D.C. Subway*, by Gilbert Hahn, Jr. H-DC, H-Net Reviews, February 2003.
- Concrete and Clay: Reworking Nature in New York City*, by Matthew Gandy. *Technology and Culture* 44 (January 2003): 211-12.
- 2002 *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*, by Adam Rome. *Technology and Culture* 43 (October 2002): 802-803.
- Capital Transit: Washington's Street Cars, The Final Era 1933-1962*, by Peter C. Kohler H-DC, H-Net Reviews, June 2002.
- Montgomery C. Meigs and the Building of the Nation's Capital*, by William C. Dickinson, Dean A. Herrin, and Donald R. Kennon, eds. H-DC, H-Net Reviews, April 2002.
- 2000 *Chicago Transit: An Illustrated History*, by David Young. *Technology and Culture* 41 (July 2000): 638-640.
- The American Cities and Technology Reader: Wilderness to Wired City*, by Gerrylynn K. Roberts, ed. H-Urban, H-Net Reviews, March 2000.
- 1998 *Subway City: Riding the Trains, Reading New York*, by Michael W. Brooks. H-Urban, H-Net Reviews, January 1998.

### Invited Lectures

- 2021 Association for Preservation Technology International, College of Fellows keynote. "‘Things That Should Look Permanent Forever’: The Challenges of Preserving the Washington Metro." Online.
- American Catholic Historical Society, Philadelphia. Annual Fall Lecture. "The Fires of Philadelphia."
- George Washington University Museum, D.C. Mondays. "A History of the Washington Metro." Online.
- 2019 Alexandria Historical Society. "Thinking Big: Lessons from the Washington Metro."
- 2016 Electric Railroaders Association. "Thinking Big: Lessons from the Washington Metro." Anacostia Community Museum. "The Home Rule Subway."
- 2014 D.C. Public Library. "Thinking Big: Lessons from the Washington Metro." Federal Transit Administration. "Thinking Big: Lessons from the Washington Metro."
- 2014 University of Utah, Symposium on Field Research and US Institutional Review Board Policy, Keynote address: "‘The Freedoms We Are Committed to Protect’: Political Science, Academic Freedom, and Institutional Review Boards in Historical Perspective."
- 2013 Washington Metropolitan Area Transit Authority. "How to Repeat the Past: Learning from Metro's Founding Generations."



- Brigham Young University Department of Anthropology. "Ignorance Is Strength: Pseudo-Expertise and the Regulation of Human Subjects Research."
- 2012 National Institutes of Health, Inter-Institute Bioethics Interest Group. "Blunder at Belmont: The 1970s Origins of IRB Mission Creep."
- University of Michigan, Center for Bioethics and Social Sciences in Medicine. "Ethical Imperialism."
- 2011 Virginia Tech Science and Technology in Society (STS), "Outside Authority," graduate student conference. Keynote address: "Ignorance Is Strength: Pseudo-Expertise and the Regulation of Human Subjects Research."
- Northwestern University, Feinberg School of Medicine, Medical Humanities and Bioethics Program. "Blunder at Belmont: The 1970s Origins of IRB Mission Creep."
- 2010 National Building Museum, Power, Architecture, and Politics: The Design of Washington and the U.S. Commission of Fine Arts Symposium. "'Rather Strong Advisory': The 1960s and the Challenge of the FBI Building."
- George Mason University, Vision Series. "Fire and Be Damned: The Militia in Nineteenth Century Riots."
- 2009 Library of Congress. Kluge Center. "Militias and Mobs in Antebellum America."
- 2008 University of Connecticut. Geography Colloquium. "Thinking Big: Lessons from the Washington Metro."
- Virginia Tech Urban Affairs and Planning Program, New Metropolis Lecture Series. "Thinking Big: Lessons from the Washington Metro."
- 2006 New York Transit Museum. "The Great Society Subway."
- National Building Museum. "Metro's Many Creators."
- Woodrow Wilson International Center for Scholars. "The Great Society Subway."
- 2005 Chicago Historical Society, Urban History Seminar. "Mr. Weese Goes to Washington: A Chicago Architect Designs the Great Society Subway."
- Catholic University of America, School of Architecture and Planning. "Grid to Diagrid: A Vision for Transforming the Metro in the Virginia Landscape." With John di Domenico and Laura Heim.
- 2004 University of Virginia. Science, Technology, and Society Colloquium. "Engineering the Great Society: Experts, Citizens, and the Building of the Washington Metro."
- 2003 University of California Transportation Center, Berkeley. Transportation History Lecture. "Reading Between the Lines: Planning the Washington Metro, 1955-1968."
- 2002 National Capital Transportation Agency Reunion, Washington, D.C.. "In Praise of Fanaticism: The Legacy of Darwin Stolzenbach."
- Latrobe Chapter, Society of Architectural Historians, Washington, D.C. "How Metro Got Its Vaults: Federal Modernism, Harry Weese, and Rapid Transit in Washington, D.C."
- 2001 Historical Society of Washington, D.C. "Jackson Graham and the Building of the Washington Metro."

**Conference Participation**

- 2022 American Historical Association. Online. Panelist and organizer: "Taking Notes and Teaching Note-Taking in the 21st Century."
- 2019 Society for American City and Regional Planning History, Arlington, Virginia. Chair and comment: "Land Use and the Built Environment."
- 2018 Reimagining Human Subject Protection for the 21st Century: A Critical Assessment of the Revised Common Rule. Seton Hall Law School.
- 2017 Eleventh Annual Virginia IRB Consortium Conference, Fairfax. Panelist, Social and Behavioral Education Research.
- Society for Historians of the Early American Republic, Philadelphia. "Waving the Yellow Handkerchief: Philadelphia's Nativist Riots in Transnational Perspective."
- 2016 Urban History Association, Chicago. Chair and comment, "Capital Cities as National Projects: A Comparative Perspective."
- St. John's College, University of Oxford. What's in a Name? Should We Anonymise Identities? "Interviewing Everyman: William Sheridan Allen, Theodore Rosengarten, and the Allure of Pseudonymous History."
- Participant, "Exploring American Democracy, with Alexis de Tocqueville as Guide," NEH Summer Seminar, University of Virginia.
- 2015 Annual Conference on D.C. Historical Studies. Moderator for session: "D.C.'s Home Rule Decade: Context, Policy and Politics in the Campaign for Local Autonomy."
- Revising and Expanding the Scope of the Common Rule. CTSA Consortium Coordinating Center, Evanston, Illinois. Invited presentation: "Exclusions, Exemptions, and Determination Process."
- 2014 Annual Conference on D.C. Historical Studies. Commentator for Plenary Session: "Washington D.C.: From Company Town to Global Business Center."
- Historical Society of Pennsylvania, Philadelphia. Participant on panel, "Leaving the Emerald Isle: Trials and Tribulations of Irish Immigrants in 19th Century Philadelphia."
- Urban History Association, Philadelphia. "Three Men in a Riot: Telling the Story of Philadelphia in 1844" and chair and comment on panel, "Airports and the Metropolitan Landscape."
- New America Foundation, Washington, D.C. "America's Worst Colleges." Panelist.
- National Capital Planning Commission, Washington, D.C. "Residents to Presidents: Pennsylvania Avenue's Role in the 21st Century." Moderator.
- American Historical Association. Washington, D.C. Comment on panel, "Riotous Democracy and American Political Culture in the Nineteenth Century."
- 2013 Society for American City and Regional Planning History. Toronto. Chair of panel, "Trials and Tribulations of Airport Planning in Late Twentieth Century North America."
- 2012 Ethics Rupture: An Invitational Summit about Alternatives to Research-Ethics Review. Fredericton, New Brunswick. "Ethical Pluralism: Scholarly Societies and the Regulation of Research Ethics."

- The Future of Human Subjects Research Regulation. Petrie-Flom Center for Health Law Policy, Biotechnology, and Bioethics at Harvard Law School. "What Is This Thing Called Research?"
- American Historical Association. Chicago. "'They Are Not Your Brothers': Divided Loyalties and the Pennsylvania National Guard in the Summer of 1877."
- 2011 Society for American City and Regional Planning History. Baltimore. Comment on panel, "The Impact of Transportation on Urban Form."
- New England Library Association. Burlington. Panel participant, "Who's Monitoring Your Research?"
- Association for Practical and Professional Ethics. Cincinnati. "*Ethical Imperialism: Author Meets Critics.*" Respondent.
- 2010 Urban History Association. Las Vegas. Chair and comment on panel, "Contests over Public Space." Chair of panel, "Ways and Means of Transportation."
- Policy History Conference. Columbus, Ohio. "No Passive Obedience: Militia Loyalties and Civil Disorder in Early America, 1747-1812."
- Organization of American Historians. Washington, D.C. "Fire and Be Damned: The Militia in Nineteenth Century Riots."
- 2008 Urban History Association. Houston. "'Poison the Women Gently': The Social Meanings of Tear Gas, 1915-1940."
- American Association for the Advancement of Science. Washington, D.C. Invited participant in topical meeting on IRB's, Qualitative Research, and Scientific Freedom & Responsibility.
- Organization of American Historians. New York City. "How Talking Became Human Subjects Research: Charles McCarthy and the Regulation of the Social Sciences."
- 2007 Oral History Association. Oakland, California. "Expedited Review: The Federal Regulation of Survey and Interview Research, 1966-1981."
- Society for the History of Technology. Washington, D.C. "'To Punish Them Without Loss of Life': Gilded-Age Efforts at Non-Lethal Riot Control, 1877-1910."
- Transportation Research Board. Washington, D.C. "History of the Washington, D.C., Metro System"
- 2006 University of Maryland. Colloquium in the History of Technology. "Silent Gatlings and Blank Cartridges: Gilded Age Attempts at Non-Lethal Riot Control."
- Organization of American Historians. Washington, D.C. Comment on panel, "Capital, Community and Contest: Washington, D.C., in the Modern Era."
- American Historical Association. Philadelphia. Participant in roundtable discussion: "Oral History and Institutional Review Boards: What Historians Need to Know Before Doing It."
- 2005 Society for the History of Technology. Minneapolis. Comment on panel, "Everyday Technology in Transition: Subways, Bicycles and Railroads, 1870-1960."
- Society for American City and Regional Planning History. Miami. Comment on panel, "Highways."
- Business History Conference. Minneapolis. Comment on panel, "Restructuring Transport and Cities in the 20th-Century United States."

- 2004 Columbia University Public Policy Consortium. Symposium on Public Policy and the Academy. "Who Cares About Transportation History?"  
Transportation Research Board. Washington, D.C. Comment on panel, "Technological Determinism or Social Choice: Moments in the History of Transportation."
- 2003 Business History Conference. Lowell, Massachusetts. Comment on panel, "Metropolitan Economies."
- 2002 Urban History Association. Pittsburgh. "The Dienbienphu of the Freeway Fight: The Case of the Three Sisters Bridge."
- 2001 American Studies Association. Washington, D.C. "The Ten-Billion Dollar Map: The Washington Metro and the Cartography of Local Identity."  
Society for American City and Regional Planning History. Philadelphia. "A New Renewal? The Transit-Oriented Redevelopment of Washington's Mid-City."  
Society for the History of Technology. San Jose, California. "The Ordeal of Jackson Graham: Engineers, Citizens, and the Building of the Washington Metro, 1967-1976."  
Hofstra University. Redefining Suburban Studies conference. "Sprawl or Corridor? The Politics of Land Use Planning around Washington Metro Stations, 1967-2000."
- 2000 Washington, D.C., Historical Studies Conference. Washington, D.C. "The Evolution of Metro Architecture."
- 1997 Northeast Popular Culture Association. Boston. "Mayor Hylan's War Against the Streetcar: New York City, 1919-1924."  
Princeton University. Graduate History Conference. "The Bus is Young and Honest: Transportation Politics, Technical Choice, and the Motorization of Manhattan Surface Transit, 1919-1924."

### Dissertations Supervised

- 2021 Jordan Patty, "Transit, Labor, and the Transition to Public Ownership in Atlanta and Oakland."  
Richard Hardesty, "Magic in 'a Tragic City': The Orioles and the Redevelopment of Baltimore, 1954-1992."
- 2020 Alan S. Brody, "Peculiar Capitalism: Fast-Food Franchising and Entrepreneurship in Postwar America."  
Roger Connor, "Rooftops to Rice Paddies: Aerial Utopianism, Helicopters, and the Creation of the National Security State."
- 2018 Alan Capps, "The Antecedents of the U.S. Border Patrol, 1812-1940."
- 2017 Ray Clark, "A Public Airport for the District of Columbia: The History of Washington Dulles International Airport."
- 2014 Mary Sullivan Linhart, "Up to Date and Progressive: Winchester and Frederick County, Virginia, 1870-1980."

### Selected Press Appearances

- 2021 Thomas Koenig, "The Narrow Path That We're Walking," *Philadelphia Citizen*, July 7, 2021, [thephiladelphiacitizen.org](http://thephiladelphiacitizen.org)

- John Turner, "Fires of Philadelphia: Religion and Mob Violence, 1844," *Anxious Bench* (blog), June 10, 2021, [www.patheos.com/blogs/anxiousbench/](http://www.patheos.com/blogs/anxiousbench/)
- Jeff Nilsson, "America's Long Tradition of Rioting," *Saturday Evening Post*, June 7, 2021, [www.saturdayeveningpost.com](http://www.saturdayeveningpost.com)
- 2019 "Debunking the Georgetown Metro Myth" Kojo Nnamdi Show, WAMU-FM, 15 August 2019.
- 2016 WAMU, *Metropolypse* (podcast). Multiple episodes, including Episode 18: Full Throttle into the Past with Zachary Schrag. 10 October 2016.
- 2014 "Old Wounds & Oral History: The Aftermath of the Belfast Project." Kojo Nnamdi Show, WAMU-FM, 7 July 2014.
- Duggan, Paul. "The Silver Line Story: A New Route Is Born after Decades of Faulty Planning, Political Paralysis." *Washington Post*, 23 June 2014.
- "The Architecture of Metro." Kojo Nnamdi Show, WAMU-FM, 13 January 2014.
- 2011 "Rethinking the 'Common Rule': The Ethics of Research with Human Subjects." Kojo Nnamdi Show, WAMU-FM. 21 November 2011.
- Robert B. Townsend, "Ethical Imperialism: A Conversation with Zachary Schrag," *Perspectives on History*, April 2011, 20-22.
- 2010 "Historian and Watchdog Says Congress Should Exempt Social Science from IRBs," *Report on Research Compliance*, November 2010.
- Dave Hoffman, "Bright Ideas: Zach Schrag's Ethical Imperialism," *Concurring Opinions*, 28 September 2010, [www.concurringopinions.com](http://www.concurringopinions.com)
- 2009 Arlington Virginia Network, "Arlington's Smart Growth Journey," first aired April 2009.
- 2008 "'History Behind the Headlines': Expanding and Maintaining Metro." Kojo Nnamdi Show, WAMU-FM. 25 June 2008.
- 2007 Paul D. Thacker, "Reviewing the Reviewers," *Inside Higher Ed*, 19 January 2007.
- 2006 Joanne Collings, "Critical Mass of Civility," *Washington D.C. Examiner*, 23 April 2006.
- Vicki Hallett, "Station Agent," *Washington Post Express*, 31 March 2006.
- "Washington Metro at Thirty." Kojo Nnamdi Show, WAMU-FM. 23 March 2006.

### Professional Service

- 2016 Organization of American Historians. Ellis Hawley Book Prize committee.
- 2011 American Association of University Professors. Subcommittee on Academic Freedom and the Institutional Review Board. Appointed, October 2011.
- 2007 Urban History Association. Board member (elected), 2007-2010.
- 2006 Society for the History of Technology. Brooke Hindle Post-Doctoral Fellowship Committee. Member, 2006-2008; chair, 2007.
- 2005 Society for American City and Regional Planning History. Chair of the 2005 John Reps Prize committee.
- 2001 H-Business. E-mail list on business history. Senior editor, 2003-2004. List editor, 2001-2003.



- 2000 H-DC. E-mail list on the history of Washington, D.C. Advisory board member, 2000-present. List editor, 2004-present.
- 2000 National History Day. Judge, District of Columbia, New York City, Northern Virginia, and national levels, 2000-2005, 2012, 2022. Administered or assisted with Virginia District 5 competition, 2005-2011.

### Peer Review

Book manuscript and proposal reviewer for Bedford/St. Martin's, Blackwell Publishing, Columbia University Press, Georgetown University Press, Harvard University Press, Houghton-Mifflin, Johns Hopkins University Press, Ohio State University Press, Oxford University Press, Rutgers University Press, Temple University Press, University of California Press, University of Chicago Press, University of Pennsylvania Press.

Article and paper reviewer for *Accountability in Research, Administration & Society*, *Bulletin of the History of Medicine*, *Contexts*, *History of the Human Sciences*, *International Journal of Social Research Methodology*, *Journal of Ethnic and Migration Studies*, *Journal of Planning History*, *Journal of Policy History*, *Journal of Transport History*, *Journal of Urban History*, *Kennedy Institute of Ethics Journal*, *Research Ethics*, *Library & Information Science Research*, *Science as Culture*, *Sociological Forum*, *Technology and Culture*, and the Transportation Research Board.

Grant reviewer for the National Endowment for the Humanities, the National Science Foundation, and the Swiss National Science Foundation.

# EXHIBIT K

**UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA**

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**GREGORY T. ANGELO, *et al.*,**

**Plaintiffs,**

**v.**

**DISTRICT OF COLUMBIA, *et al.*,**

**Defendants.**

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**Civil Action No. 1:22-cv-01878-RDM**

**DECLARATION OF BRENNAN GARDNER RIVAS**

Pursuant to 28 U.S.C. § 1746, I, Brennan Nicole Rivas, declare and state as follows:

1. I am over the age of eighteen (18) years, competent to testify to the matters contained in this declaration, and testify based on my personal knowledge and information.

2. I am an Historian and Independent Scholar. My chosen professional name is Brennan Gardner Rivas. From 2021 until earlier this year, I was the Lloyd Lewis Fellow in American History at The Newberry Library. From 2020 to 2021, I was a Bill & Rita Clements Fellow for the Study of Southwestern America within the Clements Center for Southwest Studies at Southern Methodist University. From 2019 to 2020, I was a Lecturer in American History at Texas Christian University. Before that, I was a graduate student in history who conducted research and administrative tasks on behalf of my professors, taught undergraduate survey courses, and worked at my university library. My educational background includes a Ph.D. in History from TCU, where my Thesis was on the development, evolution, and enforcement of gun and weapon policy in Texas from the era of Mexican independence to the 1930s.

3. I have been retained by the District of Columbia to render expert opinions in this case. I make this declaration on the basis of my training, professional expertise, and research.

For my work in this case, I am being compensated at a rate of \$175/hour for research, \$200/hour for declarations, and \$300/hour for testimony.

4. I provide this declaration to inform the Court about the process of historical research generally and, more specifically, my initial efforts here.

5. My CV, detailing my education, experience, and publications, is attached to this declaration. I have written a number of articles related to the regulation of guns, especially as to the history of nineteenth-century weapon policies and the socio-political context that made them possible.

6. For this engagement, I was asked to review the Complaint in this case and conduct original historic research on regulations or policies pertaining to transportation systems with a view toward ascertaining whether they implicated the carrying of weapons by passengers. I was informed by counsel that they had 60 days to prepare their responsive brief here. Pertinent statutes and ordinances enforced by public officials formed a starting point, but the project grew to include passenger rules required by the privately owned transportation companies themselves.

7. Historians generally tend to begin with broad questions before focusing more deeply upon a specific topic or question. Before looking specifically at weapon regulations about trains, boats, and carriages, it is important to seek out contextual information. How far or frequently did Americans travel in the nineteenth century, and what modes of passenger transport were available to them? In what ways did the Industrial Revolution, which created a dramatic break in terms of demographics and technology between the turn of the nineteenth century and the turn of the twentieth, alter the ways in which Americans understood and engaged in passenger transportation?

8. Grasping the broad contours of context lays a foundation for interpreting the more specific information gathered at later stages of research. For instance, the relative absence of systematized, publicly operated transportation services during the early nineteenth century dictates where the researcher must look for information about whether passengers would have been likely to carry weapons while traveling.

9. I sought out secondary sources on the subject of travel, transportation, and mass transit in American history. Due to time constraints, I relied upon online resources from reputable institutions like the Economic History Association<sup>1</sup> and the Federal Transit Administration.<sup>2</sup> Many of the various rail lines and transit providers also have general histories on their websites, much like the Chicago Transit Authority's "Our Heritage" page.<sup>3</sup> In addition to that, railway and subway enthusiasts often maintain websites with useful resources.<sup>4</sup>

10. This survey of the general history of passenger transport during the nineteenth century gave me a sense of which geographic regions had the population density and urban transit capacity to enact regulations akin to those in force today in America's major cities. It also provided me with the right keywords to look for in databases of digitized statutes, policies, and papers.

11. I initially looked for state-level statutes that affected the possession of weapons aboard transportation vehicles. This included penal statutes as well as licensing codes for transportation providers. There are readily available resources for this kind of research,

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<sup>1</sup> <https://eh.net/encyclopedia/urban-mass-transit-in-the-united-states/>

<sup>2</sup> <https://www.transit.dot.gov/ntd/history-ntd-and-transit-united-states>

<sup>3</sup> <https://www.transitchicago.com/heritagefleet/>

<sup>4</sup> Continuing with the Chicago example, *see* <https://www.chicago-l.org/history/index.html>



especially Westlaw<sup>5</sup>, Nexis Uni<sup>6</sup>, and Hein Online.<sup>7</sup> The Repository of Historical Gun Laws<sup>8</sup> from the Duke Center for Firearms Law is also an invaluable resource. Still, these digitized databases present an incomplete picture of historical regulations, especially where municipal ordinances are concerned.

12. Having previously done research into city charters and their implications for the enactment of municipal ordinances, I began looking for digitized municipal code books or volumes of municipal ordinances. This is a challenging process because historical municipal codes are often not digitized at all, let alone available en masse within a keyword-searchable database. I relied upon Hathi Trust<sup>9</sup>, Internet Archive<sup>10</sup>, and Google Books<sup>11</sup> to identify relevant volumes. The results were hit-or-miss, with sporadic digitization providing periodic snapshots of new ordinance enactments within some American cities.

13. Historical newspapers are a tremendously valuable resource, and sometimes they offer a good avenue for discovering municipal laws. Papers of record in cities large and small often dedicated space for sharing information of that kind. Millions of newspaper issues from the nineteenth and early twentieth centuries are digitized, but they represent only a fraction of the total issues published. These digitized issues are also scattered across numerous databases, some

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<sup>5</sup> [www.westlaw.com](http://www.westlaw.com)

<sup>6</sup> <https://www.lexisnexis.com/en-us/professional/academic/nexis-uni.page>

<sup>7</sup> <https://home.heinonline.org/>

<sup>8</sup> <https://firearmslaw.duke.edu/repository/search-the-repository/>

<sup>9</sup> <https://www.hathitrust.org/>

<sup>10</sup> <https://archive.org/>

<sup>11</sup> <https://books.google.com/>

with paywalls and others relegated to online obscurity. Identifying and accessing the databases themselves can sometimes be as time-consuming as sifting through their holdings.

14. For my newspaper research, I relied heavily upon the free website *Chronicling America*<sup>12</sup>, maintained by the Library of Congress, in addition to the subscription databases available to me<sup>13</sup> through the Mary Couets Burnett Library at Texas Christian University. I looked for reportage on public sentiment pertaining to travelers carrying weapons, as well as incidents aboard trains, steamboats, trollies, ferries, etc. that involved guns.

15. At about this point in the research process, it became clear to me that identifying the expectations and rules for transportation passengers would require me to include within my project an exploration of archives with transportation-related collections. Privately owned and operated transportation companies—from railroads to streetcars—would have been authorized to create their own rules for customers to follow. These corporate policies would not be found in newspapers or ordinance books, but in the extant papers of the transportation providers themselves.

16. If digitized newspapers represent a modest fraction of nineteenth-century publications (and they do), the extant transportation archives and their holdings represent only a drop in the bucket of the records produced by America's transportation companies during that time. It should come as no surprise that the vast majority of the letters, reports, and telegrams through which the emerging business class directed their corporate endeavors have been lost. Such messages likely appeared as inconsequential to them as a cursory email might to a business executive today. As companies failed or merged with others, financial records took priority in

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<sup>12</sup> <https://chroniclingamerica.loc.gov/>

<sup>13</sup> <https://libguides.tcu.edu/az.php?t=31393>

terms of what creditors or new directors had an incentive to preserve. Systematic note-taking and record-keeping developed over time, meaning that meeting minutes and departmental records from the twentieth century are much more likely to be available than those from the nineteenth century.

17. These corporate records are scattered across the country at archives, libraries, and museums with budgets, websites, and catalogs that vary tremendously. Some collections have been indexed carefully and in great detail. For instance, the records of the Chicago, Burlington, and Quincy Railroad and its predecessor companies at The Newberry Library are quite detailed. The finding aid website clearly indicates what kinds of records are available in each group and what aspects of the business they will address.<sup>14</sup> Such indexing and organization is a rarity among archives, and even within The Newberry's manuscript collection it is not standard. Most archival collections provide much less detail about what researchers can expect to find within each box or folder; two or more linear feet of papers might be distilled into one phrase or sentence. The finding aid for the American Public Transportation Association at George Mason University Libraries is much more representative, providing vague and fragmentary descriptions for each folder of materials.<sup>15</sup> To know what was discussed at the many committee meetings whose minutes have been retained, one must visit the archive, request each box or folder, and sift through the pages.

18. After identifying potentially relevant archival collections, a researcher should generally reach out to the library or curatorial staff for more information. Curators and librarians often know the scope of their collections and can provide valuable advice as to whether their

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<sup>14</sup> <https://archives.newberry.org/repositories/2/resources/807>

<sup>15</sup> [https://scrc.gmu.edu/finding\\_aids/apta.html](https://scrc.gmu.edu/finding_aids/apta.html)

records will be useful. Some archival facilities have the staffing capacity to perform a cursory search of the records and provide feedback about their contents. Others are willing to scan documents for a fee. But many archives are understaffed, unable to promptly respond to inquiries or conduct even high-level research on behalf of remote patrons. The process of identifying and visiting archives often takes historians months—finding a way to pay for the research trip and allocate sufficient time to photograph or analyze hundreds (or perhaps thousands) of pages of records sometimes takes a year or more.

19. Archival research can be tedious, but it is the lifeblood of the historian’s craft. The vast majority of the primary sources that shed light upon the experiences, attitudes, and decisions of past generations have not been digitized and may never be. It is risky to draw firm conclusions or make authoritative statements having only examined digitized, keyword-searchable records, especially when there are relevant archival sources that have not been consulted.

20. At this time, I have reached out to a dozen transportation-related archives. Of those, eight have replied to my inquiries. Of those eight, only four have been able to offer any kind of meaningful guidance or assistance.

21. The California State Railroad Museum<sup>16</sup> has papers from the Union Pacific Railroad, which includes a series pertaining to firearms. When I asked the archivist about the records, he offered to scan and send them directly to me for a fee. I received these documents (a total of 484 pages) on August 31, 2022. From the cursory examination I have been able to conduct so far, it appears as though the records include information about the confiscation of

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<sup>16</sup> <https://www.californiarailroad.museum/visit/library>

firearms by armed railway police during the early twentieth century. More time is needed to thoroughly and carefully digest these materials.

22. Another one of the four archives able to assist with my inquiry is the Burlington Route Historical Society, which has a collection relating to the Chicago, Burlington and Quincy Railroad.<sup>17</sup> A member of the all-volunteer archival staff informed me that they could search their holdings for materials about passenger rules, but that the papers are housed at a remote storage facility without an on-site staff. The volunteers travel to the facility at regularly scheduled intervals in response to requests by patrons like me, but they charge \$20 per hour and only work on pre-scheduled days. On August 29, 2022, the archivist I spoke to informed me that their next scheduled session would be on September 14, 2022. Without confirmation that the research period would extend beyond early September, it would have been imprudent to place a potentially costly request for the September research day. If I were to receive more time for research, I could move forward with this organization—though I would expect that the request would fall to the next research day, presumably in October of this year or thereafter.

23. The primary problem I have encountered in this research endeavor has been insufficient time to access and digest the relevant sources. More time would allow me to read more broadly about the history of mass transit and its development in the United States. There is a rich and growing literature on this subject that can be used to inform and interpret the primary sources that I find. This historiography could have serious implications for the topic at hand and is worth exploring more fully. For instance, some of the primary sources I have found point toward the development of railroads' tort liability for passenger safety; that liability seems to have expanded in the late-nineteenth century as railway infrastructure grew, and it may have

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<sup>17</sup> <http://www.burlingtonroute.org/BRHS/index.php>



been a significant factor in the creation of railroad police forces and corporate ridership policies. Avenues of inquiry like this one, which has the potential to shed light on our subject by rooting it in legal and social history, are foreclosed from further scrutiny if the time window for research is not extended.

24. More time would allow me to review more digitized primary sources than I have already. Tracking down these scattered volumes is no easy task, nor is searching or scanning through them. To complete the process with any degree of thoroughness requires the researcher to be meticulous in her organization of notes, citations, and searching strategies. No potential keyword can be left out of the search, and no volume can be reviewed without identifying which website it came from and how it must be cited.

25. Additional time would make it possible to consult far more archives than I have been able to as of right now. Libraries, museums, and archives are almost always understaffed because they tend to be deeply reliant upon private donations, grants, or state funding. Asking them to prioritize assistance to this project when they have already allocated weeks' worth of time to the requests of others exhibits a disregard for their professional standards for patron services and their mandate to be accessible to the general public; asking them to conduct the research on my behalf assumes that they and I would analyze documents identically even though we have been trained to interact with primary sources in radically different ways. A librarian or archivist is trained to organize and preserve documents while a historian is trained to analyze and interpret them. A volunteer archivist would scour the collection for the proverbial "smoking gun" rather than take in the sources and interpret their collective significance for the topic at

hand. History as a product and as a practice can be shared by all, but history as a profession requires training and standards.<sup>18</sup>

26. It is simply unrealistic to expect a historian, or a team of historians, to complete a comprehensive survey of the relevant historical materials in 60 days. The length of time which would be required to undertake this research is heavily dependent upon the end product expected. A general notion of the national landscape could be acquired by visiting a handful of archives and spending a few months engaging more deeply with the more readily available digital and print sources. This could take anywhere from six to twelve months, depending upon how much time the researcher spends on it. An authoritative, nationwide study that traces policy development over time and takes into account regional and cultural differences would require a commitment of a year or more—just like any other historical monograph.

27. There is precious little in the secondary literature about this topic because it has not grown organically from within the historical profession itself; the secondary literature currently available is overwhelmingly the product of legal scholars, whose access to and use of sources diverge sharply from professional historians. Creating a reliable historical record from scratch, and within the current atmosphere of political and cultural conflict over gun policy, is a process still in its infancy.

I declare under the penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief.

Executed on 09/15/2022

*Brennan Gardner Rivas*  
BRENNAN GARDNER RIVAS

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<sup>18</sup> <https://www.historians.org/jobs-and-professional-development/statements-standards-and-guidelines-of-the-discipline/statement-on-standards-of-professional-conduct>

# EXHIBIT L

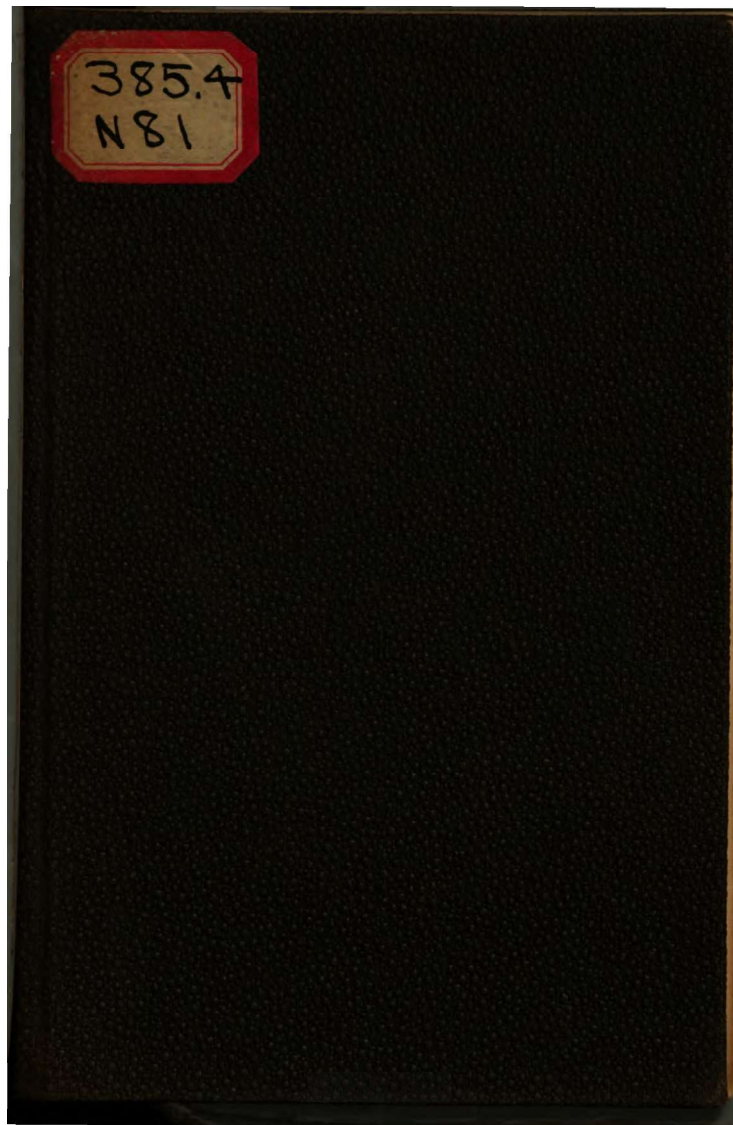
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**RULES AND REGULATIONS**  
**FOR**  
**RUNNING THE TRAINS**  
**ON THE**  
**North Pennsylvania Railroad,**

*Adopted June 1, 1875.*

**AND APPROVED BY THE PRESIDENT.**

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Other Rules, Regulations and Notices, equally binding, will be issued on the  
Time Tables and Supplements.

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**PHILADELPHIA,**

**1875.**

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### SPECIAL NOTICE.

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A great responsibility rests upon the employees of the Transportation Department. Engineers especially (having charge of the motive power), and Conductors (having general charge of the train), should never forget the importance of their positions.

These Rules and Regulations, established from long experience of their necessity, and others that may be issued from time to time on the time tables and supplements, are designed for the security of the lives of passengers and employees, and of the property belonging, or entrusted to, the Company. A prompt and cheerful obedience thereto, with a zealous, honest and conscientious performance of duty will be required of all. The acceptance of service is a pledge to fulfil these requirements.

The regular compensation of employees covers all risks or liability to accident. When disabled, from sickness or other cause, the right to claim compensation will not be recognized. Allowances in such cases will be a gratuity justified by the circumstances of the case and previous good conduct.

All violations of Rules, neglect of duty, or other faults, may be punished by fine, reduction of wages, suspension, or dismissal. Copies of these Rules and Regulations are within the reach of all and must be carefully and frequently read; ignorance of them will be no excuse for neglect of duty.

1556805<sup>(3)</sup>

## RULES FOR RUNNING THE TRAINS.

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1. Trains are run by Philadelphia time. The clock at the Berks Street Station is the standard; Conductors and Engineers must each have a watch and compare it with the clock carefully, and with each other, before starting. At three o'clock P.M., daily, time will be sent to all telegraph stations.

2. Trains must not leave a station until the time is up; and they are to be started, run and stopped under the direction of the Conductor.

3. In case of doubt or uncertainty, take the safe side. The Engineer will be held equally responsible with the Conductor for the safety of the train, and in case of apprehended danger, have power to stop the train, or cause a man to be sent ahead with a flag.

4. **In case of detention:**—The train that is on time will wait for the approaching train of same class, at designated meeting point, fifteen (15) minutes beyond its schedule time, and then proceed carefully, *sending a man ahead* around curves far enough to ensure safety, until the expected train is met, or heard from, according to Rule 6.

5. Should either train be delayed so as not to reach the designated meeting point on schedule time, it will have the right to the road to any station for fifteen (15) minutes beyond the time of the approaching train at such station; after which it must only proceed with a flagman far enough in advance to ensure safety.

6. No verbal message touching the movements or safety of the trains or engines, must be sent or received; but all messages relating to the running of the trains must be put in

writing and copies kept by the person sending them, to prevent the possibility of any misunderstanding; orders by telegraph must be repeated back to show the sender that the order is correctly received.

7. The rule of waiting for a delayed train is to apply to the case of one train waiting to be *passed* by another, as it does to the case of two trains meeting each other. When the waiting train has waited fifteen (15) minutes beyond its own time, it has the right to proceed. The train following must be run with great caution. When a through train overtakes a local train the latter must turn out at the first convenient place. Any train which is more than fifteen (15) minutes behind time is to be considered irregular and the persons in charge must use every precaution to prevent accident.

8. **Five (5) minutes** must be allowed for difference of watches, but neither party must presume to run upon them. In case of reasonable doubt or uncertainty, take the safe side.

9. When the meeting point of trains is on the double track, and either train is behind time, the train that is on time will run to the end of double track and make that the designated meeting point. Trains *starting* from a station at which other trains are overdue must follow the same rule for meeting the delayed train as at designated meeting point.

10. In backing a train the Conductor must see that all his men are at their brakes, and, on passenger trains, that the bell cord, and signal bell on the engine, work efficiently; he must station himself on the rear platform of the last car and put himself in communication with the engineer by means of the bell cord. If on double track the Conductor must send a flagman around curves at least half a mile in advance; the whistle must be sounded frequently and for all road crossings; both engineer and fireman must keep a constant look out back for signals.



11. All passenger trains must come to a full stop at terminal stations before the bell cord is cut or the engine detached. The fireman, at Philadelphia, and at points where there is no flagman, must flag the crossing. When shifting the train, the Conductor, at Philadelphia and at points where there is no flagman, must flag the crossing when the engine backs.

12. Keep to the right on double track; when necessary to cross to the opposite track to allow a train on the same track to pass or for any other reason, a flagman must be sent ample time and distance ahead to stop approaching trains.

13. Conductors and Engineers running on single or double track must be careful to observe all signals carried or given by trains running in opposite direction, and must not pass to the single track unless they have the right so to do under the rules. Trains carrying flag must be careful to call attention of approaching trains, engines and of the section men to it.

14. When one train or engine follows another the greatest care must be taken to prevent accident. No excuse will be taken for rear end collision. Run all curves as if expecting to see a signal to stop.

15. Should a train, passenger or other, break down or be delayed upon the road, a man must be sent each way *immediately* to warn approaching trains *whether any are expected or not*. If at night, foggy weather, on a curve or a down grade, the flagman must go back at least a half a mile (15 to 20 telegraph poles, there are 30 to a mile). It is the imperative duty of the Conductor, and of the Engineer also, to see to this.

16. Freight or coal trains must not obstruct or delay in any way passenger trains; but must be on the side track *ten* minutes before passenger trains are due, **and never run upon their time**. They must not lap switches where possible to avoid it.

17. All trains must be run as close as possible to the regular time and are not allowed to make up time by *fast running*, or to arrive at stations more ahead of time than is necessary to accommodate the passengers or to do the work. Half a minute is ordinarily time enough for a passenger train, and two minutes where there is milk or marketing. Freight trains that require more than fifteen minutes must approach the station under full control.

18. Engineers and brakemen of passenger trains must be careful not to run by, or stop short of, stations at which the train is to stop; if either occurs the train must not be moved without a signal from the Conductor, who will, if he can safely load or discharge his passengers, make no other stop; but if necessary to move the train he must do so promptly but without risk to the passengers.

19. Extra or irregular trains or engines, not flagged, must run with extreme caution, and keep a constant look out for trains that may be delayed, and for the section men, and for trains that may be using cross tracks to deliver or pick up cars on sidings on the opposite track to the one on which they are running; the persons in charge must inform themselves of the whereabouts of the Repair Trains, and keep out of their way. The REPAIR TRAINS will be governed by this Regulation so far as applicable, and the persons in charge must give notice to the Master of Transportation the evening before where the train will work, and obtain information of how many Extra Coal Trains will be run, on the following day, and whether all night trains have arrived at Philadelphia.

20. Switches must always be kept in line with the main track and *locked* except when a train is passing in or out, and then both bolt and lock should be in their places to prevent displacement. After locking a switch try the lock to see if it is locked and *look to see if the rails are right*. No excuse will

be taken for leaving switches wrong or unlocked, and any damage resulting will be assessed upon those in fault.

21. At the crossing of the Connecting Railroad and of the Lehigh Valley Railroad, and at the junctions of the New York, North East, Stony Creek and Doylestown Branches, and over all cross over and end of double-track switches, the speed must not exceed six miles per hour; and in no case must the Engineer pass over these switches or crossings unless the white signal is plainly and constantly in sight from a distance of 300 feet from the crossing, and the switches are plainly seen to be right; no excuse will be taken for running off switches or for an accident at these points. At Erie Avenue it is the duty of the *Conductor* also to see that the white signal is clearly given.

22. South of Lehigh Avenue the bell and not the whistle, must be sounded, except in case of necessity to give warning. Avoid the unnecessary use of the whistle. Whistle for all road crossings, stations and curves, but do not prolong it nor sound it at all if danger is likely to result, and it can be avoided. Engineers will be held to a strict account for the improper or injudicious use of the whistle. *Do not whistle when passenger trains are passing.*

23. Road crossings must not be obstructed by trains or engines standing over them, nor will engines be allowed to stand *near* road crossings, bridges, or stations, if possible to avoid it, nor to stand "blowing off" near any street crossing. Conductors and Engineers will be held responsible for a strict compliance with this rule.

24. Every train running after dark must have a white light displayed in front of the engine, and a red light or lights on the extreme end of the rear car; and on freight or coal trains the red light must be so placed that the Engineer of the train, as well as of the train following, can see it. A red flag by day

or a red light by night carried in front of an engine indicates that a section, or an extra engine, is following, which is to be considered as part of and governed by the same rules as the forward train.

25. In case a train parts or some of the cars become detached, every effort must be made to prevent collision by stopping the detached portion. The Engineer must be careful to observe that it is not the parting of the train that causes the signal bell to tap.

26. Trains must run slowly in approaching Philadelphia and Bethlehem, and stations where passenger trains are standing; if necessary, come to a full stop until the passengers have left the train or the train starts away from the station.

27. Conductors and Brakemen are specially charged to see, so far as possible, that all passengers get out on the side opposite to the other track on which trains may be expected.

28. Freight, Coal, and Repair trains, and any other than a Passenger train, are positively prohibited from carrying passengers. Passenger trains must not stop to take on or let off passengers at points not designated on the time table.

29. The Engineer and Fireman must both be on the engine when in motion, keeping a constant look out for signals when shifting, and to prevent accident at the crossings, and for the safety of the train. Outside the engine house the engine must never be left without some one in charge; when standing, the engine should always be thrown out of gear, and the tank brake applied. In no case must tools or supplies belonging to an engine be taken from it.

30. Defects in cars, such as broken brakes, flat or cracked wheels, hot or cut journals, or anything that render the cars unsafe or unfit to run, must be reported to the Inspectors. Defects in passenger cars, such as broken glass, rattling doors, windows or stoves, broken seats or torn cushions, lamps

or coolers that leak, etc., etc., must be reported to the Depot Master at Berks street. Particular attention must be paid to the warming, ventilating, and cleanliness of the passenger cars, and comfort of the passengers, and the attention of the Conductors is especially called to this rule.

31. Trains are classed as follows: Passenger (through and local), Freight, Coal and Repair. Trains of an inferior class must turn out for those of a superior class whenever necessary. Repair trains must always be kept out of the way of regular trains, and must always keep a sharp lookout for extra engines and the section men.

## SIGNALS.

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Signals must be broad and distinct, so that they cannot be misunderstood. The Engineer must answer promptly and the men obey quickly. Signaling is frequently the only means of communication; learn to comprehend correctly and intelligently. Sign boards and signal posts must be carefully observed and strictly obeyed.

**By Whistle.**—One short blast (—) is to apply the brakes. Two short blasts (— —) to take them off, or that the engine is about to start. Three short blasts (— — —) that the engine is about to back. Three longer blasts (— — —) when running, call attention of approaching trains or engines, and the section men, to the flag carried by the engine giving the signal. Four long blasts (— — — —) call the flagman, switchman, or agent; or if repeated slowly may be a signal of distress. Five short blasts (— — — —) give warning that the train has broken loose, or that the rear brakeman should go back to protect the rear of train. One long blast, not more than five seconds duration, when running, is a signal for road crossings, stations, and curves. A succession of short blasts is a signal to trespassers, or section men, or an alarm for cattle. *Avoid prolonged, or the unnecessary, use of the whistle, or while passing passenger trains or depots, or when likely to frighten horses.*

**By Lantern or Hand.**—Across the track, to stop. Up and down, to go ahead. In a circle over head, to back. The



arms raised, extended, is a signal to reduce speed and approach carefully.

**By Bell Cord.**—One tap of the signal bell, to stop. Two taps, to go ahead. Three taps, to back. Four taps, for engineer to call agent or switchman. Three taps while running is a signal to slacken speed or look back for a signal from the train.

**By Color.**—Red signifies danger. Blue signifies caution. White signifies safety.

**By Torpedo.**—One explosion, stop. Two explosions in rapid succession, slacken speed immediately, ready to stop.

Any signal violently given by any one upon the track is a signal of danger and must receive immediate attention.

## REGULATIONS.

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40 The PASSENGER CONDUCTOR will be with his train twenty minutes before starting time; will have general charge of it from terminus to terminus; also, of the men employed on it, and will require each and every one of them to conform strictly to these regulations.

41. He will announce his train in both public rooms at the Berks Street Depot, and will see that no person passes the gate without a ticket, and that passengers do not take into the cars guns, dogs, valises, large bundles or baskets. He will make frequent examinations of the cars while stopping at stations for water or otherwise, to discover defective wheels, brakes, &c., or hot boxes, and shift out cars found unsound. He must see that his train is kept clean and in proper running order, and that the cars are locked at night and the windows shut down. He must superintend the making up of his train at points where required and must see that the brakemen do not slide the wheels, or neglect their duty.

42. He will cause the name of each station at which the train may stop, to be announced, twice, audibly and distinctly, to the passengers, and must be particularly careful to direct passengers to the right train or car at transfer points.

43. He must systematize his collection of tickets and fares so that by no possibility can a passenger ride twice on the same ticket, or for a longer distance than he pays for. Tickets and passes are to be accepted and construed strictly as they read, without deviation; if any dispute, refer to the proper officer for correction.

44. The rule of half fare for children must be strictly enforced so that its action will be equal on all trains. Tickets of all kinds, and passes must be shown or fare collected. Allow *no one* to ride without a ticket, the fare, or a pass from a general officer of the Company.

45. Particular attention must be paid to the entrance and exit of passengers, and every attention paid to their reasonable wants and comfort. They will be allowed 100 pounds baggage free; all over that to be charged extra. They must not be allowed to ride in the baggage apartment, or on the platform of the cars; and conductors, baggage masters and brakemen are required to enforce this rule rigidly, notifying the passenger in a civil manner that the Company will not be responsible if they do not at once comply with this rule.

46. All seats are at the disposal of the Conductor in the first place and it is his special duty to provide seats for all his passengers and to see that they do not occupy more seats than they pay for, or put their feet on the seats or use tobacco in the passenger cars. Any article left in a seat during the temporary absence of the owner entitles him to its occupancy on demand.

47. Packages, wearing apparel, umbrellas, books, valuable papers, or anything that may be of value to the owner, found in the cars or stations must be taken to the Receiver's Office immediately, where a record will be kept and the articles restored to the owner upon payment of a slight fee; or if not claimed, will be given to the finder. Any employee retaining such articles will be discharged; but the Company will not be responsible for lost articles.

48. It is the duty of the train men to see that the bell cord is free from knots and works freely. The rear brakeman will, under the direction of the conductor, start the train at

starting points by the bell cord from the rear car. Bell cords must not be uncoupled, nor seats turned until trains have arrived at destination, when it must be done immediately and before train is shifted.

49. **BAGGAGE MASTERS** must handle baggage carefully, and must be particular to deliver all letters, parcels and baggage correctly. They should allow nothing to come into the car not properly marked, and must not allow passengers or employees to ride in the baggage apartment. They must see to picking up baggage along the road, and will charge for all marketing, milk, extra baggage, &c., and make return of same, to the proper officer. They must call out every station at which the train stops, loudly and distinctly, twice, in the smoking apartment, and must apply the brake same as the brakemen.

50. **MILK AGENTS** must handle cans carefully and quickly and must assist in handling marketing and applying the brakes. They must deliver cans correctly, and be prompt to rectify mistakes in the shipment of milk or the delivery of cans.

51. **PASSENGER BRAKEMEN** must be with the train in ample time to have it supplied with fuel and water, clean, comfortable and ready for the passengers. They must remain at their brakes, and allow no one to ride on the platform, or to get on or off when the train is in motion. They must call stations, loudly and *distinctly*, and be civil, good natured and obliging.

52. **Baggage Men, Milk Agents and Brakemen** must keep their cars, windows, stoves and lamps clean. Must not smoke in or about the cars or when on duty, and must remain with the cars until put away, and see that the windows are down and doors locked.

53. The **PASSENGER ENGINEER** will be with his engine in

ample time to have it in running order, and in front of the train at least five minutes before the time of departure. He will, while running, keep a good lookout ahead, and sound the bell or whistle in approaching road crossings, stations and curves. He must make short, quick stops; never leave ahead of time; observe the signals of conductors and track repairers; *and allow no one* whose duty does not require him to be there, to ride on the engine.

54. The Engineer must be careful to start the train easily, and never without first sounding the bell or whistle; to observe all switches with great care, and if they are on curves, or at cross overs, or junctions, slacken speed in approaching them.

55. He must notice carefully, and obey all sign boards and signal posts; run steadily and no faster than the state of the track may warrant, and run over all long bridges or trestle work at no greater speed than 15 miles an hour.

56. He must not carry a flag except by order of the Conductor, who must explain fully what it is for and how far to be carried. Special pains must be taken by both to call attention of approaching trains, trackmen and agents to the fact that a flag is being carried.

57. The Rules hold the Engineer equally responsible with the Conductor for the *safety* of the Train. The Conductor has general charge, but if he proposes to violate any of the rules, or run his train into danger, the Engineer has the right to remonstrate and refuse to do so. There need be no dispute; take the safe side, and refer the matter to the authorities for decision.

58. Engineers of empty engines are under the direction of the conductor of the train they follow, and must render prompt and cheerful assistance whenever required, particu-

larly in assisting trains up grade, or out of the way of passenger trains. They must be quick to take advantage of every moment of time. When following passenger trains special care must be taken not to run into vehicles at road crossings near stations, particularly when the passenger train has just left.

59. FIREMEN must never throw wood or coal from the tender while the train is in motion, and must be careful that no live fuel falls where it can do damage; they must start with clean ash pans, and with slides or doors to same fastened shut, and must not clean ash pans on the main tracks; they will be held responsible for any injury resulting from the violation of any part of this rule. A lighted lantern at night and a red flag by day must always be carried on the engine when running, in charge of the fireman.

60. The FREIGHT and COAL CONDUCTOR occupies a peculiarly responsible position. He should be cool, cautious, active, and clear headed. He must not only look after his own train, inspecting it carefully whenever opportunity offers, overlooking it at all times, and requiring his men to do the same, but must keep out of the way of superior trains and *never delay passenger trains*. He must plan out his work to do it all and still be *on time*. To that end he must have the cordial assistance of his engineer and brakemen.

61. He will be held responsible for damage done to freight or cars by careless handling, and the amount of damage will be deducted from the pay of those to blame. He is authorized to discharge any careless or disobedient brakeman after once reporting him. He must detect and prevent any pilfering on his train. He must do the necessary shifting at stations, and be civil and obliging to all customers, and attentive to the reasonable desires of the Agents of the Company.



62. Conductors, either passenger or freight, must avoid making "flying drills" over street or road crossings; when it cannot be avoided, they must see that the crossing is flagged. Avoid "roping" cars if any risk in so doing.

63. It is the duty of the Conductor to designate some one on his train whose special duty it will be to flag crossings when backing over them in drilling.

64. The Conductor must inspect train frequently and see that the brakemen do the same, and that they occupy their proper positions on the train, and that the train is furnished with its proper equipment. The men must give prompt and cheerful obedience to the commands of the Conductor, and aid him in carrying out all regulations for the safety of the train and cargo.

65. Run no Coal Cars with drops down, or with the wrench not fastened on the head of the button rod. Run no cars with bent axles, loose wheels, ends partly torn out, hot boxes that cannot be cooled or cars really unfit to run. Make a return of all boxes oiled or packed, either to the inspector or at the office.

66. Bumpers, draw-heads, springs, or other important parts of a car, broken along the Road, must be picked up and sent home with the car—notice being given to the inspector at the end of the route.

67. Red flags by day, and red lights by night must always be carried and so adjusted to *rear car* of train as to be seen from the engine of the train as well as by the engineer following. Passenger Trains should carry two red lights at night, on rear end of train, one fastened to end railing.

68. BRAKEMEN and others must take care that wheels do not slide. The fact of wheels sliding or of being flat, is evidence of gross carelessness, and a fine of from one to five days' pay will be assessed upon the one in fault. When a

wheel slides it can be heard or felt if the brakeman is on the alert.

69. Rear brakeman *must remain on rear car*, unless brake is on. He must keep a constant lookout ahead to see that his train does not break loose, and will be held to a strict account for collision from such cause. If train breaks loose, stop detached portion at once, or as soon as safe to do so; leave a light on it if at night, and go back at once to stop trains following, whether any are expected or not. If on a curve or on a down grade, foggy weather, or any cause requires extra precaution, go back at least half a mile, or 15 to 20 telegraph poles (there are 30 to a mile). Make sure that the approaching engineer sees you.

70. The rear brakeman of *every train* must carry a supply of torpedoes, a red flag, and must keep his red and white lantern in proper order.

71. The Middle Brakeman must take position not less than one-fourth the length of the train from the engine, at good brakes, and keep a good look-out front and back. At no time, when running, must brakemen congregate together on the train, but must retain position so as to pass signals and guard their portion of the train.

72. When the train is cut to deliver cars at a siding, or in shifting, brakes must be put on immediately behind where the cut is made, to prevent train running back or forward. The Conductor and the man who cuts will be held responsible for this necessary precaution.

73. When cars are deposited on a siding brakes must be left on tight. If other cars on the siding are touched by those put in, or are to be coupled to, care must *first* be taken to see that brakes are on the rear cars on siding. The Conductor and men in charge will be held responsible for this important precaution.

74. In delivering cars to coal yards on grades there must be two men on the brakes. In shifting trains on grades, care must be taken to keep cars under control, and in no case must cars be allowed to run without a man at the brake. Damage done by reckless shifting or violence, will be assessed upon those in fault.

75. The speed of trains must not exceed that prescribed by the Rules. The Engineer must not give the train too much headway over the summits, nor "pull out" at the hollows so as to "break loose." The entire crew are responsible for trains breaking loose; proper management will prevent it; to have it occur is discreditable to the skill of the crew, and still more so if damage results.

76. Run slowly down hill; the speed must be regulated by the brakes. The whistle "down brakes" is a signal of danger, and must be promptly obeyed at all times, and must not be countermanded by the Conductor except in case of necessity and when he can not communicate with the Engineer.

77. Cars must be left with pin and coupling in one end. Brakemen must not take them from other cars, and will be discharged for so doing. Save spare links and pins and pick them up whenever found.

78. Conductors of Freight or Coal Trains who allow unauthorized persons to ride on their trains will be fined one day's pay for every such offence. Engineers will be fined one day's pay for allowing the same on their engines. Brakemen who permit the same, or fail to assist the Conductor in preventing the same, will be fined one day's pay.

79. Torpedoes will be used as an extra danger signal, not to be relied upon but as an additional precaution at night or in foggy weather. The explosion of *one* is a signal of danger—*stop*; of two in quick succession—to slacken speed imme-

diately and look out for train or danger ahead. To stop a train one torpedo should be clamped on the rail a half-mile or 15 telegraph poles from the obstruction. To warn a train two should be clamped a few feet apart, twenty poles back. If the obstruction is removed the single torpedo should be removed. If the necessity to warn the train has ceased, the two torpedoes should be removed, if entirely safe to do so.

80. SWITCHMEN must be on duty promptly at the times required, and see that their switches, lamps, and signals are in perfect order. They must be cool, quick and exact,—careful to understand the movements of trains, and to prevent, by proper signaling, their interference with each other. They must be strictly temperate in their habits and allow no loafing about their boxes. It is their duty to report all trains violating Rule 21.

81. FLAGMEN.—It is the duty of Flagmen to be on the crossing, before the approach of every train or engine, with a red flag unfurled and waving, by day, or a red light at night, to prevent vehicles and pedestrians getting in the way of engines, and to signal trains following each other. Special care must be taken when trains are meeting on double track, or are following each other closely; pay particular attention to old people and children. The signals must be withdrawn, and notice given when the crossing is clear. They must allow no loafing about their boxes, and it is their duty to report trains violating Rule 21.

82. To secure the safety of passengers, and promptness and discipline in the despatch of business on the road, the use of intoxicating liquors by any employee is strictly forbidden. Any employee who shall become intoxicated will be immediately dismissed. No person known to use intoxicating drinks will be employed by, or retained in, the service of the Company.

83. Profanity or ungentlemanly conduct while on duty is

strictly forbidden. Smoking tobacco, also, on duty is forbidden. Abusive or disrespectful language from one employee to another will not be tolerated; the most humble man in the Company's service will be protected in the discharge of his duty.

84. STATION AGENTS will have charge of the switches and side tracks at their several stations (except keeping them in repair), and will see that freight and goods are loaded and unloaded in a careful manner, and are properly protected from the weather and from depredation. They will see that the cars on the side tracks are locked and the brakes applied, and will never load a car without first examining to see if it is in safe running order. They will also attend to such further orders as may be given them from time to time by the proper officers.

85. REPAIR MEN must be careful to observe whether flags are carried by an engine or train, and if so, to keep the track clear till the engine following has passed. Hand cars must not be run except as the business of the road requires. In case of replacing broken rails, or otherwise rendering the track impassable, a man must be sent at least one half of a mile each way to warn approaching trains. Extra care must be taken to guard against special trains or engines that may be run at any time without notice.

86. When an accident occurs, report the exact state of affairs, giving the precise locality, extent of damage, and the probabilities of getting track clear, to the nearest point where help can be obtained—Lansdale or Bethlehem, and to Philadelphia. Report quickly as possible, covering all the above points, and go to work at once to clear the track, concentrating the efforts to get such track clear as will quickest allow the passage of trains. All employees, particularly en-

gineers and train hands, who are waiting at a wreck must devote their best energies and judgment to removing the obstruction. Do not lose presence of mind by the apparent magnitude of an accident, but keep cool and go to work. If there are personal injuries, make the patient as comfortable as possible, send for a physician, and send to the hospital at Philadelphia or Bethlehem by the first opportunity; give notice by telegraph that the patient is on the way.

87. The speed of shifting engines running between Berks street and Willow street, must never exceed five miles per hour, and must ordinarily be not more than four. The Conductor and Engineer will allow no one except themselves and the fireman and flagman to ride on the engine, and will see that the flagman is in advance of the engine at every street or alley crossing, and that he remains there with his flag displayed to warn all persons or vehicles approaching, until the engine reaches the crossing. The whistle must not be sounded, or the cylinder cocks opened, in the street. The bell must be rung slowly when necessary, but not so as to alarm horses. The utmost care and precaution must be taken to avoid interference with street travel, and to avoid contention on the street. In shifting cars at the depots at Willow street and at coal yards, it is the special duty of the Conductor to see that the cars are ready to be moved. It is strictly forbidden to allow persons to ride on the cars drawn by the shifting engines; it is contrary to law, and if done it is at the peril of the trespasser.

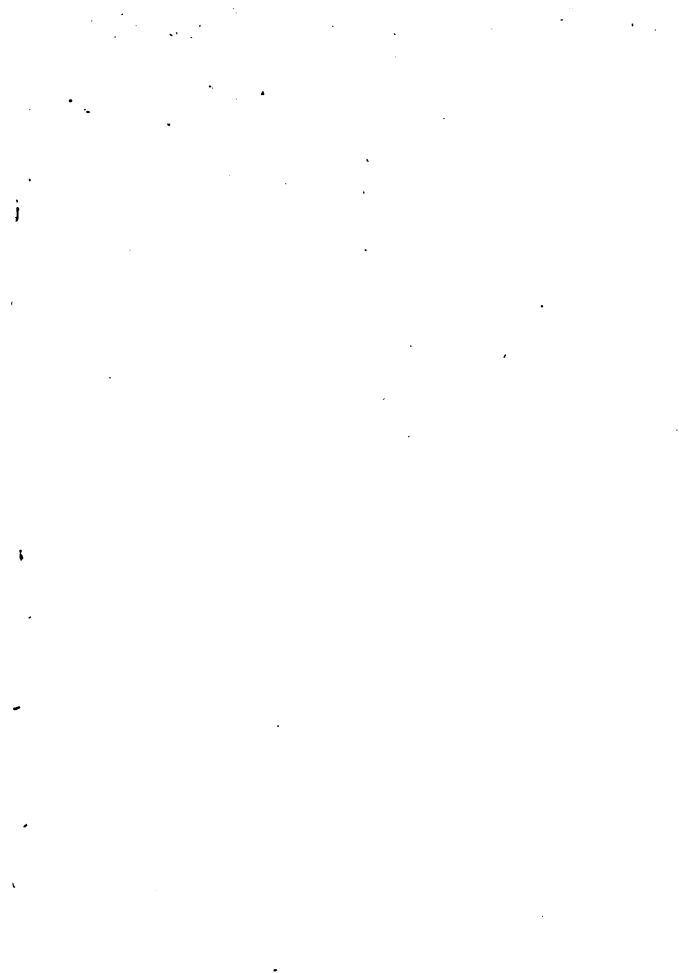
88. All persons employed upon the trains are enjoined to keep constantly in mind a sense of their great responsibility, and of the necessity of strict compliance with instructions, and of constant vigilance, sound judgment, and great carefulness for the prevention of accidents.

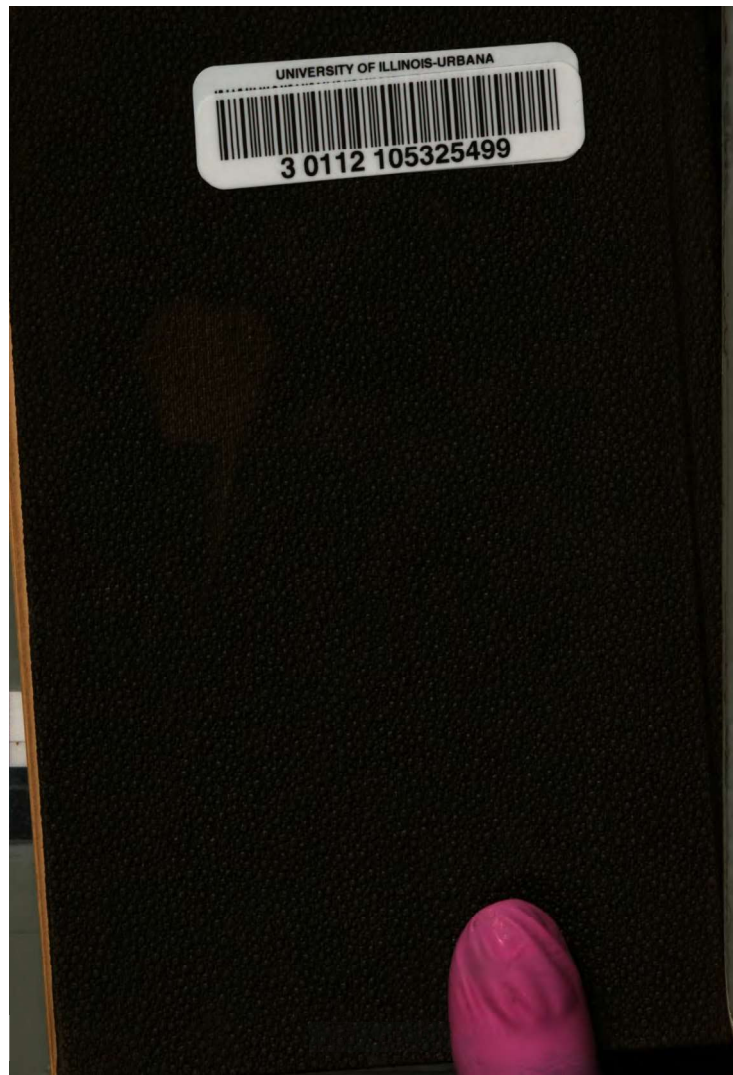


89. No extra or irregular trains or engines are ever to be run, without the written orders of the Master of Transportation, who is to direct the movements of all the trains upon the road, and oversee the men employed upon them.

**S. W. ROBERTS,**  
*Engineer and Superintendent.*

**A. H. FRACKER,**  
*Master of Transportation.*





# EXHIBIT M

HEALTH: Medicaid extensions for new moms grow | COVID-19 booster déjà vu | It's Cholesterol Education Month | Why wastewater surveillance is more targeted

This article is about **6 years** old

## Metro riders endured insufferable crowding Thursday

**Mike Murillo** | mmurillo@wtop.com

June 24, 2016, 5:49 PM

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(3/4)



Rail riders crowd the platform at the L'Enfant Plaza Metro station, where the evening commute...[See full caption »](#)

Courtesy Anton Robbins via Twitter

WASHINGTON —Debris on the tracks added an extra layer of delays along Metro's Green and Yellow Lines on Thursday, causing crowded platforms and leaving many riders airing out frustrations on social media during evening rush hour.

"There were so many people that I just pretty much stood in one spot for 10 minutes or so, just not even moving," said Lindsey Haake of D.C., who got stuck in the crowd while trying to exit L'Enfant Plaza station.

The Metrorail system was already experiencing delays due to a system wide SafeTrack initiative, planned waves of disruptions and shutdowns needed to improve safety. But debris found on the tracks near Gallery Place slowed things down even more.

Inbound and outbound trains were forced to share a single track between 5 and 5:30 p.m. Meanwhile, the number of commuters gathered on the already crowded platform increased, leaving many riders looking to social media to vent.

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"It wasn't even safe," said Haake, who was tweeting during the ordeal. "If something had happened, like a fire, we wouldn't have had anywhere to go."

Haake said people on trains were unable to exit and those trying to get onto trains couldn't enter because no one could move.

The operator on the train told riders about delays due to a track problem, but riders didn't get any other assistance or information once they got off the train.

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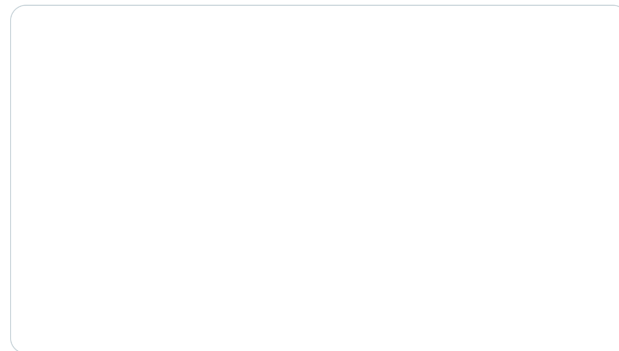
"Just getting there [to L'Enfant Plaza Station] and not seeing any Metro workers helping direct people was kind of strange," Haake said.

**Anton Robbins The Dapper Apper | MVP | Pow...** · Jun 23, 2016 

@Anton\_Rob\_Benz · [Follow](#)

Replying to @itsSpencerBrown @unsuckdcmetro and @wmata

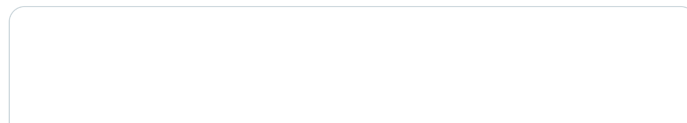
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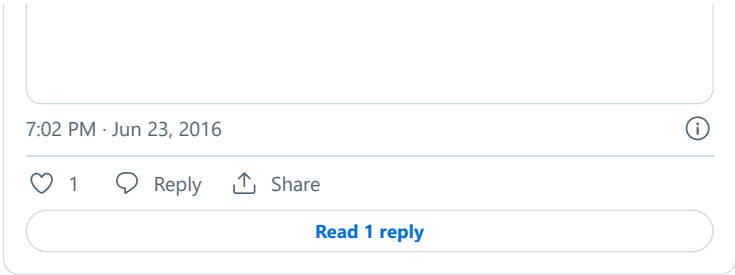
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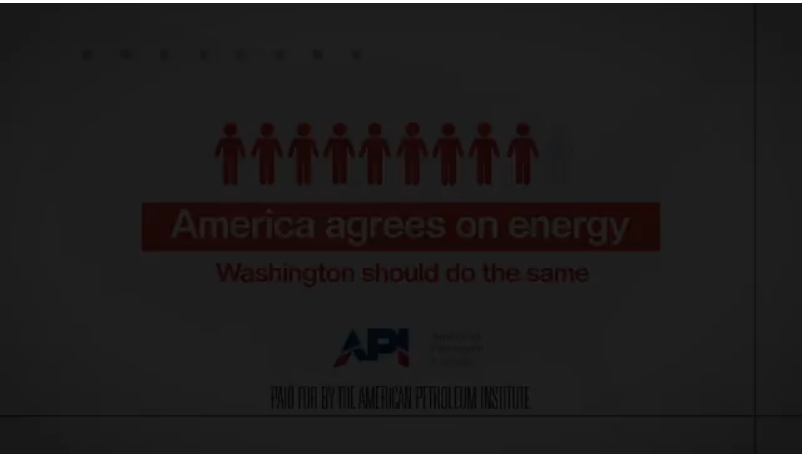
Metro spokesperson Morgan Dye said Metro’s Safe Track work played a part in creating very crowded platforms.

“It should come as no surprise that L’Enfant was more crowded than usual. It is handling many customers who normally use the Blue Line during Surge 2,” Dye said in an email to WTOP.

Dye said in an email to WTOP that Metro Transit Police officers were at both Gallery Place and L’Enfant Plaza stations dealing with not only the crowds but a fight-in-progress call.

As for the duration of the single tracking period, Dye said after the debris was removed from the tracks near Gallery Place, the track had to be inspected and a test train sent through the area, before normal service could resume.

AD



**Mike Murillo**  
Mike Murillo is a reporter and anchor at WTOP. Before joining WTOP in 2013, he worked in radio in Orlando, New York City and Philadelphia.  
✉ [mmurillo@wtop.com](mailto:mmurillo@wtop.com)  
🐦 [@MikeMurilloWTOP](https://twitter.com/MikeMurilloWTOP)

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# EXHIBIT N

TRENDING NOW IN NEWS &amp; POLITICS

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## Video: Metro Is Crowded Again, Ew

 WRITTEN BY ROSA CARTAGENA   | PUBLISHED ON JULY 28, 2021


Are you ready to go back to this? Photograph via BeyondDC on Flickr.

This morning saw one of the clearest signs of the DC's return to pre-pandemic norms: the notorious Red Line—bless its heart—was delayed due to a “train malfunction.” Naturally, there was a bit of frustration from commuters who were running late. But one video of the scene circulating on Twitter shows a train car stuffed with bodies on bodies (many masked, a few unmasked) packed in the small space with standing-room only. Adem Arac's reaction is probably relatable to everyone who suffered the stuffy ride—“heavily sobs internally.”

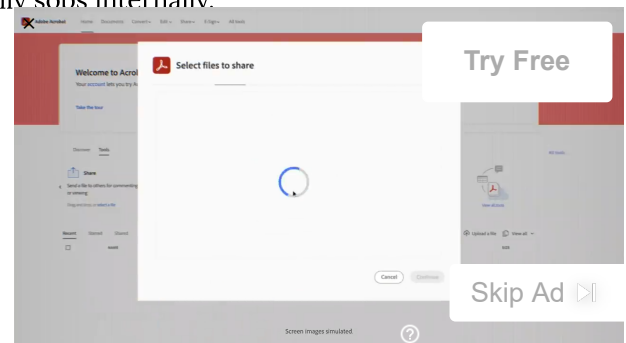
**Metrorail Info**

@Metrorailinfo · Follow



UPDATED: Red Line Delay: Expect residual delays to Shady Grove due to an earlier train malfunction outside Takoma.

8:39 AM · Jul 28, 2021



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This is why I don't take the metro in DC [@wmata](#) [@Metrorailinfo](#) The first day I decide not to drive.. it's delays waiting on a train for 22 minutes [#lasttime](#)

8:27 AM · Jul 28, 2021



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**jay darryl**

@ijaydarryl · Follow



[@wmata](#) THIS IS FUCKING RIDICULOUS IVE BEEN WAITING ON THIS TRAIN FOR 30 MINS

8:24 AM · Jul 28, 2021



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**Adem Arac**

@AdemAracBack2TV · Follow

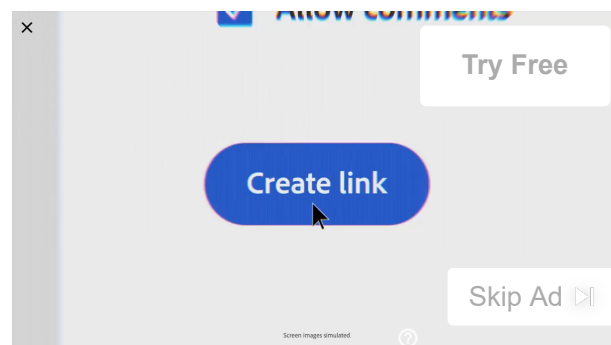


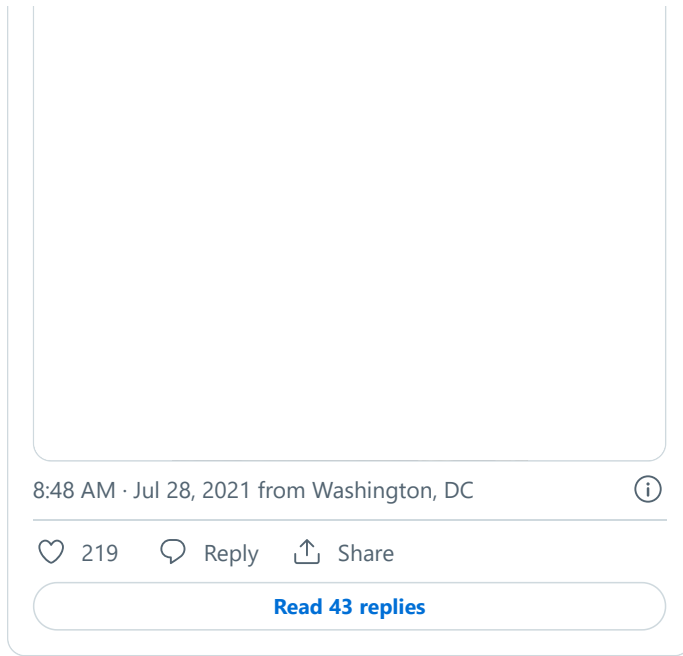
Morning Commute Metro is back baby!!!!

\*heavily sobs internally\*

[@WashProbs](#) [@HakunaWMATA](#)  
[@unsuckdcmetro](#) [@Metrofailinfo](#)

Watch on Twitter





8:48 AM · Jul 28, 2021 from Washington, DC



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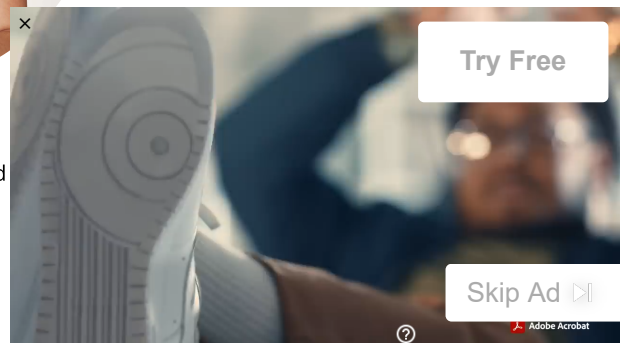
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### Rosa Cartagena

Rosa is a senior editor at [Bitch Magazine](#). She's written for [Washingtonian](#) and





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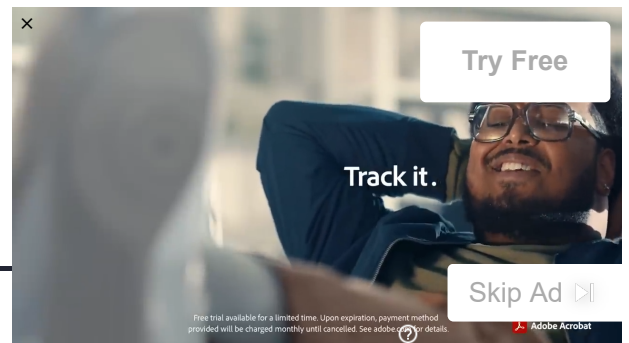
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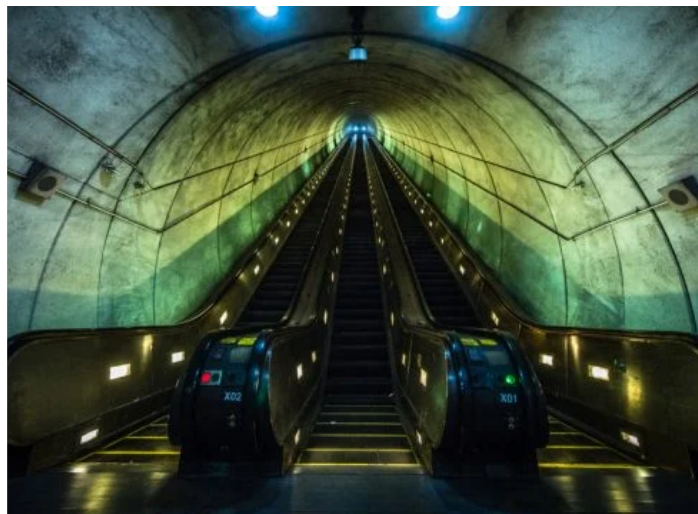
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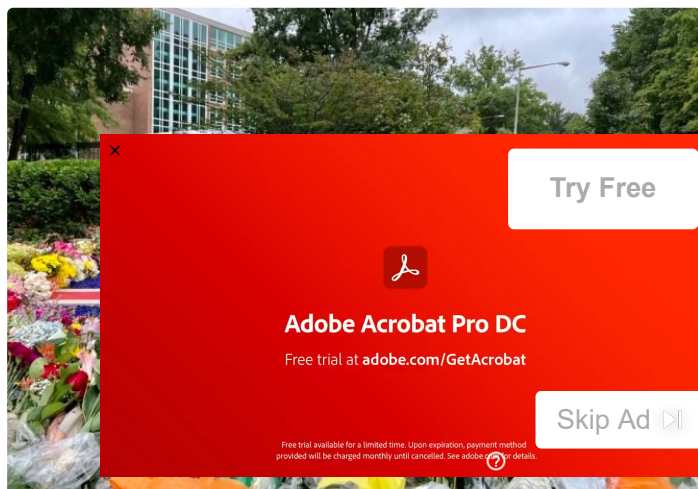
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Metro Will Begin to Return 7000-Series Trains to Service Thursday



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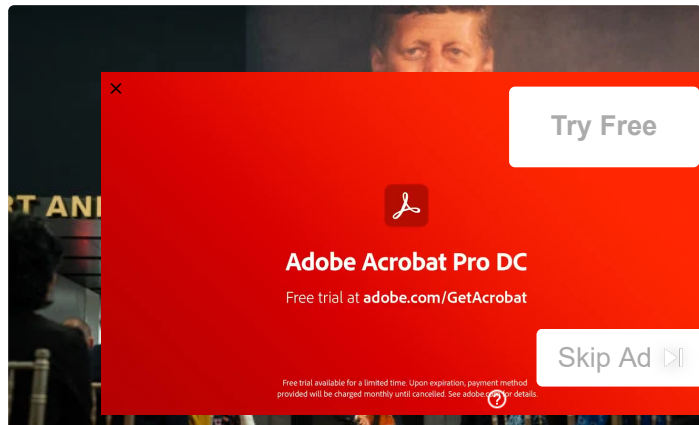
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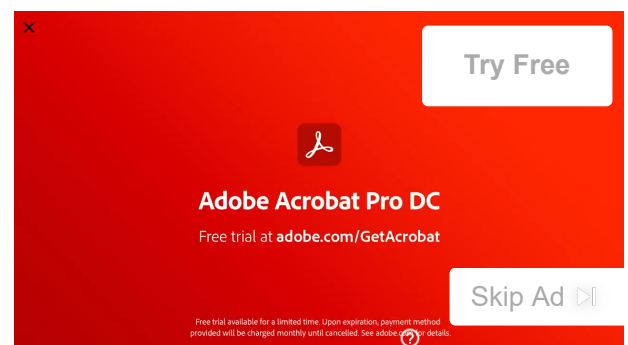
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# EXHIBIT O

LOCAL NEWS | DEC 1, 2015

# Platform Crowding Puts Metro 'So Close To A Deadly Incident,' Says Complaint

In new oversight role, FTA investigates excessive crowding



Martin Di Caro

LISTEN



Crowded platforms — some dangerously so — are an all-too-common sight on Metro, say riders.

Gary McCabe: <https://flic.kr/p/6FvYXs>

Federal officials are investigating a complaint about potentially dangerous platform crowding in the Metrorail system, an early test of their new relationship with the D.C. region's transit authority after assuming direct safety oversight of Metro in October.

"Metro is so close to a deadly incident," said the complaint filed with the Federal Transit Administration (FTA) by a Metro rider on Nov. 10 after a disabled train offloaded passengers onto a crowded platform at Gallery Place-Chinatown



station during morning rush hour. The FTA declined to release the rider's name, citing privacy rules.

"Metro station employees and loudspeakers did nothing to clear the platform, and it was extremely dangerous and scary," the complaint said. "If anyone had panicked, people would have been crushed to death and pushed onto the rails...it was nearly impossible to move."

The complaint spurred officials inside the FTA's new WMATA safety oversight office to contact Metro officials seeking answers.

Working on a [#WMATA](#) story. [@wamu885news](#) [pic.twitter.com/dwWJjBHB6a](#)

— Martin Di Caro (@MartinDiCaro) [November 30, 2015](#)

## Feds push for answers to platform crowding

In emails obtained by WAMU 88.5, the federal agency's lead accident investigator, George Good, asked Metro personnel whether they responded to the crowding complaint, reviewed similar conditions throughout the rail systems, and required any operational actions.

"What operational actions does WMATA take in this type of situation?" Good asked.

In an email response sent Nov. 20, Manny Kennerly, Metro's deputy chief of rail and facilities safety, promised the incident would be reviewed and the FTA would receive a report.

"In addition, identifying those stations that present challenging egress issues due to current station rehab construction efforts and strategies if a train offload occurs during peak hours," Kennerly said. "We are scheduled to meet [Nov. 24] and you are more than welcomed to attend."

Metro declined a request to interview Kennerly. A spokesman said "internal discussions" would happen before a response could "be generated to the FTA."

The FTA also declined interview requests, but a spokeswoman issued a statement confirming the investigation.

"FTA has been communicating with WMATA about the incident, and we are in the process of determining if WMATA has the appropriate procedures in place for addressing station overcrowding, as well as incidents onboard trains that may lead to station overcrowding," the statement said.

Packed platforms have become a common complaint of commuters as rail service has steadily deteriorated. Delays caused by track or railcar problems have a cascading effect, especially if a packed train is forced to offload its passengers onto an already crowded platform.

When Metro on-scene personnel determine a station is at an unsafe capacity, they often close the station or hold commuters at fare gates until platforms have a chance to clear once trains start moving again.

But even under normal operating conditions, crowding issues at the busiest, downtown D.C. rail stations have been known to Metro planners since the middle of last decade, and are used to support the argument for additional investment sooner rather than later in Metro's Momentum program — a \$6 billion wish list of unfunded projects to expand station capacity with wider platforms and mezzanines and new entrances and pedestrian walkways.

A 2008 Metro study identified Gallery Place-Chinatown among seven stations that already had crowding issues. Public documents released as part of the Momentum proposal named six stations “that would have inadequate ‘vertical circulation’ (stairs and escalators) by 2014: Farragut North, Farragut West, L’Enfant Plaza, Metro Center, Shady Grove and Union Station.”

You guessed it! Normal operations at Shady Grove! [#wmata pic.twitter.com/mWusNWAAvr](https://twitter.com/mWusNWAAvr)

— Ed Chernosky (@EdChernosky) [November 30, 2015](#)

## Giving passengers direction

In interviews Monday morning, commuters said platform crowding is getting worse.

“People get too close to the trains as they come in. There is a lot of overcrowding going on around here,” said Oscar Hines as a Red Line train arrived at the Gallery Place-Chinatown platform.

“If there was any kind of incident I think it definitely would be very dangerous,” said Manny Mekonen.

Beverly Johnson, another Red Line commuter, vented as a second consecutive train so crowded that she could not board arrived.

“It’s extremely dangerous. It’s too many people. I don’t understand why they don’t run 8-car trains all the time. It’s too crowded. Sooner or later something is going to happen where someone is going to get bumped off and hit by a train,” she said.

Metro must implement system-wide procedures to handle routine crowding, according to rail safety expert Lawrence Mann, who co-authored the Federal Railroad Safety Act of 1970.

“This would necessitate having more police on the scene,” Mann said. “Passengers get unruly when they don’t have free access to what they want.”

“Once passengers are aware this is a new policy, then they will go with it. Rather than having injuries, this is one way to deal with crowding,” he adds.

Mann said measures employing additional Metro personnel is a more practical solution than long-term projects to widen platforms and mezzanines that are years from being realized.



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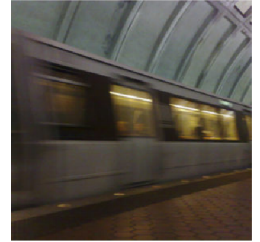
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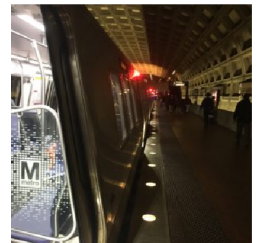
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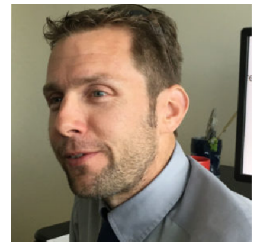
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# EXHIBIT P

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By: Bethany Peck

Posted on: January 20, 2014

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## 6 TIPS (FROM A LOCAL) FOR RIDING METRO



for Life, want your transportation to and from the March to be safe, comfortable, and commotion free.

Before leaving your bus, hotel room, or gym floor, make a plan, and communicate it to your team members. Make sure everyone in your group understands the fundamentals of riding the D.C. metro system. Plan your trip using the [Metro Trip Planner](#), know what color line you are getting on, know your departure station, and arrival station. Download and distribute to your group the [Metro Pocket Guide](#). Have a plan in case someone in your group gets separated in the crowd, or accidentally misses your train. Provide chaperone and group leader cell phone numbers to every participant of your group. Purchase fare cards ahead of time, and ensure you have enough money on the card to cover travel.

Here are six “local tips” which will help make your metro ride as smooth and as easy as possible. Follow these tips, and you’ll be riding the metro like a D.C. local!

**1. Have your metro card easily accessible, before you enter the station.** Metro Stations are crowded during rush hour, and even more crowded on the March for Life, during rush hour. One way to alleviate long lines, and avoid the frustration of fellow metro riders is to have your metro card ready, in your hand, before you enter the line for the faregate.

**2. Don’t Run.** I understand your scenario, and see it every day: you are walking down the escalator, and you see your train on the platform. You think “I better run so that I don’t miss that train!” You end up pushing and shoving, and someone gets hurt. I promise, another train will come, and most likely in no more than five minutes, and very often in less than 1 minute. Metro officials are expecting a high volume of riders this January 22, and are well accommodated for your arrival. The last thing that we want to happen is for pro-lifers to have a bad name among D.C. residents!

**3. When riding the escalators, stand to the right, walk to the left.** This is an easy way to avoid the annoyance of local metro riders. If you are going to stand, stand on the right hand side escalator and walk on the left, unless of course, everyone is walking, then walk.

**4. DO NOT try to hold the metro doors open.** Metro doors are not like elevator doors, and will close on your hand, arm, leg, backpack etc, and believe me, it hurts. Attempting to hold open doors will only delay train departure, frustrate your fellow riders, and possibly injure you. If you are afraid that some of your group members will be separated, make a plan ahead of time, in the event that this happens.

**5. Keep your valuables in a safe place.** Electronic thefts in metro stations have been on the rise in recent years. Metro advises that you put electronics away while riding metro, but if you must have them out, be aware of your surroundings. Most cell phone thefts happen near the door, so do not use your cell phone near the door of a metro. You don’t want to end up like this guy:

#### Snatch Theft Footage: Capital Heights



**6. Don’t eat or drink on Metro.** It is illegal to eat in the DC metro facilities; this includes escalators, platforms, trains and buses. There are large fines for eating, drinking and littering on metro. I think it’s safe to assume this is the last thing you want to spend your money on at the March for Life.

In short, be aware of your surroundings, and keep a close hold on your valuables, be courteous, don’t push, shove, or run. Treat Washington D.C. as you would treat your own home, and treat other riders, as you would treat your friends. Let’s blow away local riders by how courteous and polite pro-lifers are!



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# EXHIBIT Q

LOCAL NEWS | JUL 1, 2016

# Metro Sends Mixed Messages About Crowded X2 Buses



Martin Di Caro

LISTEN



The X2 has seen crowding like this since the start of SafeTrack, but why it's happening depends on who you ask.

Martin Di Caro/WAMU




When the D.C. region's transit authority announced the yearlong SafeTrack reconstruction plan, officials warned of a spillover effect: rail riders seeking alternatives to the train would cram into buses, bike lanes, and cars if they could not telework.

Four weeks into Metro's disruptive "maintenance surges," the evidence shows the larger transportation network is proving for the most part resilient. But there are some exceptions.

Riders on Metro's crosstown X2 bus line say since the start of the second surge — the closure of the Blue, Orange, and Silver Lines between Eastern Market and Minnesota Avenue/Benning Road stations — their buses have been even more



crowded. The X2 already is one of the busiest lines in the District with 14,000 daily trips.


**Arthur Delaney**   · Jun 30, 2016 




@ArthurDelaneyHP · [Follow](#)

**@Metrobusinfo** are there fewer X2 buses than usual, or fewer double ones? This week buses have been too full to board every morning @14&HNE

**Metrobus Info**  
@Metrobusinfo · [Follow](#)

We are using fewer articulated buses (double ones) to accommodate passengers during SafeTrack Surge #2 (shuttle buses).

9:17 AM · Jun 30, 2016 


 1  Reply  Share



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**Metrobus Info** 

@Metrobusinfo · [Follow](#)

9 bus divisions loaned some articulated buses for SafeTrack #2. 1/2

9:50 AM · Jun 30, 2016 

 1  Reply  Share

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Some X2 commuters say the reason was easy to discern: Metro was using fewer of the extended “articulated” buses (double buses) on their route. Arthur Delaney, a journalist who works in downtown D.C., tweeted at Metro’s official bus service account, @MetroBusInfo, asking whether his observation about the articulated buses was correct.

And during his trip on Thursday morning aboard a stuffed, standard length X2 bus, he got an answer.

“I tweeted at MetroBusInfo and I said, are there fewer big buses? And sure enough they said there were fewer big buses!” said Delaney, who said he was not surprised to receive a quick response from Metro’s official Twitter accounts despite the transit authority’s poor reputation for customer service.

In two tweets @MetroBusInfo explained, “We are using fewer articulated buses (double ones) to accommodate passengers during SafeTrack Surge #2. Nine bus divisions loaned some articulated buses for SafeTrack #2.”

The explanation seemed to make sense because Metro has deployed buses to affected portions of its rail lines during SafeTrack to help riders bridge the gaps in service. Fellow X2 rider Tom Rodems noticed the same thing.

“There is less of the extended, double buses. There are more of the single ones which, of course, if you have half the bus you can’t handle the same amount of people,” Rodems said.

Or so they thought. Metro spokesman Dan Stessel said the tweets were wrong.

“It is not accurate. To the extent that the X2 seems more crowded, it is due to the fact that some people are using it as an alternate travel option,” Stessel said. The X2 does service the Minnesota Avenue and Benning Road Metrorail stations, available to rail riders on the eastern side of the shutdown line segment.

Metro also recently implemented changes to bus service across the system. Commuter Lisa Heintz said that is how she wound up aboard a crowded X2 on Thursday.

“I prefer the D4 and D3, but they recently stopped the service at this convenient time of SafeTrack so my options are even more limited right now,” Heintz said. “It is really bad timing.”

Either way, Delaney said his commute has gone from crowded to intolerable.

“I got to my stop at 9 and three buses came by that people couldn’t get on because they were too crowded. That was unusual before SafeTrack but in the last week at least that has happened several times,” he said.

On Thursday evening after work, moments after Delaney got off his X2 bus at H and 14th Streets Northeast, a D.C. streetcar glided by. The new, \$200 million streetcar line shares about two miles of the X2’s route.

The streetcar was mostly empty.



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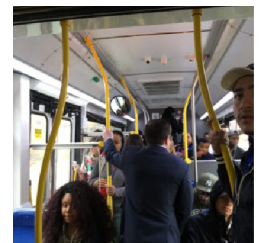
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3:01



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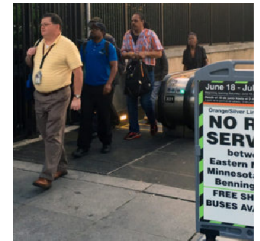
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# **EXHIBIT R**

## NewsRoom

1/18/09 Wash. Post (Wash., D.C.) M  
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January 18, 2009

Section: Online

Obama Joins Crowd on Mall for Free Concert

Debbi Wilgoren

The country's top musical stars joined masses of ordinary Americans on the National Mall today to serenade President-elect Barack Obama, offering up an emotional and patriotic tribute to open the inaugural festivities for the nation's first African American chief executive.

Onstage in front of the Lincoln Memorial, with sharpshooters clearly visible atop the marble roof, Obama told the gathered crowd that the optimism that fueled his historic campaign has not waned in the face of military and political challenges from abroad and an unprecedented economic crisis.

"What gives me the greatest hope of all is not the stone and marble that surrounds us today, but what fills the spaces in between," Obama said. "It is you, Americans of every race and region and station who came here because you believe in what this country can be and because you want to help us get there. . . .

"And as I prepare to assume the presidency, yours are the voices I will take with me every day I walk into that Oval Office." The Mall was filled with tens of thousands of people who had crammed onto Metro trains and buses or strolled luxuriously across a bridge from Virginia where vehicular traffic had been banned.

Folks came from all over the Washington region and from South Carolina, California and Atlanta; from York, Maine, and Wayland, Mass.; and from a tiny city in Alaska known by the name "North Pole." Although some said they were attending the "We Are One" concert as a less-onerous way to catch their piece of history, many said they planned to bundle up again and join the even-larger throngs expected for Tuesday's swearing-in and inaugural parade.

"A part of history's going on," said Michael Nolan, 50, of Arlington, explaining why he'd be back on Tuesday. "If I don't [go], I won't be able to tell the stories later."

Out-of-towners echoed the sentiment. "It's really a chance to be part of a change in the country's direction," said Steve Jendezejec, 53, of York.

The program of music and inspirational speeches{vbar}[http://voices.washingtonpost.com/postrock/2009/01/live\\_from\\_the\\_lincoln\\_memorial.html?hpId=topnews](http://voices.washingtonpost.com/postrock/2009/01/live_from_the_lincoln_memorial.html?hpId=topnews) included mega-rock stars like Bruce Springsteen, Shakira, Bono and Stevie Wonder, sometimes jamming together and sometimes backed up backed up by choirs. It closed with a mass singalong

of "This Land is Your Land," led by Bob Dylan and an aging Pete Seeger, and by Beyoncé's soulful rendition of "America the Beautiful."

Obama and Vice President-elect Joseph R. Biden Jr. and their families sat on the side of the stage, behind a wall of protective glass. With Barack and Michelle Obama bopping to the music, 7-year-old Sasha bouncing excitedly in her seat, and 10-year-old Malia calmly recording the scene with her digital camera, Washington and the country (via HBO broadcast) were offered their first extended glimpse of the youthful First Family-to-be since last summer's Democratic Convention.

The crowd filled much of the western half of the Mall, in a modern-day, wintry reprisal of the 1963 March on Washington at which the Rev. Martin Luther King Jr. made his famous "I Have a Dream" speech.

About 30 minutes before the concert was to begin, one checkpoint near the World War II Memorial was closed, with thousands of people still waiting to get in. They were rerouted to a different gate, without explanation. Other checkpoints were also closed as the concert started, with security officials saying the space inside had reached maximum capacity. Those beyond the barriers resigned themselves to watching the festivities from there.

Although there were large patches of space available near the frozen, murky Reflecting Pool, those outside the checkpoints filled the remaining space all the way to the grounds of the Washington Monument. A crowd formed at 19th Street and Virginia Avenue, unable to cross Constitution Avenue to join the celebration.

David Sandson, 42, gazed at the masses crowded around one checkpoint with dismay.

"No one attending Martin Luther King's speech had to pass through a metal detector to hear those words," said Sandson, who is in the military and lives in Arlington. "It's unfortunate things have come to this."

But others shrugged off the inconvenience. "It's worth it" to be at the concert said Joann Wilson, 43, a property manager from Greenwood, S.C. "I don't have anything to hide." Just east of the World War II Memorial, biology teacher Meghan Hewitt of New Haven pressed close to Spencer Homick, a tear wetting her right cheek as she watched a video feed of the ceremony getting underway. Obama was introduced, and the two sang along with the national anthem, with scores of thousands backing them up.

"I'm just really happy and I hope nothing happens" to Obama, Hewitt said, as Springsteen started to sing.

LaNisha Tindal, 32, a school administrator, and her mother Alfreda drove all night from South Carolina so they could get to the Lincoln Memorial by 7 a.m., hours before the lines at security checkpoints formed and grew long. They claimed an invaluable piece of real estate -- a small bench they shared with DeJohn Cromer, 24, the visitor from North Pole. The trio said they did not mind that they had to sit next to two dozen porta-potties. They waved off strangers offering cash for their seats, including one man who volunteered \$100. "I've been here too long," said Lanisha Tindal, as the 2:30 p.m. concert time drew closer. "I'm not giving this up for anything."

While transit was packed, <http://www.washingtonpost.com/wp-dyn/content/article/2009/01/18/AR2009011800912.html> and many streets that were open to traffic were far busier than on a normal Sunday, there were no reports of gridlock or major transportation breakdowns. In a limited version of the widespread closures <http://www.washingtonpost.com/wp-dyn/content/article/2009/01/17/AR2009011702696.html?hpid%3Dtopnews&sub=AR> that will be in place on Tuesday, Roosevelt bridge from Virginia was open only for pedestrian use; several roads west of the White House and around the Mall were off-limits.

By 2 p.m., the lines at security checkpoints had slowed significantly. Police and security staff searched everyone's bags. Although they performed only sporadic pat-downs, at some checkpoints the lines stretched to hundreds of people and full city blocks.



"Good thing we have till Tuesday," quipped Patrice Wedderburn, a public policy associate from Northeast Washington, craning her neck as she gazed at hundreds of people still ahead of her at a checkpoint.

"We'll come earlier on Tuesday," vowed her friend Adria Hutson, 28, a nonprofit employee from Silver Spring.

From her choice vantage point on a tree branch, seven feet above the ground, 12-year-old Bria Walton of Atlanta hoped to be able to glimpse Beyoncé as well as hear her. Her parents, Melissa and Daren Walton, said the racial diversity of the crowd was a positive sign.

"It's a historic event," Daren said. "When you look around, you don't see African Americans, Caucasian Americans. . . . You see everyone."

Just past the checkpoints, the World War II Memorial was the first stop for some of the visitors once they entered the restricted area.

Annie and Alvin Kitchens, 54 and 51, respectively, posed for a picture in front of the memorial's Georgia column. The couple, who are African American, said they drove up from Atlanta yesterday, pulled by the desire to see the first black president sworn in.

"We do not even feel the cold. We feel the excitement," Annie Kitchens said.

In line behind her were fellow Atlantans Karen Williams, 43, and her 9-year-old daughter, Erin Billings, who both volunteered for Obama during the presidential campaign. Williams, wearing an Obama ski cap, said she was moved to meet families "from all 50 states and all races. . . . This is what America is supposed to be like."

Nearby, waiting for a picture by the Massachusetts part of the memorial were Harry and Joan Stoddard, a white couple from Boston. They recalled traveling to the Mall from Boston for antiwar demonstrations in the 1970s and witnessing a very different crowd. "People were loud and angry. Some carried signs attached to baseball bats. . . . Today here people are happy and celebrating," said Harry Stoddard, 66, a retired lawyer.

The crowds built steadily all morning, while Obama and Biden visited Arlington National Cemetery for a wreath-laying and during the 90 minutes the president-elect and his family spent attending church services <http://www.washingtonpost.com/wp-dyn/content/article/2009/01/18/AR2009011800786.html?hpid=topnews> a few miles away on upper 16th Street NW.

There was a celebratory atmosphere, but there was also a heavy police presence in place, and Maryland National Guard units in camouflage uniforms stood every 20 yards or so along the fences blocking off access to the Mall along 17th Street, south of Constitution. Visitors were directed to enter through one of the security checkpoints. Park rangers in green outfits and U.S. Park Police in dark blue were also along the route.

Ranger Joram Thomas said there had been no problems. "A little cold, but people are sustaining themselves accordingly," he said.

With predictions that as many as 500,000 people could come to see the concert, dozens of buses had been dispatched to the vast parking lots around RFK Stadium east of the Capitol, ready to ferry people who drove to the stadium the rest of the way to the concert zone. But as of 11:20, the buses were idling and empty. They far outnumbered the parked cars in the lots.

Those who came to the Mall earliest, not surprisingly, had the easiest time passing through the public security checkpoints. It was well before 11 a.m. when the Gordon family of Wayland, Mass., was waved through the checkpoint outside the World War II Memorial in a matter of seconds.

Dad Neil Gordon, 55, summed up the family's reason for coming: "It's history."

"We're here for the music today," said mom Ann Gordon, 52. "But we'll be back Tuesday" for the actual swearing-in.

Pedestrians took the rare opportunity to walk in the middle of the typically clogged Roosevelt Bridge -- which today is closed to inbound traffic and nearly free of outbound traffic, since there are few ways to access the ramps.

"How often do you get to stand in the middle of the Roosevelt Bridge?" asked Mike Broder of Arlington. He was part of a sporadic stream of walkers making the trek from Rosslyn, where many said parking was easy.

"How cool is this? We're walking into the city," said Gaylen Cragin, 27, of Clarendon. Her group, like many others, planned to walk back after the concert and take either Metro or a cab home.

Mike Crowley, 34, of Arlington had his photo taken under the exit sign for E Street, in honor of Springsteen's E Street Band. "I want to yell out, 'Jenny!' to Tom Hanks," he said, referring to Hanks's scene at the Lincoln Memorial in the "Forest Gump" movie, "If I can get anywhere near the stage."

Hanks is one of the celebrities scheduled to read passages at this concert.

On the Mall, just before 11:30 a.m., medics and police in riot gear pushed their way through the crowd on the north side of the Reflecting Pool, responding to a call for emergency assistance. D.C. police spokeswoman Traci Hughes said a 78-year-old Virginia man had gone into cardiac arrest and was receiving treatment. A fire department spokesman said later that the man was reported to be okay.

Seated with their backs against the barricade that separated them from the Reflecting Pool, Geraldine and Lynn Johnson, a mom and daughter from Los Angeles, were cheery and bundled up.

They said they've had to make some purchases since arriving in Washington three days ago: warm boots, hand and foot warmers and lots of extra layers. "We have been here three days and have made adjustments," said Geraldine Johnson, 65, a part-time school nurse. "I feel part of the positive atmosphere."

Up the grassy bank nearby was Clancy Sullivan, 60, parked in a lawn chair. Sullivan, who is also a nurse, said she remembers watching King's 1963 speech on television while studying nursing in Baltimore. She called the location of today's event "apropos," adding: "I think the dream has come true."

Not everyone who was on the Mall this morning had come there expecting to run into history. Kyeyong Choi, 26, a graduate student at George Washington University who hails from South Korea, was asking why so many people were here today.

"Just came to see the Lincoln Memorial," he said. "Too many people."" Told what was going on, he said he would be staying for the concert.

As hundreds crowded the sidewalks along 17th Street on their way to the show -- passing camouflaged Hummers parked every few blocks -- vendors were barking for deals on hats, T-shirts, hand warmers, even tissues for the thousands of portable toilets standing sentry before along the Mall.

"Tissues for the porta-potties," yelled Taylor Barley of Orange, N.J. "They're already out!"

But when pressed, she admitted the pitch was false.

"It's not true," she told a Post reporter. "It's just a business ploy."

Still, she reasoned, if work crews don't reliably restock the portable toilets, it could eventually turn out to be true. "There's only two rolls" per porta-potty, she said.

Staff writers Michael Birnbaum, Michael Alison Chandler, Theola Labbé-DeBose, Tom Jackman, Michael A. Laris, Dan Morse, Jonathan Mummolo, Paul A. Schwartzman, Mary Beth Sheridan, Lena H. Sun, Michael Taylor and Eric Weiss contributed to this report.

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## NewsRoom

# EXHIBIT S

## NewsRoom

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2015 WLNR 23192775

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August 6, 2015

Issue LOCALLIVING  
Section: Metro

Is it your fault the Metro train is jammed?

Robert Thomson

When Metrorail riders tell me what they want out of a trip, the words "reliable" and "comfortable" come up all the time.

Unfortunately, these words - essential to success in public transit - have not been used to describe the summer's service. This letter from an Orange Line rider is more typical.

Dear Dr. Gridlock:

I got on an Orange Line train this morning [July 29] at East Falls Church. By the next stop it was pretty tightly packed, I gather, because of some earlier delay that had snowballed.

We rumbled uncomfortably through Court House, then stopped in the tunnel, where we stalled for more than 30 minutes. Passengers were exceedingly patient, giving up seats and sharing water bottles with those who were reaching the point of panic or exhaustion.

Minimal announcements were made about what was happening. And every one of them said in essence that the train had malfunctioned due to "excessive ridership." One Metro staffer who pushed through the crowd to check on the problem was grumbling that - and I paraphrase - these trains will just shut down if they're overcrowded, so people need to think about that next time they push onto a crowded car.

Wow, seriously? Provide miserable service that's making everyone late for work, then blame the passengers? Are our trains really shoddy enough that they up and quit when they're full?

I bet this kind of thing happens more often than makes the news, but I refuse to accept it as status quo. I bike-commute as much as my endurance allows, and Metro heaps on the motivation.

Gina Cicotello, Arlington



DG: That was an especially bad morning on the Orange, Silver and Blue lines. But it wasn't rare. Delays on those three lines because of train breakdowns and switch malfunctions were prevalent through the week. Several incidents, including the one that Cicotello endured, occurred near Rosslyn, where the three lines share tracks for the trip into the District.

Her broken train had to be pulled back to the Court House station and unloaded.

Was the ridership "excessive"? Cicotello said the train was normally crowded when she got on, but after the next stop, at Ballston, "we were wedged in like sardines."

Doors malfunction too easily when riders are pressed up against them. But you can't blame the riders for wanting to board a crowded train. During the morning rush, they say, there is no other kind of train.

Think about what Cicotello and thousands of riders experienced in evaluating the transit staff's proposal to widen the gaps between trains on the Orange, Silver, Green and Yellow lines.

The staff hopes that reducing the number of trains competing for track space at junctions such as Rosslyn and East Falls Church will make the schedule more reliable.

But the key problems with the condition of the tracks and the rail cars wouldn't go away any time soon. So, even if riders endured the additional crowding that came with a reduced train schedule, they might not get the benefits of a more dependable trip.

#### Across town

The problems of uncomfortable and unreliable trips aren't limited to the west side of the rail system.

Dear Dr. Gridlock:

I normally take Metrorail to my job in Suitland. I start my trip in Arlington, catching either an Orange or Silver Line train and transfer to the Green Line at L'Enfant Plaza.

Before the Rush Plus service and the Silver Line opening, Green Line trains would typically arrive once every six minutes during the morning rush. Recently, this has not been the case.

On June 22, for example, I had to wait at least 15 minutes for a Green Line train headed toward Branch Avenue. I counted five consecutive Yellow Line trains before a Green Line train arrived at the platform.

There were announcements about a delay clearing weekend track work near Prince George's Plaza.

I usually don't have to wait 15 minutes, but a 10- to 12-minute gap between Green Line trains headed southward seems to be the norm these days at L'Enfant Plaza, where I arrive about 7:30 a.m.

Kevin Johnson, Arlington

DG: Many riders will remember the delayed end of the weekend track work June 22. The failure to clear the Green Line work zone meant that trains had to share a track from 5 until 8:25 a.m. That led to long delays for riders and long gaps between Green Line trains.

But as Johnson notes and as Metro officials acknowledge, the Green and Yellow lines are frequently off schedule. It doesn't take an extraordinary incident.

Here again, the transit officials are focused on what happens when the off-schedule trains reach rail junctions, such as L'Enfant Plaza, where the Green and Yellow lines come together.

In theory, Metro's proposal to widen the gap between the trains on each of those lines from six to eight minutes could make the merges smoother.

But even if the Metro board decides in the fall to go ahead with the new schedule, it wouldn't be a long-term solution.

This is a highly mobile region in which jobs sites are shifting and housing is being created, with a particular emphasis on sites around Metrorail stations.

Widening the gap between trains is a service cutback, and in a growing region, it's unsustainable.

robert.thomson@washpost.com

---- **Index References** ----

Company: L'Enfant Plaza; METRO INC; ROSSLYN DATA TECHNOLOGIES PLC; SILVER LINE PLASTICS CORP

Industry: (Busing (1BU35); Land Transportation (1LA43); Passenger Railroads (1PA89); Passenger Transportation (1PA35); Railroad Equipment (1RA68); Railroads (1RA98); Transportation (1TR48))

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**NewsRoom**

# EXHIBIT T

## NewsRoom

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February 8, 2007

Section: A Section

Metro Car Trial Run Offers A Ride on the Short Line

Lena H. Sun

It's rush hour, and riders are packed into a Metro train tighter than, well, sardines in a can. Could it be any worse? Yes, you could be the short sardine.

It's next to impossible to find something to hold on to. The floor-to-ceiling poles are filled with grubby hands. The overhead bars are hopelessly out of reach. So many wannabe straphangers stand anchorless, stuffed into the armpits of the taller throngs around them, hoping the train doesn't jerk to a stop.

After years of pleas from the height-challenged, Metro responded yesterday with a single rail car designed to help short people: It has spring-loaded overhead handles that pull down eight inches from standard ceiling bars.

The car will run on the Green, Red and Orange lines, and managers will use video cameras to monitor passenger reaction for up to three months before deciding whether to install the handles in more cars.

"I think they could be adjusted downward," said Chris Zimmerman, who is vice chairman of the Metro board and 5-foot-9-ish, looking for the handles to be angled a touch more favorably as he tested them on Car No. 6027. "If it looks like they have the potential to improve the quality of the ride, hopefully we can deploy them on more of the fleet."

On Metro's newer cars, which operate on the Green Line, overhead bars suspended from the ceiling are 6 feet 4 inches from the floor. (The bars are even higher on older cars.) The spring-loaded handles, when pivoted downward, are 5 feet 8 inches from the floor.

It's the first time in Metro's 31-year history that managers considered height in a car design. Even on cars rolled out last fall, the short came up short.

"It wasn't on anyone's radar," said Jeff Pringle, 6 feet 7, a senior program manager.

Nationally, the average height of a man age 20 to 74 was 5 feet 9 1/2 in 2002, the most recent numbers available from the National Center for Health Statistics. The average height of a woman was 5 feet 4.

Nancy Iacomini, a bit below average at 5 feet 2, said she's a fan of the new handles. "I like them," said Iacomini, a member of Metro's Riders Advisory Council and a longtime commuter.

Brenda Estes, 5 feet 3, also gave a thumbs up. "They need those on the buses, too," she said.

Oswaldo Reyes, 5 feet 6, said the handles would give people something to grab on to and prevent falls. "Es mejor para la seguridad," he said. Better for safety.

But for riders such as Anne Herrmann, who is 85 and 4 feet 9, the handles are still too high. "I try to use those vertical poles, and I try to avoid real rush hour," she said. As the train pulled into King Street, she reached for a handle but missed by several inches. "No way," she said, as she got off the train.

Some rider advocates said Metro should test the handles in more cars. "Shorter riders shouldn't have to search for the one car in the whole Metrorail system that is equipped with these handles," said Jack Corbett, 6 feet 7, of MetroRiders.org.

The handles were installed on one of the new rail cars on the Green Line. Finding something to grab on to in those cars is especially tough, because they were designed to reduce crowding at doors, so floor-to-ceiling poles, the lifeline of the short, were removed.

People of below-average or even average height are left reaching for a seat back or an overhead bar, if anything at all.

"I always try not to use the overhead bar, because they're kind of uncomfortable, especially if you have a backpack or a shoulder strap of a purse on your shoulder," said Shelagh Bocoum, 5 feet 5, who commutes from Fort Totten to downtown Washington. Plus, she noted, "it's not fun to have people's underarms in your face."

Metro officials said they tried to make up for the lack of vertical poles by adding more seat-back-to-ceiling poles and a second row of ceiling bars. But riders said those are all hard to reach, especially in crowds.

So they rely on strategies honed over years of experience.

Iacomini goes first for the vertical poles on older trains. "It's like that game with the baseball bat, where you're trying to fit as many hands on the bat as possible, and here we are, these littler people, trying to put your hand on, and you look at these six-foot-tall people and you're thinking to yourself, 'Their hands have to go higher.' "

In the center of the car, if she reaches for a seat-back railing and misses, "you end up grabbing a woman's hair or a man's scarf," she said.

"What I try to do is get a hand on the windscreen," she said, referring to the panels that protrude from the doors, a spot where Metro officials don't want people to stand. "I bend my knees slightly and sway a little bit. It's a Zen moment. I become one with the car."

It's not so great being tall, either, some riders said.

Jeff Aron, 6 feet 5 1/4, said he usually has to duck when he gets in and out of trains to avoid bumping his head against overhead bars. He's been riding the Red Line for 12 years, so he's used to the routine. "I'm aware of where I am and what I have to do," he said.

Staff writer Lena H. Sun is 5 feet 2.

**---- Index References ----**

Company: METRO CESKA REPUBLIKA AS; METRO CASH AND CARRY FRANCE SAS; METRO; METROPOLITAN TRANSIT AUTHORITY OF HARRIS COUNTY TEXAS (INC); METRO CASH AND CARRY DEUTSCHLAND GMBH; METRO NV; METRO SA; METRO (PRIVATE) LTD; EMPRESA DE TRANSPORTE DE PASAJEROS METRO SA; METRO AG

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**NewsRoom**



# EXHIBIT U

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

# PERFORMANCE REPORT

Q4/FY2021

July 2020 – June 2021



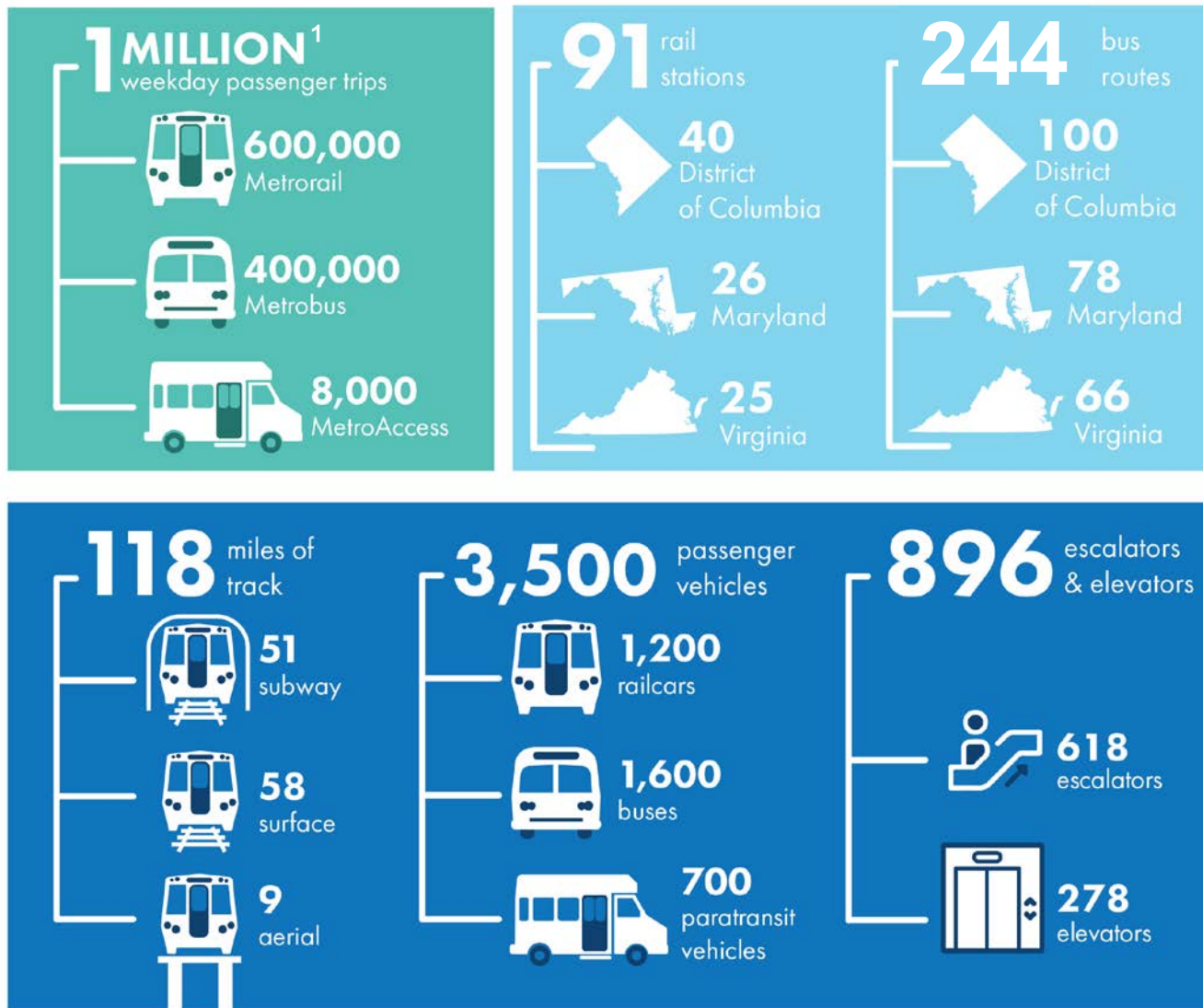
Published

September 23, 2021



# ABOUT METRO

The Washington Metropolitan Area Transit Authority (Metro) is one of the largest transit organizations in the United States. Formed in 1967 under an interstate compact among the District of Columbia, the State of Maryland, and the Commonwealth of Virginia, the Metro service area is approximately 1,500 square miles, with a population of approximately four million people. Metro provides three core transit functions: Metrorail, Metrobus, and MetroAccess paratransit. Prior to the pandemic, average weekday passenger trips combined on all three modes totaled approximately one million.



<sup>1</sup>As of March 1, 2020. The Covid-19 pandemic has impacted these statistics.

# HOW TO READ THIS REPORT

The FY2021 Metro Performance Report highlights Metro's performance on a suite of key performance indicators (KPIs) that evaluate how well the agency is delivering its mission to provide safe, equitable, reliable and cost-effective public transit and meeting the standards the Board has set for safety and service. These KPIs follow industry standard and align to the safety performance measures established in the Federal Transit Administration's National Public Transportation Safety Plan.

The report compares performance for the period of July 2020 - June 2021 to the targets that Metro set for the fiscal year. Colored indicators throughout the report show the status against target.

**In FY21, Metro met or exceeded target for all 20 measures, including 11 Safety & Security measures and nine Quality Service measures.**



## Safety & Security

**All Safety & Security KPIs met target in FY21. These include:**

- Part I Crime
- Metrorail Customer Injury Rate
- Metrobus Customer Injury Rate
- MetroAccess Customer Injury Rate
- Rail System Employee Injury Rate
- Bus Employee Injury Rate
- NTD Bus Collision Rate
- Rail Collisions
- Derailments
- Fire Incidents








## Quality Service

**All Quality Service KPIs met target in FY21. These include:**

- MyTripTime
- MetroAccess On-Time Pick-up Performance
- Rail Fleet Reliability
- Bus Fleet Reliability
- MetroAccess Fleet Reliability
- Elevator Availability
- Escalator Availability
- Available Track

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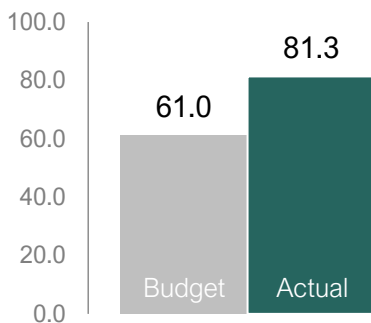
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	<b>SAFETY &amp; SECURITY</b>	<ul style="list-style-type: none"> <li>▪ Crime</li> <li>▪ Injuries</li> <li>▪ Safety incidents</li> </ul>	PAGE <b>6</b>
	<b>QUALITY SERVICE</b>	<ul style="list-style-type: none"> <li>▪ On-time performance</li> <li>▪ Fleet reliability</li> <li>▪ Asset availability</li> <li>▪ Crowding</li> </ul>	PAGE <b>15</b>
	<b>FINANCIAL RESPONSIBILITY</b>	<ul style="list-style-type: none"> <li>▪ Balanced budget</li> </ul>	PAGE <b>26</b>
	<b>APPENDIX</b>	<ul style="list-style-type: none"> <li>▪ A: Data table</li> <li>▪ B: Definitions</li> </ul>	PAGE <b>28</b>

# RIDERSHIP

The total ridership of 81.3 million in FY21 was 33% above the forecast of 61 million, but 65% below FY20 ridership.

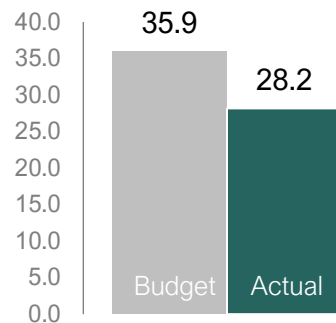
In a departure from historic trends, Metrobus ridership in FY2021 exceeded Metrorail ridership, with almost twice as many Metrobus customers compared to Metrorail customers.

## Ridership in millions ↑



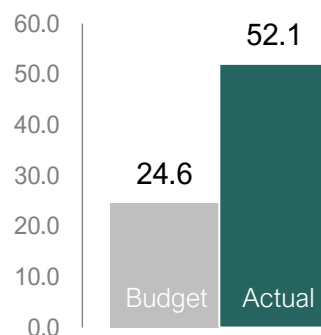
## Metrorail Budget Actual ↑

- In FY21 Metrorail ridership was 28.2 million, 22 percent below budget and down 79 percent compared to the prior year
- Average weekday ridership for Q4 was 122,000, almost three times Q4 of FY20
- Average weekend ridership was 79,000, almost 3 times Q4 of FY20



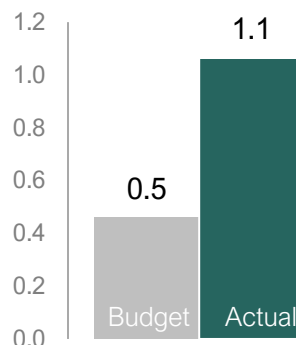
## Metrobus Budget Actual ↑

- In FY21 ridership was 52.1 million, more than double the budget but down 46 percent compared to the prior year
- Average weekday ridership for Q4 was 174,000, more than twice Q4 of FY20
- Average weekend ridership for Q4 was 108,200, almost three times Q4 of FY20



## MetroAccess Budget Actual

- In FY21, ridership was 1.1 million, more than double the budget, but down 41 percent compared to the prior year
- Average weekday ridership for Q4 was 4,140, almost 2 times more than Q4 of FY20



Metro's [Ridership Data Portal](#) provides ridership data since 2010, including during the pandemic. Engage with the data through interactive dashboards using the Data Viewers ([Rail](#), [Bus](#), [Parking](#)).

## Legend

● Met or above target | ● Near target | ● Target not met | ● No target | ↑↓ Desired direction



Desired direction



Each fiscal year, Metro establishes performance targets for KPIs. These KPIs and targets are an important way to track progress through the year, and ultimately reflect how effectively Metro is delivering its mission to provide safe, equitable, reliable and cost-effective public transit.

In FY21, mode-level safety performance targets were established as part of Metro's Agency Safety Plan (ASP). The table below shows Metro's performance against target for this set of measures:

## Metro Agency Safety Plan | FY21 performance against target

KEY: target met target missed

FY21 ACTUAL	RATES (PER 10 MILLION VEHICLE REVENUE MILES)			COUNTS		
	fatality rate	injury rate	safety event rate	fatality count	injury count	safety event count
Metrorail	0.41	20.1	9.7	3	147	71
Metrobus	1.13	74.4	54.9	3	198	146
MetroAccess	0	16.6	17.3	0	23	24

FY21 TARGETS	RATES (PER 10 MILLION VEHICLE REVENUE MILES)			COUNTS		
	fatality rate	injury rate	safety event rate	fatality count	injury count	safety event count
Metrorail	0	38.1	11.1	0	324	95
Metrobus	0	95.7	69.3	0	359	260
MetroAccess	0	24.2	7.8	0	54	18

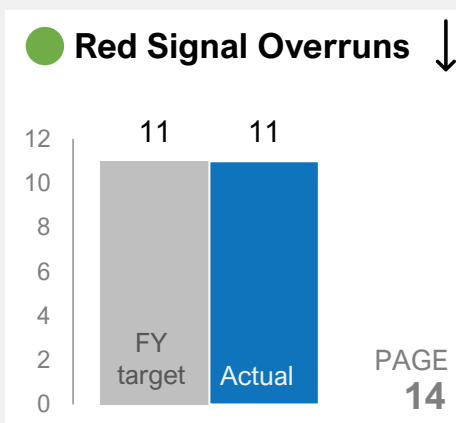
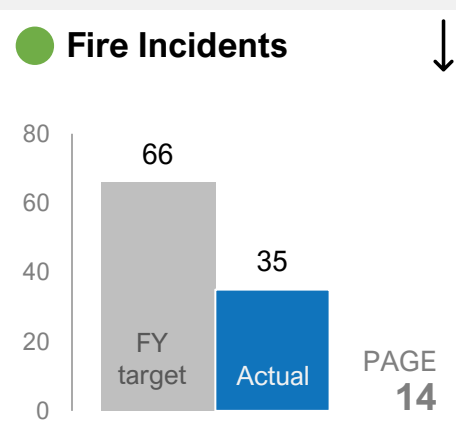
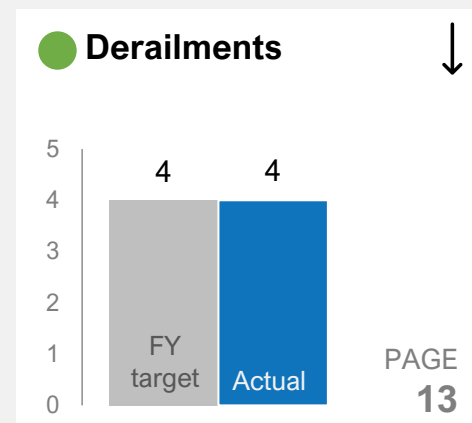
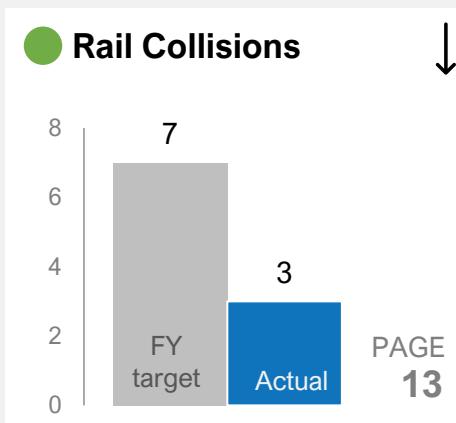
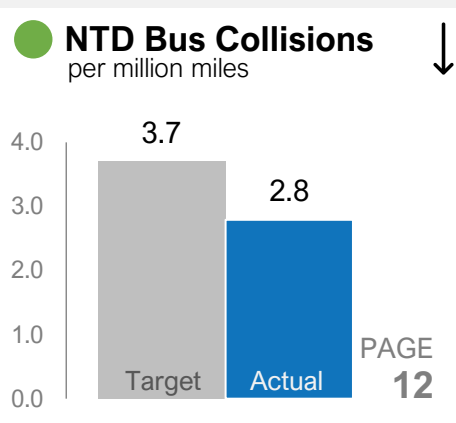
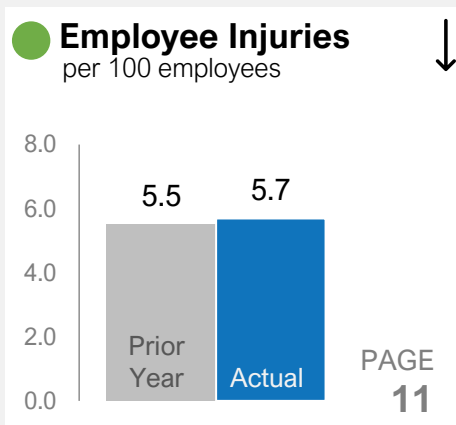
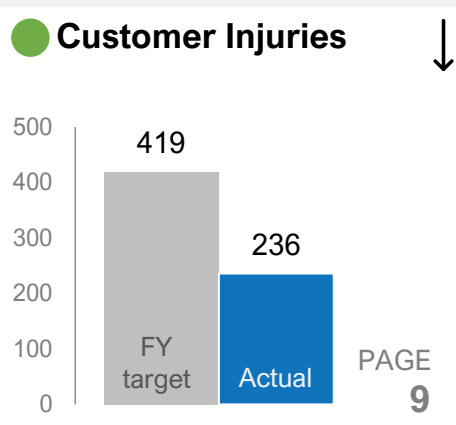
For internal management and public reporting, Metro developed a suite of measures and targets that feed into the mode-level, summary KPIs above. For safety performance measures related to employee injuries and reportable safety events, the approach is to continuously improve relative to prior years' performance levels. This follows Federal Transit Administration (FTA) guidance to set realistic targets, emphasizes the importance of building a safety culture, motivates staff to improve, and moves the agency along a glidepath to zero safety events.

Measure	FY21 target	Methodology
Rail Customer Injuries   # of injuries	177 or ↓	Achieve FY2020 rate by end of year
Bus Customer Injuries   # of injuries	154 or ↓	Achieve FY2020 rate by end of year
MetroAccess Customer Injuries   # of injuries	35 or ↓	Achieve FY2020 rate by end of year
Rail System Employee Injuries   # per 100 employees	3.5 or ↓	5% improvement from 3-year average
Bus Employee Injuries   # per 100 employees	11.2 or ↓	5% improvement from 3-year average
NTD Bus Collision Rate   # per million miles	3.7 or ↓	7.5% improvement from 3-year average
Rail Collisions   # of collisions	7 or ↓	Improve relative to FY2020
Derailments   # of incidents	4 or ↓	Improve relative to FY2020
Fire Incidents   # of incidents	66 or ↓	Improve relative to FY2020
Red Signal Overruns   # of incidents	11 or ↓	Improve relative to FY2020



# SAFETY & SECURITY

The following highlights system-wide safety performance through the end of FY21.



## Legend

● Met or above target | ● Near target | ● Target not met | ● No target | ↑↓ Desired direction



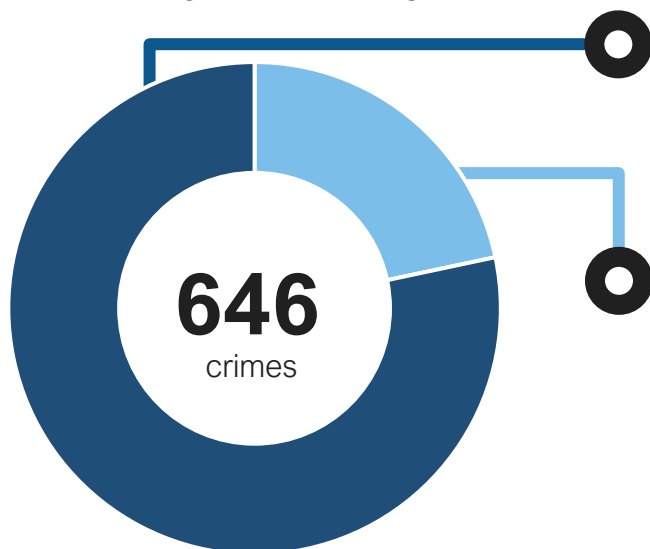
## ● Crime | 646 Part I Crimes FY target ≤ 840

**During FY21, there were 646 Part I crimes, about 54 crimes per month, meeting target of no more than 840 crimes.**

Metro had 45 percent fewer crimes in FY21 compared to FY20. However, when scaled to ridership, the Part I crime rate increased 55 percent compared to FY20, with 7.9 crimes per million trips in FY21 compared to 5.1 in FY20. Roughly two-thirds of crimes occurred on Metrorail in FY21; although this is similar to FY20's result, rail ridership was down almost 80 percent in FY21, as compared to only 46 percent for Bus.

Crime rates may have increased during the pandemic due to several reasons: Lower ridership may embolden some offenders as there are fewer "eyes" in the system, and extended scheduling and docketing timelines mean that some offenders are released by the courts on their own personal recognizance. The Metro Transit Police Department has not substantially changed their policing practices and policies during the pandemic and continue to heavily investigate all crime.

### PART I CRIME BREAKDOWN



#### Crimes Against Property – 78%

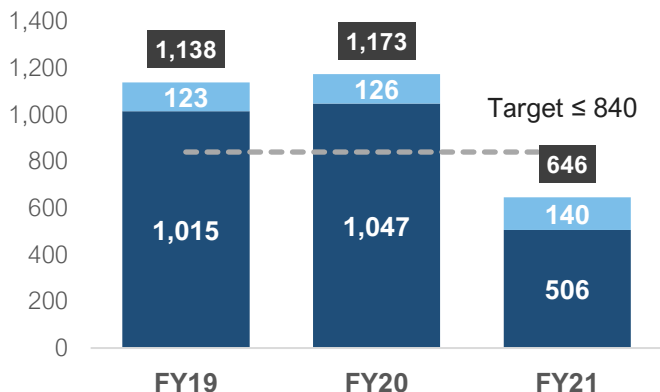
There were an average of 42 crimes against property per month across the system. These include theft, arson, robbery, and burglary. This total represents a 52 percent decrease from the previous fiscal year.

#### Crimes Against Persons – 22%

There were an average of 12 crimes against persons per month across the system, which include aggravated assault, homicide, and rape. This is an increase from last fiscal year and in line with the experience of other jurisdictions in the region.

### THREE-YEAR TREND | goal to decrease

■ Crimes Against Property ■ Crimes Against Persons



### Key actions to sustain performance

- ▶ Enhance safety features to reduce all types of crimes across the systems: Install public safety radio systems, Improve station lighting.
- ▶ Deploy Daily Security Observation Response Team (SORT) details for increased visibility to deter crimes against persons and property in rail stations.
- ▶ Establish and staff the temporary District III police station.
- ▶ MTPD's Youth Services Unit (YSU) and Community Engagement Officers will aid efforts in reducing crime, engaging with the community, and monitoring crime trends.



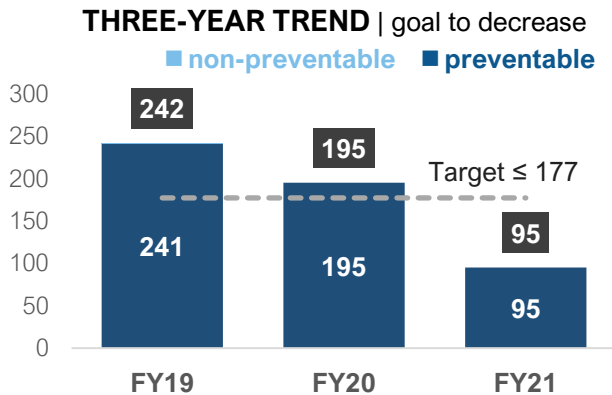
# CUSTOMER INJURIES

## Metrorail Customer Injuries | 95 injuries

FY target  $\leq 177$

**There were 95 customer injuries within Metrorail in FY21, better than target. These 95 injuries result in a rate of 3.4 per million passengers in FY21, an increase relative to the FY20 rate.**

Slips, trips, and falls accounted for 89 percent of all injuries for Metrorail customers for FY21. About half of all injuries occurred on station platforms or when customers fell into the roadway. Almost 40 percent occurred on escalators or elevators, with only 12 occurring on board trains. The top causal factors for injuries within Metrorail were intoxication (14), inattention/distraction (6), and train motion (e.g., quick stops, 6). The three primary station locations for injuries were at Congress Heights (6), Rhode Island Ave (6) and Gallery Place (5).



### Key actions to sustain performance

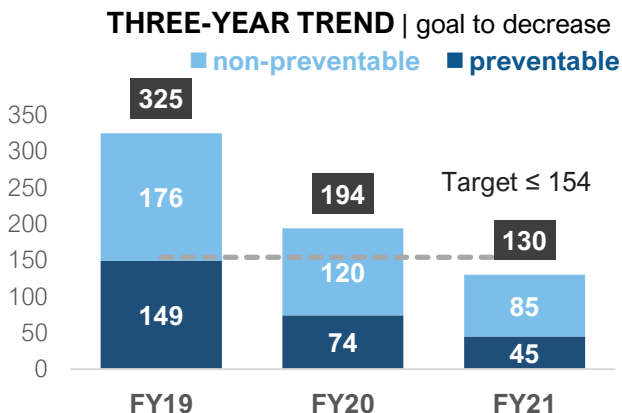
- ▶ Continue station modernization improvements to reduce hazards that result in slip/trip/fall and train door injuries.

## Metrobus Customer Injuries | 130 injuries

FY target  $\leq 154$

**Metrobus experienced 130 customer injuries during FY21, better than target. These 130 injuries resulted in a rate of 2.5 per million passengers, an increase relative to the FY20 rate.**

The top two types of injuries this fiscal year are slips, trips and falls (65 injuries) and collision-related (53 injuries). There were about two-thirds as many of these two injury types compared to FY20. Injuries most frequently occur when the bus is in motion (including during hard braking events) and when customers are boarding or alighting vehicles.



### Key actions to sustain performance

- ▶ Continue investigation of bus stop incidents to identify causal factors that result in injuries.
- ▶ Identify intersections that are hot spots for collisions for heightened observation by Field Supervisors.
- ▶ With the initial pilot now concluded advance procurement of collision avoidance technologies, such as Blind Spot Warnings and object detection, which is likely to lower the number of falls while the bus is in motion.



# CUSTOMER INJURIES

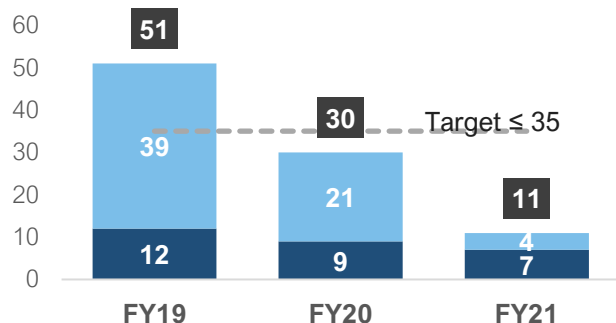
## ● MetroAccess Customer Injuries | 11 injuries FY target $\leq 35$

There were 11 injuries among MetroAccess customers, better than target. These 11 injuries resulted in a rate of 1.03 per 100,000 passengers, which is a 38% decrease compared to FY20.

The 11 injuries in FY21 included four collision-related injuries, and seven slip/trip/falls. Less traffic during the pandemic contributed to a 50 percent decrease in collision-related injuries in FY21 compared to FY20. In addition, slips/trips/falls decreased by more than half, from 15 in FY20 to seven in FY21.

### THREE-YEAR TREND | goal to decrease

■ non-preventable ■ preventable



### Key actions to sustain performance

- ▶ Incorporate sedans into MetroAccess fleet with sedan-specific standard operating procedure and associated training to maximize safety.
- ▶ Continue to engage an Occupational Therapist to address assistance-related injuries. Implement training on parking and assisting customers using sedans, as the methods differ compared to vans.
- ▶ Update DriveCam units, adding live and continuous audio and video recording capability. This enhances root cause analysis and enables timely behavioral coaching for vehicle operators.

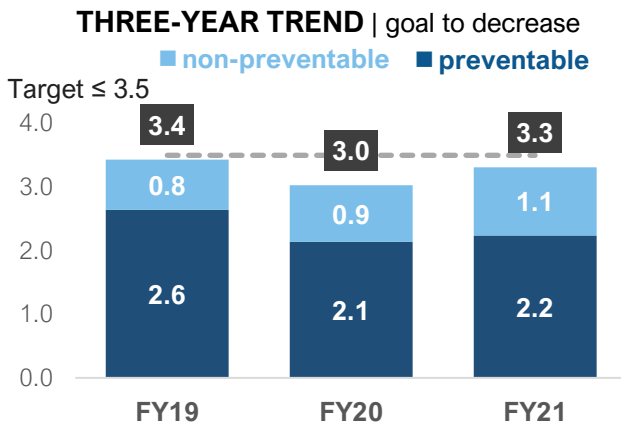


# EMPLOYEE INJURY RATE

## Rail System Employee Injury Rate | 3.3 per 100 employees Target ≤ 3.5

The Rail system had 182 employee injuries in FY21 with a rate of 3.3 injuries per 100 employees, which outperformed the target rate of 3.5 injuries per 100 employees.

Slip/Trip/Fall injuries were the leading incident type in FY21 with 53 incidents. Train Operator slip/trip/fall injuries were primarily from boarding/alighting trains or contact with loose rocks and wet surfaces. Maintenance employee slip/trip/fall injuries were primarily from wet surfaces. Assault/stress cases (40) increased by 42 percent due to a sharp increase in high-stress police incidents in the Rail system and pushing/pulling cases increased by 63 percent in FY21 compared to FY20. Conversely, caught in/by (-58 percent), collision-related (-25 percent), and lifting/lowering (-10 percent), each decreased in FY21.



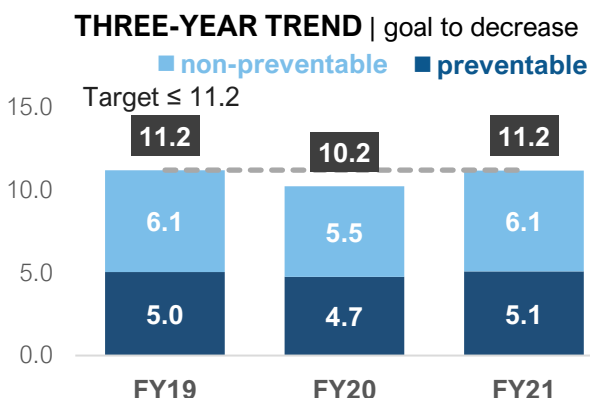
### Key actions to sustain performance

- ▶ Encourage Safety Observations and use data to identify and proactively address unsafe behaviors.
- ▶ Conduct safety campaign to increase employee awareness around slip/trip/fall injuries.

## Bus Employee Injury Rate | 11.2 per 100 employees Target ≤ 11.2

Metrobus had 349 employees injured in FY21 with a rate of 11.2 injuries per 100 employees, meeting target.

The top injury types were collision-related (95), assault/stress (93), and slips/trips/falls (65). Compared to FY20, collision-related injuries decreased by two percent, while assault/stress injuries increased by 31 percent from FY20. It is possible that fewer riders on the bus was a factor in the increase in assaults on operators, as there were fewer people on the bus to observe or intervene.



### Key actions to sustain performance

- ▶ Increased the number of safety observations performed in the second half of FY21 in order to promote safe behaviors, particularly wearing PPE, which will continue to the new fiscal year.
- ▶ Ran a pilot program to train bus operators in de-escalation strategies to help diffuse situations and prevent assaults. This training will be expanded to more operators.



# BUS COLLISION RATE

**NTD Bus Collision Rate | 2.8 per million miles** Target  $\leq 3.7$

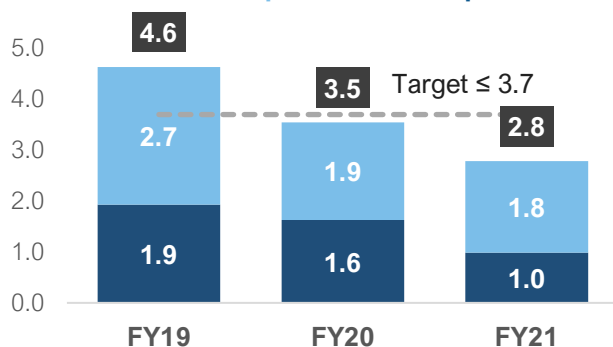
**Metrobus experienced a rate of 2.8 serious collisions per million miles during FY21, meeting target and improving 20 percent from last fiscal year due in part to reduced traffic from the pandemic.**

There were 102 serious collisions in FY21, amounting to about six percent of all bus collisions. About one in four of these were collisions occurring in intersections, and one in five were incidents where a bus was hit in the rear by another vehicle. Sideswipes were also another common collision type, making up 17 percent of NTD collisions. The number of intersection and sideswipe incidents were roughly similar to FY20 but hit-in-rear incidents increased by 24 percent.

Several incident types were down in FY21 as compared to FY20. These include fixed object strikes (-88 percent), other collisions (-75 percent), parked vehicle strikes (-60 percent), angle impacts (-43 percent), and pedestrian/cyclist strikes (-35 percent). Sideswipes were down a more modest 11 percent.

## THREE-YEAR TREND | goal to decrease

■ non-preventable ■ preventable



## Key actions to sustain performance

- ▶ In FY21, DDOT and Metro constructed several floating bus stops along the 14<sup>th</sup> Street corridor as part of a pilot project. The partnership will continue this year to identify additional corridors for floating bus stops.
- ▶ Evaluate the bus operator training program to improve driving techniques for new and existing operators and use of existing forward-facing cameras to coach operators who have been involved in collisions.

Note: Metrobus tracks and reports serious collisions to the National Transit Database (NTD). A serious collision is one resulting in customer or employee injuries requiring immediate medical attention away from the scene, towaway of any vehicles involved, or combined property damage greater than \$25,000. This is a subset of all collisions, representing about six percent.

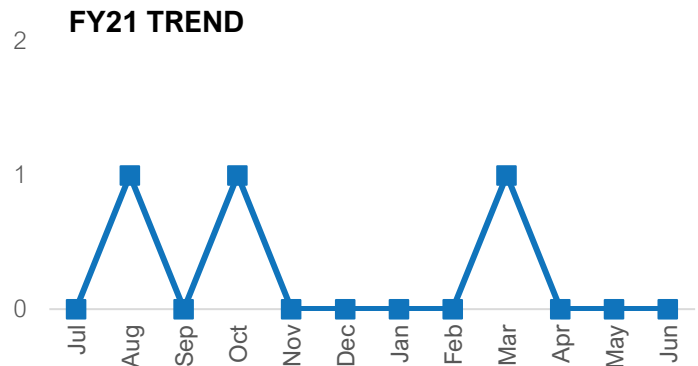
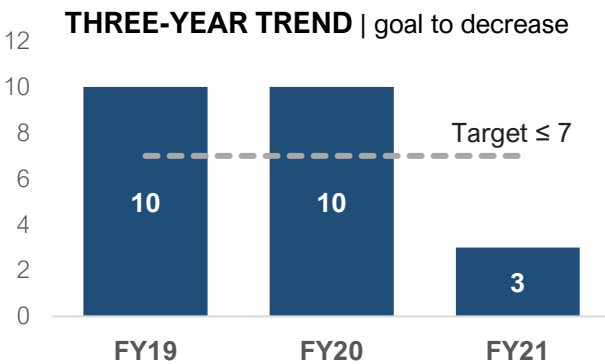


# RAIL COLLISIONS & DERAILMENTS

## Rail Collisions | 3 collisions FY target $\leq 7$

The number of National Transit Database (NTD) reportable rail collisions decreased significantly during FY21, with three collisions compared to seven in FY20.

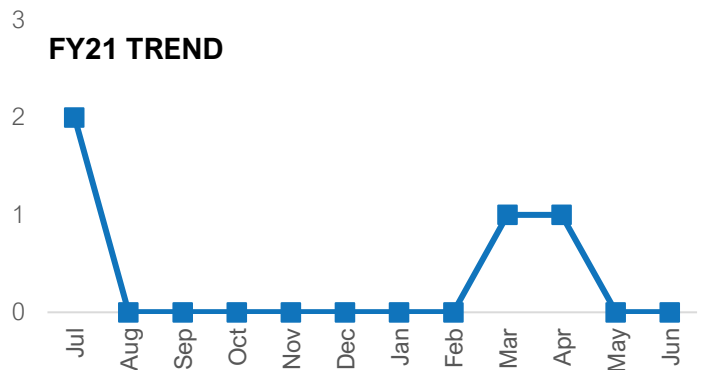
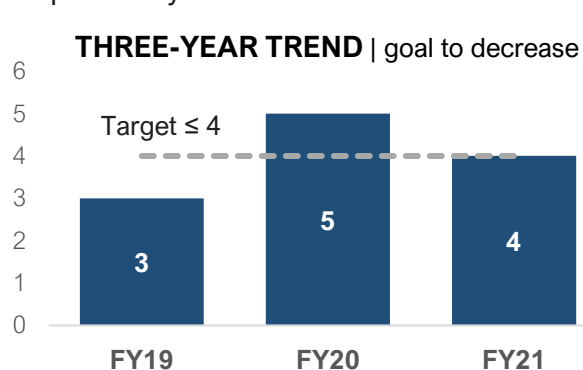
All collisions occurred in Metrorail yards, and two involved trains while one involved a roadway maintenance machine. None resulted in injuries. The causal factors for the collisions in FY21 were: failure to follow procedures, improper rail-car storage (e.g., stored too close), and attempting to uncouple while on a downgrade portion of the track. Metro has continued performing monthly compliance checks on safety stops in rail yards and implemented an updated Standard Operating Procedure (SOP) on moving rail vehicles within yards.



## Derailments | 4 incidents FY target $\leq 4$

There were four derailments in FY21, meeting target and a decrease of one incident from FY20.

Of the four derailments, three involved roadway maintenance machines (RMM) and one involved a train that derailed following a red signal overrun. None resulted in injuries. Of the RMM derailments, one occurred when a prime mover pushed a flat car past a switch that needed to be upgraded. Another involved a contractor Hi-rail vehicle and four trailers traveling through a switch with the tailgates down and is attributed to human error. In the third event, a tamper regulator derailed in a tunnel due to a combination of human error and the machine traveling in work mode with a missing gripper claw pin. In order to reduce derailment events Metro has continued performing monthly compliance checks on safety stops in rail yards



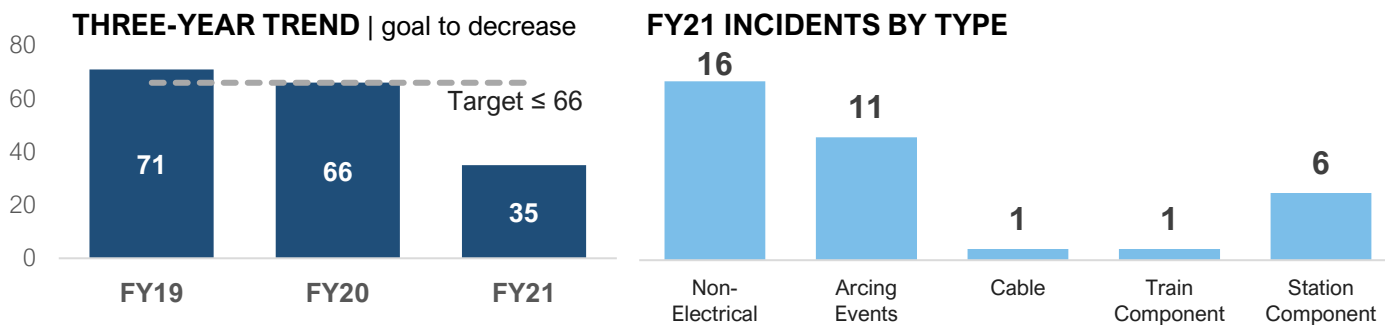




## ● Fire Incidents | 35 incidents FY target ≤ 66

**There were 31 fewer NTD-reportable fires during FY21 compared to FY20 (47% improvement).**

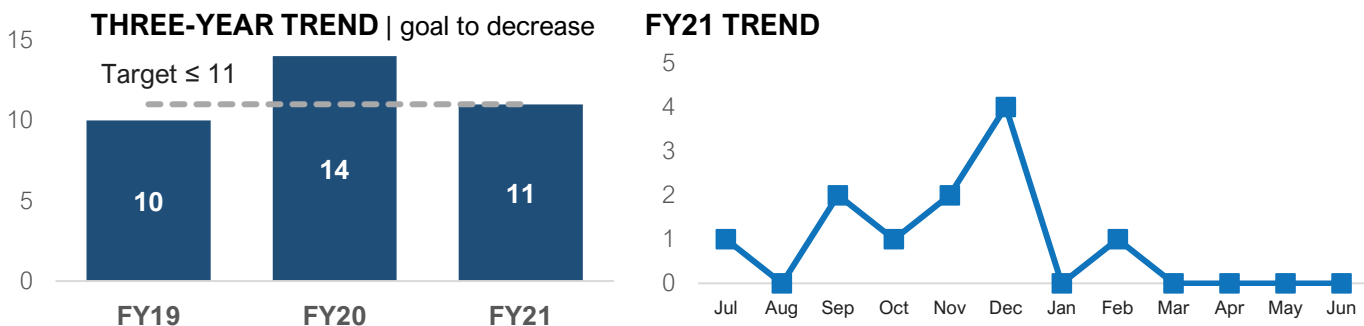
Sixteen fires were non-electrical (e.g., debris-related), 11 were arcing insulator/track component fires, six were related to station/facility equipment, one was related to a cable, and one was related to a train component. Metro's rail system experienced a 56 percent decrease in both non-electrical and insulator fires from FY20 to FY21, which included a six-month stretch of no insulator fires from October-March. The decrease in insulator fires can be attributed to the two-year insulator replacement program, increased track-bed cleaning, and increased insulator cleanings. The decrease in non-electrical fires is likely related to decreased Pandemic ridership, as the number of debris fires in stations and parking lots caused by normal combustible material (e.g., trash cans) saw a decline.



## ● Red Signal Overruns | 11 incidents FY target ≤ 11

**Metrorail vehicles overran a red signal 11 times during FY21, meeting target and a decrease of 3 incidents from FY20. There were no events during the final four months of the fiscal year.**

Train operators were involved in 10 of the red signal overruns; the other occurred with a roadway maintenance machine. Four occurred in yards where trains lack speed commands and seven occurred on the mainline where low speeds and lower-tenured employees were key factors. Investigations have identified human factors, including failed compliance and communications, as the root cause of the events. In response, Metro conducted safety stand-downs to review the incidents and proper procedure and computer-based training on moving trains without speed commands. Additional initiatives are underway, including the development of a point-and-call procedure for train operators to verbally call out signal states as they approach them, and the installation of "stop and proceed" software on railcars.





# QUALITY SERVICE TARGETS

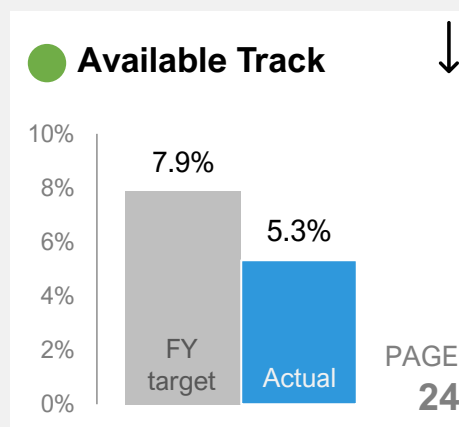
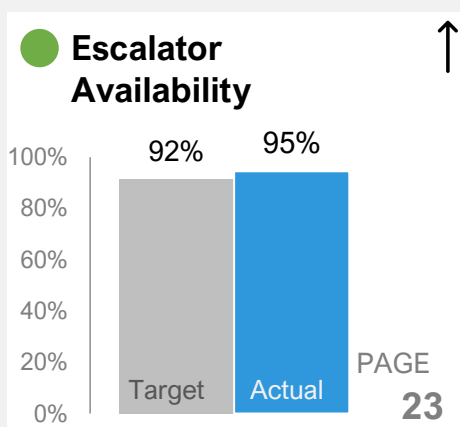
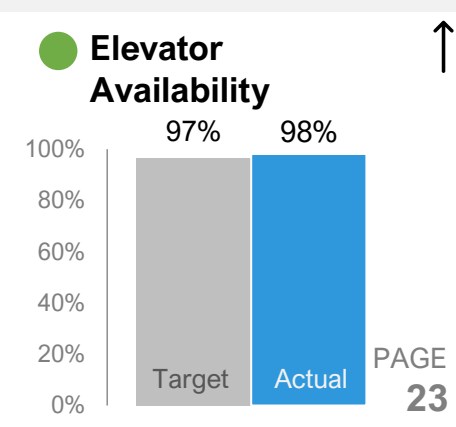
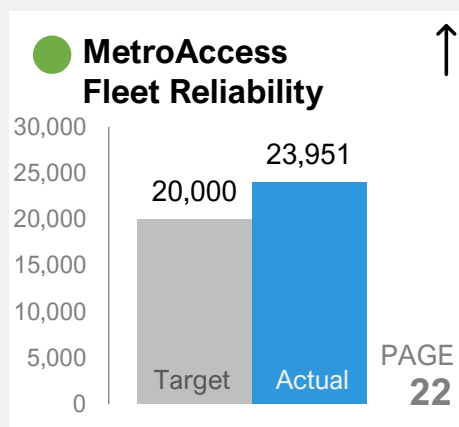
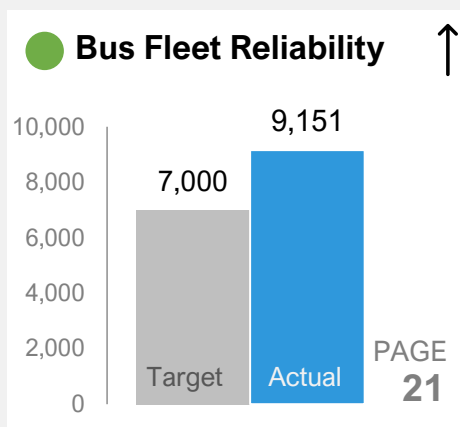
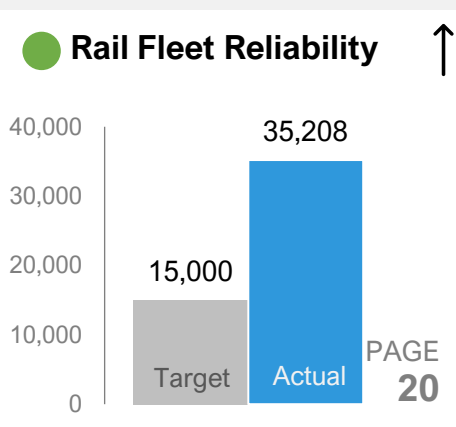
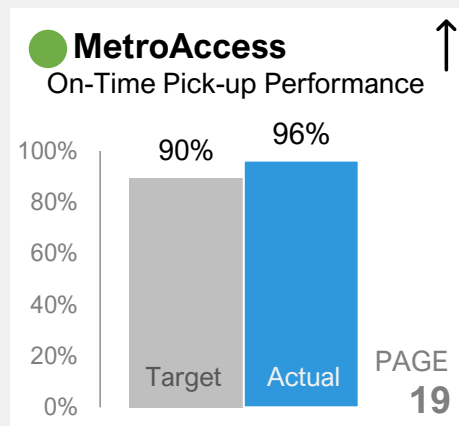
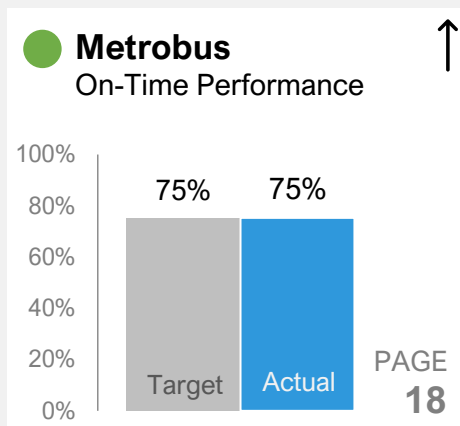
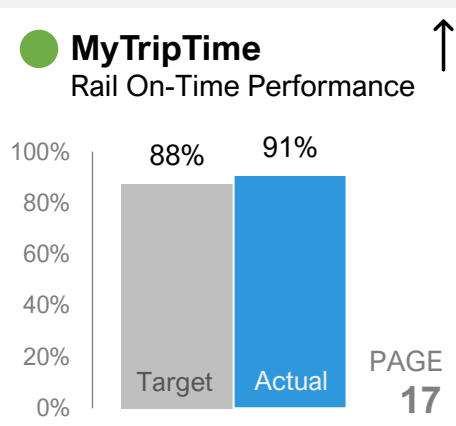
The table below lists the performance targets established for FY21 for KPIs related to service quality.

Given the uncertainty surrounding the operating budget and service levels this fiscal year, targets for measures of service quality were generally kept at FY20 levels. For bus on-time performance, which was a new measure in FY20 and did not have a target, the FY21 target was set at the average performance achieved from July–August 2020. Fleet reliability measures are a nexus between service quality, asset condition, and safety. For rail and bus fleet reliability, Metro aims to continuously improve performance.

Measure	FY21 target	Methodology
MyTripTime   % of customers on-time	88% or ↑	Hold steady at FY2020 rate
Bus On-Time Performance   % of buses on-time	75% or ↑	Hold steady at Q1 FY2021 rate
MetroAccess On-Time Performance   % of vans on-time	90% or ↑	Hold steady at FY2020 rate
Rail Fleet Reliability   mean distance between failure	15,000 or ↑	7% improvement from 3-year average
Bus Fleet Reliability   mean distance between failure	7,000 or ↑	1% improvement from 3-year average
MetroAccess Fleet Reliability   mean distance between failure	20,000 or ↑	Hold steady at FY2020 rate
Elevator Availability   % available	97% or ↑	Hold steady at FY2020 rate
Escalator Availability   % available	92% or ↑	Hold steady at FY2020 rate
Available Track   % unavailable	7.9% or ↓	Impact of Planned Track Work
Rail Crowding   % passenger time in crowded conditions	N/A	No target
Bus Crowding   % stops encountered by full bus	N/A	No target
Rail Customer Satisfaction	N/A	No target
Bus Customer Satisfaction	N/A	No target



The following highlights Metro's system-wide service quality performance through the end of FY21.



## Legend

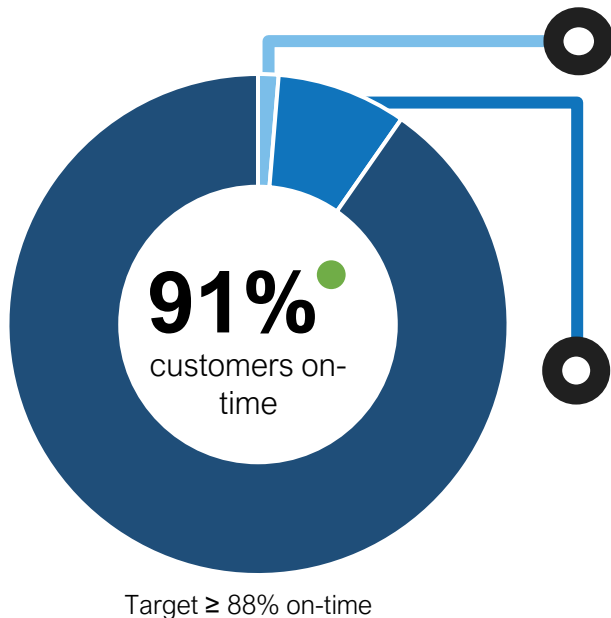
● Met or above target | ● Near target | ● Target not met | ● No target | ↑↓ Desired direction



### ● **Metrorail Customer On-Time Performance | 91%** of customer trips on time FY target $\geq 88\%$ on-time

**In FY21, Metrorail customers completed 91% of their trips on-time, exceeding the target of 88%.**  
Rail on-time performance (OTP) has consistently surpassed the target through all 12 months this fiscal year.

### What caused customer delays?



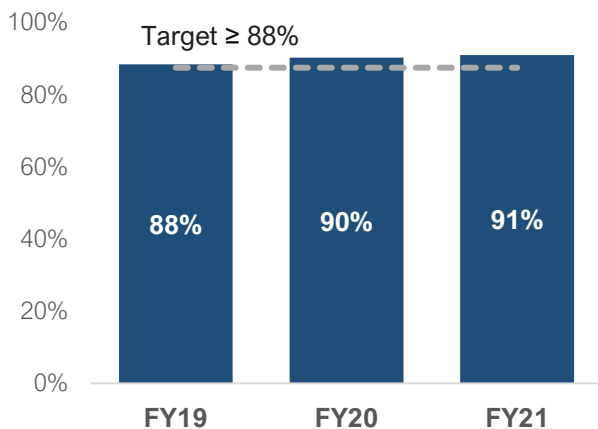
#### Planned delays

- ▶ **Planned track work** lowered OTP by approximately 1.3 percentage points.
- ▶ Planned track had the biggest impact during Q4, when summer platform reconstruction closed all four stations north of Fort Totten on the Green and Yellow Lines, and vegetation removal projects created single tracking zones during weekdays.

#### Unplanned delays

- ▶ **Unplanned delays** lowered OTP by about 7.7 percentage points.
- ▶ **The top 5 drivers for unplanned delays in FY21:** rail vehicle breakdowns, customer or workforce incidents (e.g., sick customers, injured employees), signaling failures, and rail operations and Metro Transit Police responses to safety events.
- ▶ A portion of late trips can be attributed to customer choices – e.g., missing a stop and having to circle back, or taking a longer route that requires fewer transfers

### THREE-YEAR TREND | goal to increase



#### Key actions to sustain performance

- ▶ Continue to monitor schedule adherence and share successful strategies and lessons learned to strengthen operational planning and scheduling.
- ▶ Continue to make critical repairs to rail infrastructure, ensuring it remains in a state of good repair.
- ▶ Continue railcar maintenance, rehab and replacement program, including plan to replace the oldest 2000- and 3000-series railcars when they reach the end of their useful life.

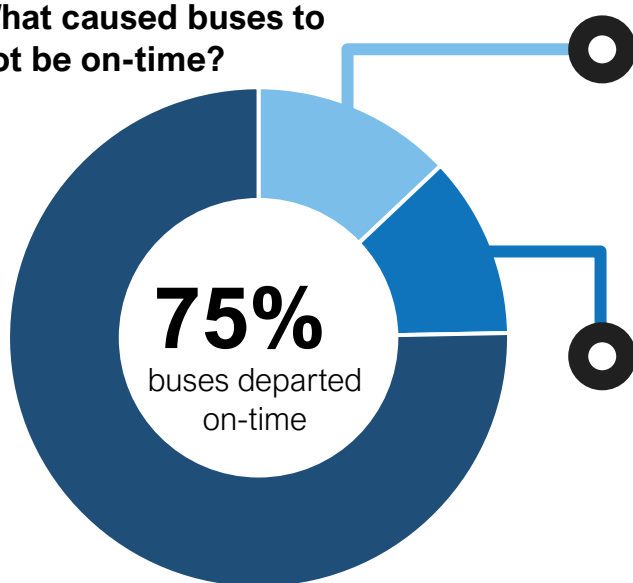


## ● Metrobus On-Time Performance | 75% of buses on time FY target $\geq$ 75% on-time

**In FY21 75.3% of buses were on-time, meeting the target of 75%. Buses serving customers along Metro's six high-frequency routes were 59% on-time while 77% of buses serving other routes were on-time.**

Overall reliability was impacted by buses running early as a result of less traffic. However, beginning in mid-March 2021, schedules were adjusted to pandemic-level traffic, resulting in 78 percent on-time performance from mid-March through the end of the fiscal year.

### What caused buses to not be on-time?



Target  $\geq$  75% on-time

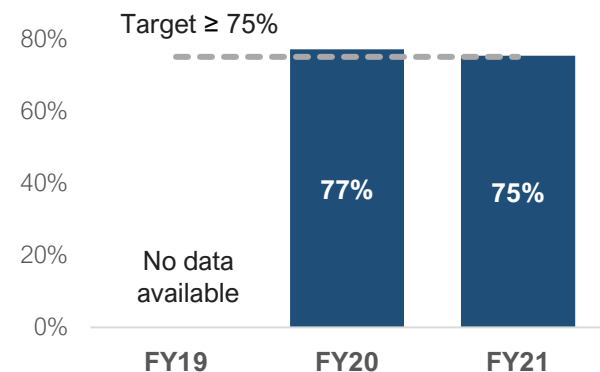
#### ● **Early Departures** lowered OTP by 13 percentage points

- ▶ Early departures more than doubled compared to FY20.
- ▶ Buses depart terminals on-time (early terminal departures accounted for only two percent of early departures), then start running early throughout the route due to less traffic.

#### ● **Late Departures** lowered OTP by 12 percentage points

- ▶ **Late terminal departures** accounted for 17 percent of lateness in Q4, as traffic began to increase and buses arrived late from previous trips.
- ▶ **Late mid-route departures** were the main reason buses were late, accounting for 69 percent of lateness in Q4, driven by service delivery challenges due to police and public activity, collisions and other issues.
- ▶ **Late terminal arrivals** accounted for the remaining 13 percent of lateness in Q4, driven by late mid-route departures during the midday and PM peak service periods impacting on-time terminal arrivals.

### THREE-YEAR TREND | goal to increase



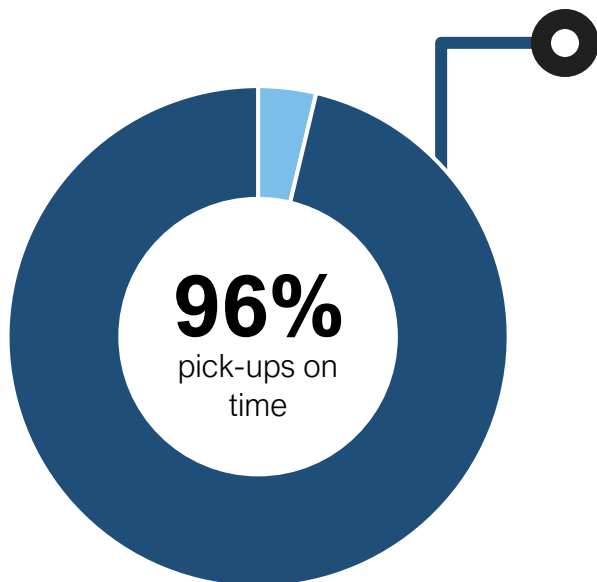
### Key actions to sustain performance

- ▶ Continue to adjust schedules as traffic patterns evolve in the pandemic recovery period.
- ▶ Continue to advance the Bus Transformation Project, including partnering with DDOT to launch new car-free lanes, speeding up buses in the District of Columbia.
- ▶ Continue improving back-end data processes to ensure that customers receive accurate, up-to-date information about bus estimated arrivals.



## ● MetroAccess On-Time Pick-Up Performance | 96% of pick-ups on time

FY target ≥ 90% on-time



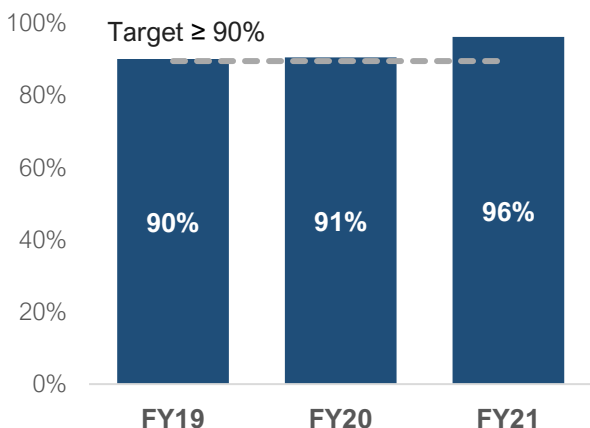
**In FY21, 96% of MetroAccess trips were on-time, exceeding the target of 90%.**

Less traffic, reduced ridership, and the elimination of shared rides (where delays can cascade across customer trips) have led to strong on-time performance.

### Key actions to sustain performance

- ▶ Continue improving the accuracy of length-of-trip estimates by basing them on the fixed-route equivalent.
- ▶ Work with OCC contractor to renew emphasis on proactively identifying when vehicles are dwelling for prolonged periods of time to prevent cascading delays.
- ▶ Continue to dynamically adjust the system's scheduling parameters and leverage available taxi and alternative resources when trips are projected late throughout the day.
- ▶ Pursue a new, cutting-edge scheduling and dispatch system.

### THREE-YEAR TREND | goal to increase



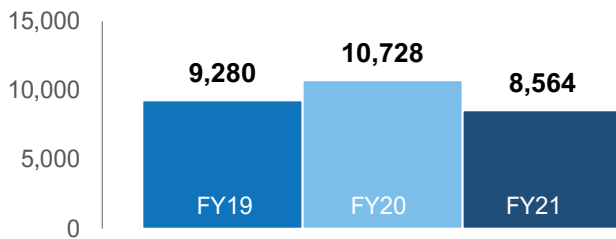


## ● Rail Fleet Reliability | 35,208 miles between failure FY target $\geq 15,000$

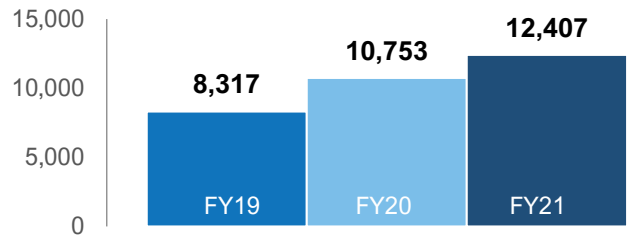
**Railcar reliability improved throughout FY21 and ended at a record high, driven by strong performance in the 7000-series fleet.**

Railcar performance improved 47 percent in FY21 compared to FY20. Metro averaged only 5.9 railcar failures per day in FY21, compared to 9.4 in FY20 and 16.9 in FY19. Strong railcar performance also contributed to strong customer on-time performance results—and smoother rides for customers. These improvements are driven by the newest 7000-series fleet, which comprise over 80 percent of mileage and travel over 55,000 miles between failure.

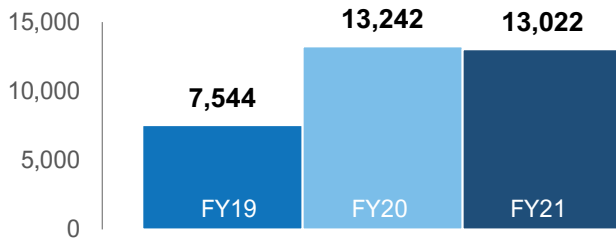
### 2000-series | 0.1% of miles traveled



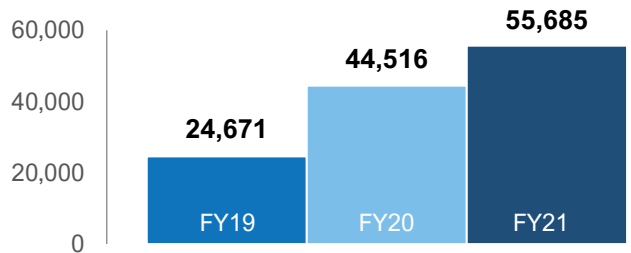
### 3000-series | 13% of miles traveled



### 6000-series | 4% of miles traveled



### 7000-series | 83% of miles traveled

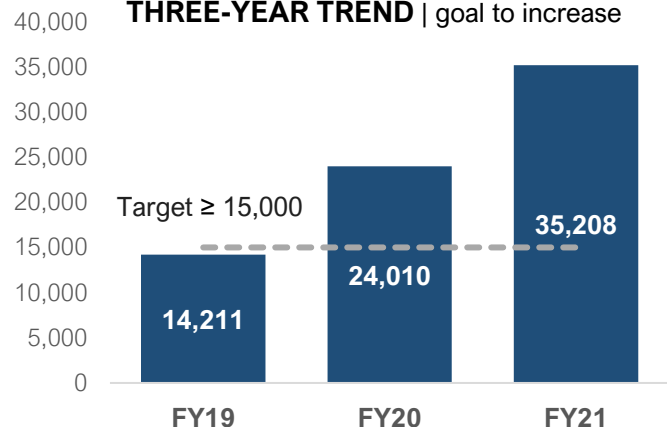


In November following a train separation safety incident, Metro removed all 6000-series cars from service in order to fully investigate and understand the underlying factors and root causes. The 6000-series fleet remains out of service.

### Key actions to sustain performance

- ▶ Continue performing engineering improvements to the 7000-series fleet.
- ▶ Continue using reliability analysis and frequent inspections to ensure engineers prioritize problems causing the largest impacts.
- ▶ Continue the Scheduled Maintenance Program for 2000- and 7000-series fleets.
- ▶ Plan for the replacement of the 2000- and 3000-series as they turn 40 and near the end of their useful life.

### THREE-YEAR TREND | goal to increase







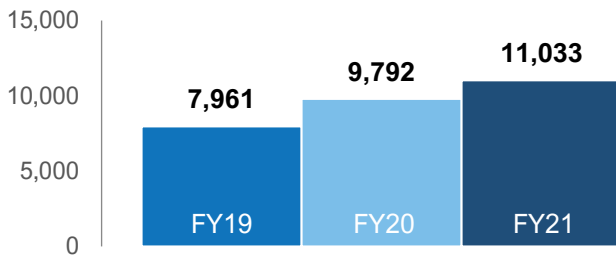
## ● Bus Fleet Reliability | 9,151 miles between failure FY target ≥ 7,000

**Bus fleet performance reached record levels since Metro began measuring it in 2003, exceeding 9,100 miles between failures FY21—better than the target of 7,000 and a 20 percent improvement compared to last fiscal year thanks to improvements across all sub-fleets.**

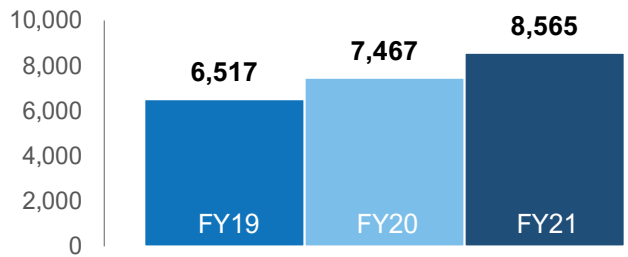
The compressed natural gas (CNG) fleet improved 13 percent compared to the same period last year, traveling just over 11,000 miles between failure while the hybrid fleet improved 15 percent, traveling about 8,500 miles between failure. The clean diesel fleet improved 79 percent since last year, traveling about 8,700 miles between failure.

This success was due partly to the reduction in service during the pandemic. Metro was able to keep its most reliable buses on the road and focus more time on maintaining some of the older buses in the fleet.

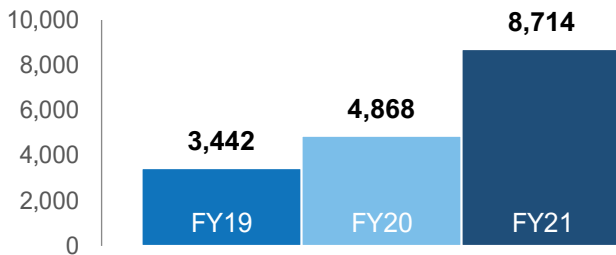
### CNG | 27% of miles traveled



### Hybrid | 65% of miles traveled



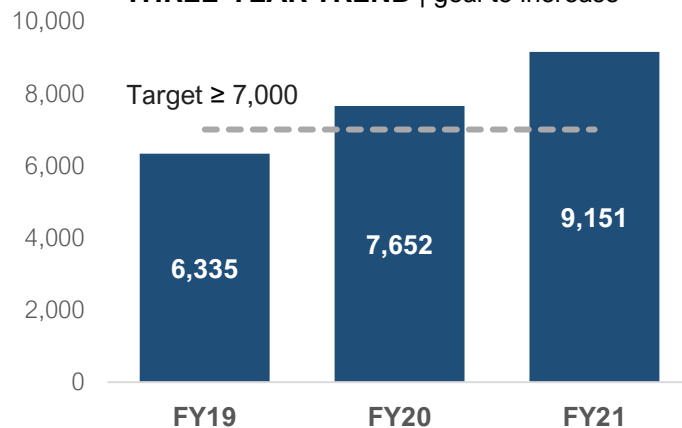
### Clean Diesel | 8% of miles traveled



### Key actions to sustain performance

- ▶ Increase collaboration between maintenance and transportation departments to reduce service interruptions through We Move the Region training program.
- ▶ Improve failure reporting in Metro's asset management system to allow for more in-depth trend analysis.
- ▶ Conduct internal quality audits of preventive maintenance programs and service lane activities to identify areas of improvement.
- ▶ Continue annual program to replace 100 of the oldest, least reliable buses in FY22.

### THREE-YEAR TREND | goal to increase





# METROACCESS FLEET RELIABILITY

● **MetroAccess Fleet Reliability** | **23,951** miles between failure FY target  $\geq 20,000$

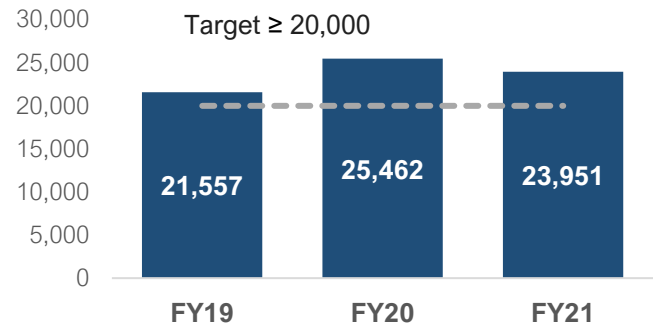
**In FY21, the mean distance between failure was 23,951 miles, exceeding the target of 20,000 miles.**

In accordance with the MetroAccess Fleet Plan, 187 vehicles were retired and 177 were commissioned in FY21.

## Key actions to sustain performance

- ▶ MetroAccess has introduced 177 sedans into revenue service to replace aging Ford Transit vans.
- ▶ Staff continues to focus on key initiatives to improve fleet reliability and good state of repair, to include preventive maintenance inspections and quarterly fleet audits.

## THREE-YEAR TREND | goal to increase

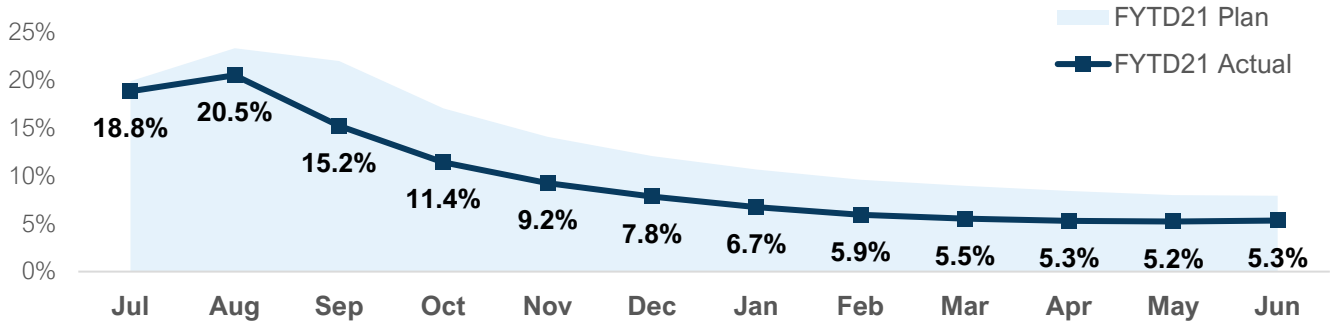




## ● Guideway Condition | 5.3% under performance restriction FY target $\leq 7.9\%$

In FY21, 5.3% of track was under performance restriction, 2.6 percentage points below the FY21 projection.

**CUMULATIVE GUIDEWAY CONDITIONS % | FYTD21 VS TARGET**



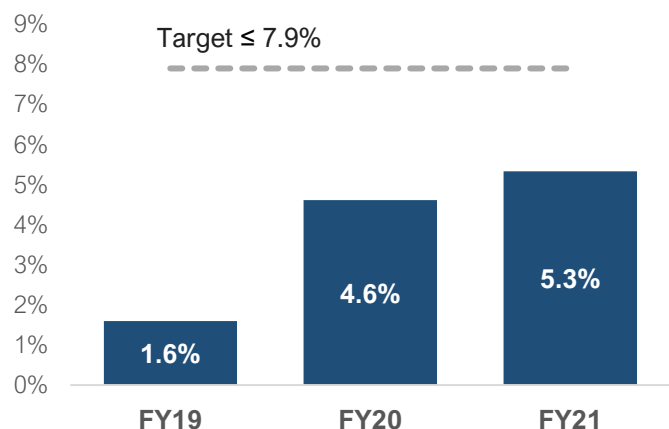
On average, 5.3 percent of track was “restricted” through FY21, outperforming the target of 7.9 percent. Performance was better than anticipated due to fewer condition-related restrictions, early completion of capital projects, and adjustment of plans – particularly related to the stalled Purple Line construction.

Guideway restrictions include planned track work and unplanned condition-related speed restrictions. Planned work is the main reason guideway was unavailable. In FY21, only 0.3 percent of track was restricted due to condition, well below the average of 0.6 percent in FY20. The remaining five percent was due to planned capital programs implemented throughout the year. During the first quarter of FY21, Metro shutdown all Orange and Silver line stations west of Ballston to rebuild aging platforms and renovate stations. Similar work was conducted at Arlington Cemetery and Addison Road Stations between February and May, followed by the shutdown of all stations north of Fort Totten on Green and Yellow Lines starting in late May.

### Key actions to sustain performance

- ▶ Continue preventive maintenance and capital programs to keep unplanned restrictions low.
- ▶ Install heat tape at up to four more stations before fall, eliminating the need for speed restrictions in these areas.

### THREE-YEAR TREND | goal to decrease





## ● Elevator Availability | 98% available FY target $\geq 97\%$

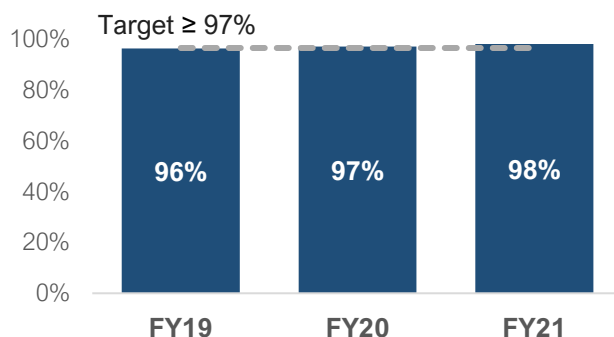
**In FY21 elevators were available for use 98 percent of the time, meeting target and improving by one percentage point as compared to FY20.**

At any given time across the fiscal year, about two percent of elevators were out service, equivalent to about five or six elevators out of the total 275+ units across the system. About 40 percent of the outages (roughly two units at a time) were due to capital work, with the rest due to unit failures or related fixes. Elevators went out of service less often during FY21 as compared to FY20 partially due to reliability improvements, but also resulting from significantly lower use during the pandemic. The average time to repair units rose during the early months of the fiscal year due to staffing constraints resulting from the pandemic but normalized as the year went on. Availability continued to stay strong as riders started returning to the system in spring 2021.

### Key actions to sustain performance

- ▶ Continue current elevator rehabilitation contract (92 out of 100 completed by the end of FY21, with an additional seven scheduled for completion in FY22).
- ▶ Collaborate with engineers to identify 100 more units in need of replacement for the next contract.
- ▶ Pilot a new preventive maintenance cadence on select units to help optimize staff productivity.

### THREE-YEAR TREND | goal to increase



## ● Escalator Availability | 95% available FY target $\geq 92\%$

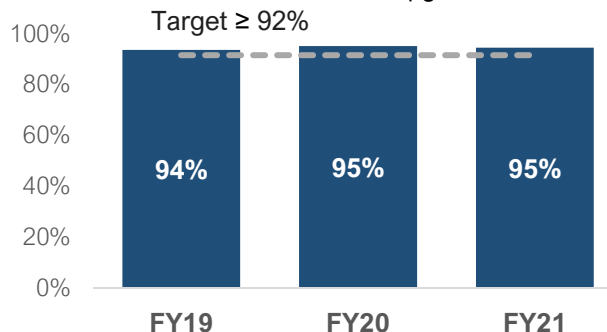
**In FY21 escalators were available for use 95 percent of the time, exceeding target by 3 percentage points and staying consistent with FY20 performance.**

At any given time, about five percent of escalators were out of service, equivalent to roughly 30 of the 600+ units across the system. About 15 percent of these units (roughly five units at a time) were out due to capital work or planned maintenance checks. The rest were the result of unit failures or related fixes. These outages occurred less frequently in the first two quarters of FY21 as compared to FY20, likely due to decreased use. However, average repair times were higher in these early months of the fiscal year due to the pandemic's strain on workforce availability. Availability continued to stay high as ridership started increasing in spring 2021.

### Key actions to sustain performance

- ▶ Began seven-year contract to replace 130 escalators across the system, with five in progress by the end of FY21 and 10 scheduled for FY22.
- ▶ Continue contract to rehabilitate 89 escalators, with nine completed by the end of FY21 and 10 additional scheduled for FY22.
- ▶ Strengthen standards for preventive maintenance schedule adherence to optimize staff time and asset performance.

### THREE-YEAR TREND | goal to increase

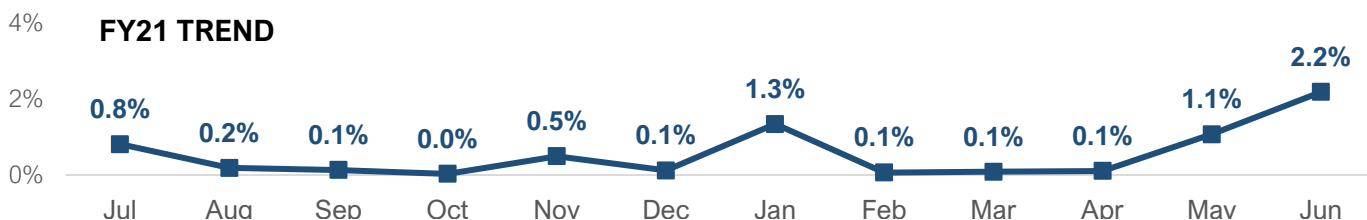




## ● Metrorail Crowding | 0.6% of passenger travel time in crowded conditions

**Metrorail service levels during FY2021 have successfully supported social distancing during the pandemic; only 0.6% of passenger travel time was in crowded conditions (> 23 passenger per car).**

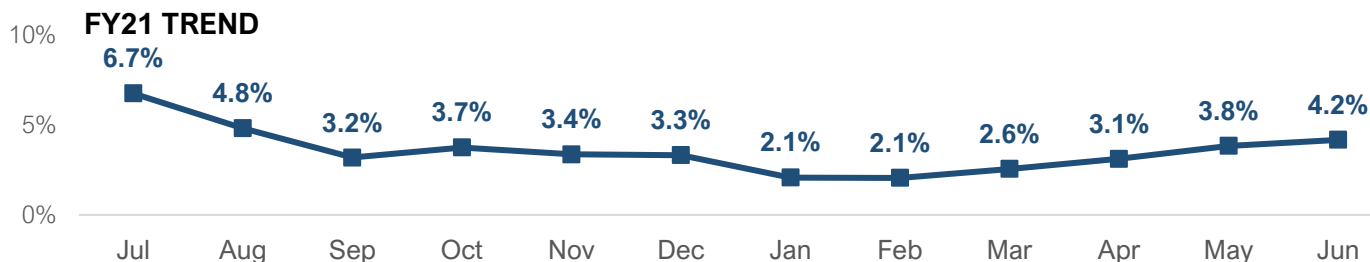
Metrorail crowding levels remained below one percent in nine out of 12 months in FY21, as Metro ran almost all 8-car trains and maintained frequencies that enabled customers to socially distance. The jump in crowding in January was related to Capitol riot on January 6, when ridership briefly exceeded Metro's capacity guidelines of 23 passengers per car, or about one-third of seats occupied. The slight increase in May and June is due to an increase in ridership as well as weekend track work that has impacted service levels.



## ● Metrobus Crowding | 3% of bus stops encountered with > 20 passengers on the bus

**During FY2021, three percent of bus stops were encountered by a bus with more than 20 passengers onboard. While a standard size 40' bus has seats available for 40 passengers, to support social distancing, Metro deems any bus occupied at 50% or greater capacity as being full.**

Crowding on buses has continued to decrease as Metro made schedule changes in March and June that added back weekend and evening service. For safety and social distancing, through mid-June Metrobus had a policy of skipping stops or only stopping to allow alighting if the bus became too crowded. Since December, Metro introduced real-time crowding information available on transit apps so that Metrobus customers can see how full a bus is before it arrives.



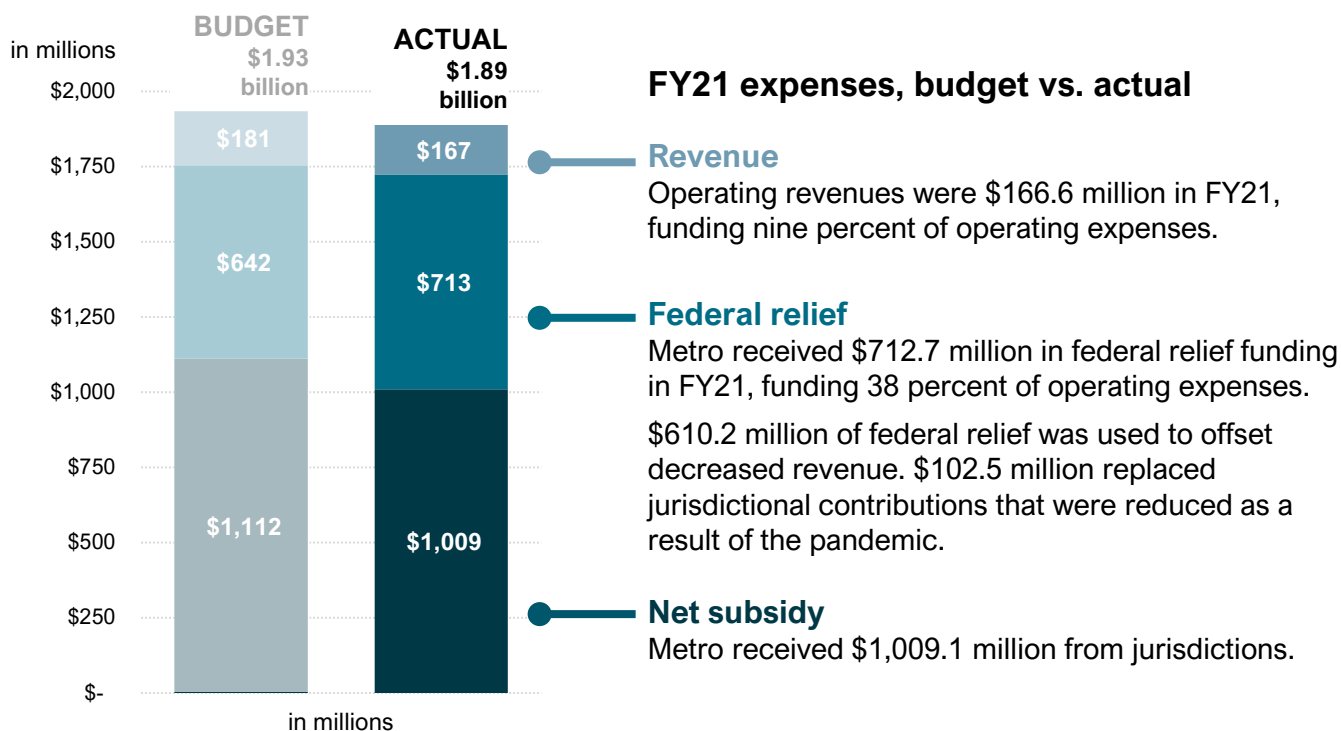
Crowding on bus and rail vehicles is closely monitored by Metro staff. However, staffing levels, fleet size, and the operating budget provide a hard cap on the amount of service that can be provided to meet demand and still enable CDC-guidelines for social distancing. As a result, a specific target for crowding metrics has not been set.

Metro's focus remains to stay ahead of demand and provide as much service as is feasible given budget constraints and employee availability. By the end of the fiscal year, rail service levels were 80 percent of pre-pandemic levels, and staff were delivering 85 percent of pre-pandemic bus service.



Revenue losses from the Covid-19 pandemic—impacting ridership as well as non-passenger revenue—were offset by federal relief funding in addition to savings from overtime, paratransit, energy, and other services.

FY21 operating expenses totaled \$1.89 billion, favorable by \$46 million to the \$1.93 billion budget for the fiscal year. Including \$713 million in federal relief funding, total revenue through Q4 was \$879.3 million. Metro’s net subsidy in FY21 was also on budget at \$1,009.1 million received from jurisdictions and \$102.5 million of federal relief to replace reduced jurisdictional contributions.



# APPENDIX A | DATA TABLE

## RIDERSHIP

### RIDERSHIP | FYTD BUDGET FORECAST 37.4 MILLION

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	26.5	25.7	24.4	27.8	23.6	22.1	22.1	21.9	26.0	27.4	27.5	26.4	301.5
FY2020	27.1	25.7	26.3	29.0	24.5	24.4	25.4	24.1	14.4	2.7	2.9	4.4	230.9
FY2021	4.9	5.2	6.9	7.2	6.6	6.6	5.7	5.4	7.3	7.8	8.3	9.4	81.3

### RIDERSHIP | FYTD BUDGET FORECAST 37.4 MILLION

FY2021		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
RAIL	Forecast	1,705,081	2,572,458	2,760,854	3,140,620	2,620,764	2,434,371	2,633,354	2,658,836	3,279,116	4,216,119	4,014,162	3,894,165	35,929,900
	<b>Actual</b>	<b>1,601,976</b>	<b>1,841,935</b>	<b>2,195,106</b>	<b>2,348,341</b>	<b>2,080,774</b>	<b>1,948,341</b>	<b>1,847,584</b>	<b>1,853,952</b>	<b>2,538,754</b>	<b>2,818,163</b>	<b>3,148,454</b>	<b>3,937,583</b>	<b>28,160,963</b>
BUS	Forecast	1,025,458	1,760,155	1,931,101	2,034,836	1,748,225	1,931,586	1,976,845	1,902,893	2,144,554	2,593,701	2,843,654	2,754,922	24,647,930
	Actual: Farebox	709,492	737,206	953,181	1,102,203	962,554	1,028,820	2,688,275	2,475,632	3,259,318	3,416,019	3,492,143	3,769,866	24,594,709
	Actual: Metro Operated Shuttle	414	524	21,075	22,472	20,215	21,009	5,582	22,295	43,142	55,704	85,427	3,125	300,984
	Actual: APC	3,171,448	3,319,293	4,625,387	4,755,960	4,382,524	4,560,117	3,812,622	3,482,477	4,567,591	4,780,826	4,994,662	5,342,651	51,795,558
	<b>Actual: APC + Metro Shuttle</b>	<b>3,171,862</b>	<b>3,319,817</b>	<b>4,646,462</b>	<b>4,778,432</b>	<b>4,402,739</b>	<b>4,581,126</b>	<b>3,818,204</b>	<b>3,504,772</b>	<b>4,610,733</b>	<b>4,836,530</b>	<b>5,080,089</b>	<b>5,345,776</b>	<b>52,096,542</b>
ACCESS	Forecast	20,253	34,490	34,759	37,439	32,914	31,213	37,292	36,953	42,797	50,995	51,842	48,622	459,569
	<b>Actual</b>	<b>76,888</b>	<b>79,746</b>	<b>85,061</b>	<b>90,975</b>	<b>82,753</b>	<b>84,523</b>	<b>78,162</b>	<b>76,428</b>	<b>101,471</b>	<b>100,575</b>	<b>101,073</b>	<b>106,847</b>	<b>1,064,502</b>
TOTAL	Forecast	2,750,792	4,367,103	4,726,714	5,212,895	4,401,903	4,397,170	4,647,491	4,598,682	5,466,467	6,860,815	6,909,658	6,697,709	61,037,399
	Actual: Farebox + Metro Shuttle	2,388,770	2,659,411	3,254,423	3,563,991	3,146,296	3,082,693	4,619,603	4,428,307	5,942,685	6,390,461	6,827,097	7,817,421	54,121,158
	<b>Actual: APC + Metro Shuttle</b>	<b>4,850,726</b>	<b>5,241,498</b>	<b>6,926,629</b>	<b>7,217,748</b>	<b>6,566,266</b>	<b>6,613,990</b>	<b>5,743,950</b>	<b>5,435,152</b>	<b>7,250,958</b>	<b>7,755,268</b>	<b>8,329,616</b>	<b>9,390,206</b>	<b>81,322,007</b>



# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### PART I CRIMES PER MILLION PASSENGERS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	3.4	4.3	3.7	3.6	3.8	3.8	4.3	3.2	3.0	3.3	3.8	5.2	3.8
FY2020	4.6	4.1	5.6	6.4	4.1	4.8	3.5	4.2	4.9	12.7	15.2	11.8	5.1
FY2021	11.1	13.2	8.4	8.2	8.4	8.3	6.8	7.0	6.3	5.8	7.1	7.3	7.9

### PART I CRIMES | TARGET ≤ 840

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	89	110	90	99	90	83	96	71	78	91	104	137	1,138
FY2020	125	106	147	187	100	118	88	101	71	34	44	52	1,173
FY2021	54	69	58	59	55	55	39	38	46	45	59	69	646

### PART I CRIMES | BY TYPE

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2021													
<b>Property Crime</b>	<b>27</b>	<b>45</b>	<b>37</b>	<b>38</b>	<b>34</b>	<b>32</b>	<b>22</b>	<b>15</b>	<b>19</b>	<b>16</b>	<b>27</b>	<b>35</b>	<b>347</b>
Larceny	1	3	9	8	14	7	5	4	6	6	6	8	77
Larceny (Other)	24	40	26	29	17	20	14	9	11	8	19	23	240
Burglary	0	0	0	0	0	0	0	0	0	0	0	0	0
Motor Vehicle Theft	2	2	1	1	0	5	2	2	2	2	1	4	24
Attempted MV Theft	0	0	1	0	2	0	0	0	0	0	1	0	4
Arson	0	0	0	0	1	0	1	0	0	0	0	0	2
<b>Violent Crime</b>	<b>17</b>	<b>12</b>	<b>8</b>	<b>10</b>	<b>13</b>	<b>11</b>	<b>7</b>	<b>6</b>	<b>11</b>	<b>19</b>	<b>14</b>	<b>11</b>	<b>139</b>
Aggravated Assault	16	12	8	9	13	11	7	6	11	19	14	11	137
Rape	1	0	0	1	0	0	0	0	0	0	0	0	2
Robbery	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>FY2021 Part I Crimes</b>	<b>54</b>	<b>69</b>	<b>58</b>	<b>59</b>	<b>55</b>	<b>55</b>	<b>39</b>	<b>38</b>	<b>46</b>	<b>45</b>	<b>59</b>	<b>69</b>	<b>646</b>
FY2021 Homicides	0	0	0	0	0	0	0	1	0	0	0	0	1

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### CUSTOMER INJURIES PER MILLION PASSENGERS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	2.4	1.8	2.7	1.9	1.7	1.9	1.9	2.5	1.8	1.9	1.9	2.4	2.0
FY2020	1.8	1.4	1.9	1.5	2.0	2.2	1.5	1.9	1.5	3.4	3.5	3.0	1.8
FY2021	3.3	2.7	1.2	3.2	2.4	2.7	4.4	2.6	4.0	2.3	3.5	2.8	2.9

### METRORAIL CUSTOMER INJURIES PER MILLION PASSENGERS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>2.1</b>	<b>1.2</b>	<b>1.2</b>	<b>1.3</b>	<b>1.3</b>	<b>1.1</b>	<b>1.8</b>	<b>2.1</b>	<b>1.3</b>	<b>1.2</b>	<b>1.2</b>	<b>1.1</b>	<b>1.4</b>
Non-Preventable	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Preventable	2.1	1.2	1.2	1.3	1.3	1.1	1.8	2.1	1.3	1.2	1.2	1.1	1.4
<b>FY2020</b>	<b>1.6</b>	<b>1.2</b>	<b>1.2</b>	<b>0.9</b>	<b>1.1</b>	<b>1.9</b>	<b>1.5</b>	<b>1.8</b>	<b>1.6</b>	<b>3.3</b>	<b>7.2</b>	<b>3.6</b>	<b>1.5</b>
Non-Preventable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Preventable	1.6	1.2	1.2	0.9	1.1	1.9	1.5	1.8	1.6	3.3	7.2	3.6	1.5
<b>FY2021</b>	<b>3.1</b>	<b>2.2</b>	<b>1.8</b>	<b>2.6</b>	<b>4.3</b>	<b>2.1</b>	<b>6.0</b>	<b>3.2</b>	<b>5.1</b>	<b>2.5</b>	<b>4.8</b>	<b>2.8</b>	<b>3.4</b>
Non-Preventable	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Preventable	3.1	2.2	1.8	2.6	4.3	2.1	6.0	3.2	5.1	2.5	4.8	2.8	3.4

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### METROBUS CUSTOMER INJURIES PER MILLION PASSENGERS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>2.4</b>	<b>2.1</b>	<b>4.6</b>	<b>2.6</b>	<b>1.9</b>	<b>2.6</b>	<b>1.4</b>	<b>2.5</b>	<b>2.1</b>	<b>2.4</b>	<b>2.7</b>	<b>4.0</b>	<b>2.6</b>
Non-Preventable	1.0	1.5	3.2	1.1	1.0	1.9	1.1	0.8	1.6	1.2	0.5	2.3	1.4
Preventable	1.3	0.6	1.4	1.6	0.9	0.7	0.3	1.8	0.5	1.3	2.1	1.7	1.2
<b>FY2020</b>	<b>1.8</b>	<b>1.3</b>	<b>2.7</b>	<b>2.0</b>	<b>2.8</b>	<b>2.3</b>	<b>1.4</b>	<b>1.9</b>	<b>1.5</b>	<b>2.9</b>	<b>1.1</b>	<b>2.7</b>	<b>2.0</b>
Non-Preventable	1.3	1.0	1.2	1.0	1.7	1.8	1.0	1.4	0.9	1.7	0.0	1.0	1.2
Preventable	0.5	0.4	1.5	1.1	1.0	0.5	0.4	0.5	0.6	1.2	1.1	1.7	0.8
<b>FY2021</b>	<b>3.2</b>	<b>2.7</b>	<b>0.9</b>	<b>3.1</b>	<b>1.1</b>	<b>3.1</b>	<b>3.4</b>	<b>1.7</b>	<b>3.5</b>	<b>2.1</b>	<b>2.6</b>	<b>2.8</b>	<b>2.5</b>
Non-Preventable	1.6	1.3	3.1	7.0	4.0	8.6	4.8	0.8	3.0	1.7	2.8	3.7	1.6
Preventable	1.6	10.1	1.0	6.1	1.0	4.8	0.0	1.6	1.8	1.2	0.8	0.3	0.9

### METROACCESS CUSTOMER INJURIES PER 100,000 PASSENGERS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>2.5</b>	<b>2.4</b>	<b>1.1</b>	<b>1.4</b>	<b>2.1</b>	<b>1.7</b>	<b>3.4</b>	<b>2.8</b>	<b>2.5</b>	<b>2.9</b>	<b>1.0</b>	<b>2.6</b>	<b>0.0</b>
Non-Preventable	2.5	2.4	1.1	0.5	2.1	1.7	2.8	1.7	2.0	1.5	0.5	1.5	1.7
Preventable	0.0	0.0	0.0	0.9	0.0	0.0	0.6	1.1	0.5	1.5	0.5	1.0	0.5
<b>FY2020</b>	<b>2.5</b>	<b>2.0</b>	<b>1.6</b>	<b>1.9</b>	<b>3.3</b>	<b>1.7</b>	<b>0.6</b>	<b>1.2</b>	<b>0.0</b>	<b>2.0</b>	<b>1.9</b>	<b>0.0</b>	<b>1.7</b>
Non-Preventable	1.0	1.0	1.6	1.4	3.3	1.2	0.6	0.6	0.0	2.0	0.0	0.0	1.2
Preventable	1.5	1.0	0.0	0.5	0.0	0.6	0.0	0.6	0.0	0.0	1.9	0.0	0.5
<b>FY2021</b>	<b>1.3</b>	<b>1.3</b>	<b>0.0</b>	<b>2.2</b>	<b>2.4</b>	<b>0.0</b>	<b>1.3</b>	<b>2.6</b>	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>	<b>0.0</b>	<b>1.0</b>
Non-Preventable	1.3	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	1.0	0.0	0.0	0.4
Preventable	0.0	1.3	0.0	2.2	2.4	0.0	1.3	0.0	0.0	0.0	1.0	0.0	0.7

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### CUSTOMER INJURIES | TARGET ≤ 366

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	63	46	66	54	41	41	41	54	46	51	51	64	618
FY2020	50	36	51	43	49	53	37	46	22	9	10	13	419
FY2021	16	14	8	23	16	18	25	14	29	18	29	26	236

### METRORAIL CUSTOMER INJURIES | TARGET ≤ 177

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>33</b>	<b>17</b>	<b>16</b>	<b>21</b>	<b>18</b>	<b>13</b>	<b>22</b>	<b>26</b>	<b>20</b>	<b>20</b>	<b>19</b>	<b>17</b>	<b>242</b>
Non-Preventable	0	0	0	0	1	0	0	0	0	0	0	0	1
Preventable	33	17	16	21	17	13	22	26	20	20	19	17	241
<b>FY2020</b>	<b>26</b>	<b>18</b>	<b>19</b>	<b>16</b>	<b>16</b>	<b>26</b>	<b>22</b>	<b>25</b>	<b>12</b>	<b>3</b>	<b>7</b>	<b>5</b>	<b>195</b>
Non-Preventable	0	0	0	0	0	0	0	0	0	0	0	0	0
Preventable	26	18	19	16	16	26	22	25	12	3	7	5	195
<b>FY2021</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>6</b>	<b>9</b>	<b>4</b>	<b>11</b>	<b>6</b>	<b>13</b>	<b>7</b>	<b>15</b>	<b>11</b>	<b>95</b>
Non-Preventable	0	0	0	0	0	0	0	0	0	0	0	0	0
Preventable	5	4	4	6	9	4	11	6	13	7	15	11	95

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### METROBUS CUSTOMER INJURIES | TARGET ≤ 154

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>25</b>	<b>24</b>	<b>48</b>	<b>30</b>	<b>19</b>	<b>25</b>	<b>13</b>	<b>23</b>	<b>21</b>	<b>25</b>	<b>30</b>	<b>42</b>	<b>325</b>
Non-Preventable	11	17	33	12	10	18	10	7	16	12	6	24	176
Preventable	14	7	15	18	9	7	3	16	5	13	24	18	149
<b>FY2020</b>	<b>19</b>	<b>14</b>	<b>29</b>	<b>23</b>	<b>27</b>	<b>24</b>	<b>14</b>	<b>19</b>	<b>10</b>	<b>5</b>	<b>2</b>	<b>8</b>	<b>194</b>
Non-Preventable	14	10	13	11	17	19	10	14	6	3	0	3	120
Preventable	5	4	16	12	10	5	4	5	4	2	2	5	74
<b>FY2021</b>	<b>10</b>	<b>9</b>	<b>4</b>	<b>15</b>	<b>5</b>	<b>14</b>	<b>13</b>	<b>6</b>	<b>16</b>	<b>10</b>	<b>13</b>	<b>15</b>	<b>130</b>
Non-Preventable	5	1	3	8	4	9	13	2	10	6	10	14	85
Preventable	5	8	1	7	1	5	0	4	6	4	3	1	45

### METROACCESS CUSTOMER INJURIES | TARGET ≤ 35

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>2</b>	<b>5</b>	<b>51</b>
Non-Preventable	5	5	2	1	4	3	5	3	4	3	1	3	39
Preventable	0	0	0	2	0	0	1	2	1	3	1	2	12
<b>FY2020</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>6</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>30</b>
Non-Preventable	2	2	3	3	6	2	1	1	0	1	0	0	21
Preventable	3	2	0	1	0	1	0	1	0	0	1	0	9
<b>FY2021</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>11</b>
Non-Preventable	1	0	0	0	0	0	0	2	0	1	0	0	4
Preventable	0	1	0	2	2	0	1	0	0	0	1	0	7

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### EMPLOYEE INJURIES PER 200,000 WORK HOURS

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	5.8	5.6	6.5	6.8	5.2	8.1	5.9	7.1	5.5	5.4	5.5	7.2	6.2
FY2020	7.0	8.7	6.5	8.1	5.7	5.6	6.7	4.8	4.2	1.7	2.1	1.7	5.5
FY2021	4.1	2.9	4.7	5.3	4.5	6.0	5.4	6.9	5.5	6.8	7.8	8.2	5.7

### RAIL SYSTEM EMPLOYEE INJURIES PER 200,000 WORK HOURS | TARGET ≤ 3.5

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>4.9</b>	<b>3.1</b>	<b>4.0</b>	<b>2.3</b>	<b>2.9</b>	<b>4.5</b>	<b>3.1</b>	<b>4.7</b>	<b>3.7</b>	<b>2.2</b>	<b>3.7</b>	<b>2.3</b>	<b>3.4</b>
Non-Preventable	1.0	0.8	1.1	0.8	0.8	1.3	0.6	0.4	1.4	0.4	0.8	0.2	0.8
Preventable	3.9	2.3	3.0	1.6	2.1	3.2	2.5	4.3	2.4	1.8	2.9	2.1	2.6
<b>FY2020</b>	<b>3.7</b>	<b>5.2</b>	<b>3.5</b>	<b>4.0</b>	<b>2.5</b>	<b>2.9</b>	<b>2.7</b>	<b>3.4</b>	<b>3.1</b>	<b>1.5</b>	<b>0.9</b>	<b>1.1</b>	<b>3.0</b>
Non-Preventable	1.7	1.0	0.8	1.1	0.6	1.0	0.8	0.6	1.1	0.3	0.6	0.6	0.9
Preventable	1.9	4.3	2.6	2.9	1.9	1.9	1.9	2.7	2.0	1.2	0.3	0.6	2.1
<b>FY2021</b>	<b>1.5</b>	<b>2.0</b>	<b>3.6</b>	<b>3.5</b>	<b>3.0</b>	<b>4.5</b>	<b>2.7</b>	<b>4.2</b>	<b>4.0</b>	<b>3.4</b>	<b>4.2</b>	<b>2.8</b>	<b>3.3</b>
Non-Preventable	0.0	0.2	0.6	1.0	1.1	1.9	0.9	1.1	1.6	0.9	2.0	1.3	1.1
Preventable	1.5	1.7	3.0	2.5	1.8	2.5	1.8	3.1	2.4	2.6	2.2	1.5	2.2

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### BUS EMPLOYEE INJURIES PER 200,000 WORK HOURS | TARGET $\leq 11.2$

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>8.2</b>	<b>10.0</b>	<b>10.4</b>	<b>16.1</b>	<b>9.8</b>	<b>14.2</b>	<b>11.0</b>	<b>11.2</b>	<b>7.8</b>	<b>11.5</b>	<b>9.3</b>	<b>14.7</b>	<b>11.2</b>
Non-Preventable	5.5	4.3	7.5	9.2	4.4	8.5	4.3	5.8	4.4	6.5	4.8	8.8	6.1
Preventable	2.7	5.7	2.9	6.9	5.4	5.7	6.7	5.4	3.4	5.0	4.5	5.9	5.0
<b>FY2020</b>	<b>13.3</b>	<b>15.2</b>	<b>11.2</b>	<b>13.4</b>	<b>8.4</b>	<b>11.3</b>	<b>15.3</b>	<b>7.8</b>	<b>8.0</b>	<b>2.5</b>	<b>4.1</b>	<b>3.4</b>	<b>10.2</b>
Non-Preventable	8.2	7.9	4.6	6.8	5.1	6.1	8.4	5.1	4.2	1.0	1.0	1.9	5.5
Preventable	5.1	7.3	6.6	6.5	3.4	5.2	6.9	2.7	3.8	1.5	3.0	1.5	4.7
<b>FY2021</b>	<b>7.6</b>	<b>6.5</b>	<b>8.0</b>	<b>8.6</b>	<b>8.7</b>	<b>10.6</b>	<b>11.6</b>	<b>14.2</b>	<b>9.3</b>	<b>15.0</b>	<b>15.9</b>	<b>16.3</b>	<b>11.2</b>
Non-Preventable	4.5	2.6	3.6	4.8	6.0	6.2	4.2	7.5	5.2	8.1	9.3	9.9	6.1
Preventable	3.0	3.9	4.4	3.7	2.8	4.4	7.3	6.7	4.1	7.0	6.7	6.4	5.1

### NTD BUS COLLISIONS PER MILLION MILES | TARGET $\leq 3.7$

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>5.4</b>	<b>3.9</b>	<b>6.2</b>	<b>7.0</b>	<b>3.3</b>	<b>4.0</b>	<b>3.2</b>	<b>3.8</b>	<b>4.6</b>	<b>6.1</b>	<b>2.6</b>	<b>5.6</b>	<b>4.6</b>
Non-Preventable	3.2	3.0	3.6	3.6	1.5	2.5	2.0	1.4	3.1	4.4	1.2	2.9	2.7
Preventable	2.2	0.9	2.6	3.4	1.8	1.5	1.2	2.5	1.4	1.7	1.4	2.7	1.9
<b>FY2020</b>	<b>3.5</b>	<b>4.0</b>	<b>4.5</b>	<b>4.3</b>	<b>4.0</b>	<b>3.3</b>	<b>2.9</b>	<b>3.4</b>	<b>3.7</b>	<b>1.8</b>	<b>1.8</b>	<b>3.4</b>	<b>3.5</b>
Non-Preventable	2.1	1.9	2.2	2.1	1.6	2.3	2.2	2.1	1.0	1.2	0.6	2.8	1.9
Preventable	1.4	2.1	2.2	2.1	2.4	1.0	0.7	1.3	2.7	0.6	1.2	0.6	1.6
<b>FY2021</b>	<b>2.7</b>	<b>4.7</b>	<b>2.2</b>	<b>2.7</b>	<b>1.9</b>	<b>3.5</b>	<b>3.5</b>	<b>2.1</b>	<b>1.1</b>	<b>2.1</b>	<b>2.8</b>	<b>4.7</b>	<b>2.8</b>
Non-Preventable	1.6	2.5	0.9	1.5	1.6	2.1	2.6	1.4	0.6	1.2	2.2	3.7	1.8
Preventable	1.1	2.1	1.2	1.2	0.3	1.5	1.0	0.7	0.6	0.9	0.6	0.9	1.0



# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### RAIL COLLISIONS | TARGET ≤ 7

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	3	2	0	0	0	0	0	1	2	1	1	0	10
FY2020	1	2	0	2	0	0	1	2	0	2	0	0	10
FY2021	0	1	0	1	0	0	0	0	1	0	0	0	3

### DERAILMENTS | TARGET ≤ 4

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>3</b>
Trains Carrying Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Trains with No Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Roadway Maintenance Machine	0	1	0	0	1	0	0	0	0	0	1	0	3
<b>FY2020</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5</b>
Trains Carrying Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Trains with No Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Roadway Maintenance Machine	1	2	1	0	0	0	0	1	0	0	0	0	5
<b>FY2021</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>4</b>
Trains Carrying Customers	1	0	0	0	0	0	0	0	0	0	0	0	1
Trains with No Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Roadway Maintenance Machine	1	0	0	0	0	0	0	0	1	1	0	0	3

# APPENDIX A | DATA TABLE

## SAFETY & SECURITY

### FIRE INCIDENTS | TARGET ≤ 66

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
<b>FY2019</b>	<b>10</b>	<b>11</b>	<b>5</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>7</b>	<b>4</b>	<b>9</b>	<b>71</b>
Non-Electrical	4	1	1	2	4	2	3	3	3	4	3	4	34
Cable	0	3	0	0	0	0	0	0	0	0	0	0	3
Arcing Insulator	6	6	4	1	1	0	0	2	4	3	1	5	33
Train Component	0	1	0	0	0	0	0	0	0	0	0	0	1
Station Component	0	1	2	3	4	5	6	7	8	9	10	11	11
<b>FY2020</b>	<b>8</b>	<b>6</b>	<b>12</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>7</b>	<b>6</b>	<b>66</b>
Non-Electrical	4	4	10	5	5	1	1	1	3	0	1	2	37
Cable	0	2	0	0	0	0	0	0	0	0	0	0	2
Arcing Insulator	4	0	1	1	1	4	1	2	0	1	6	4	25
Train Component	0	0	1	0	0	0	0	0	0	0	0	0	1
Station Component	0	0	0	1	0	0	0	0	0	0	0	0	1
<b>FY2021</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>4</b>	<b>35</b>
Non-Electrical	1	0	1	3	3	1	3	1	1	0	1	1	16
Cable	0	0	0	0	0	0	0	0	0	0	1	0	1
Arcing Insulator	2	1	2	0	0	0	0	1	0	1	1	3	11
Train Component	0	0	0	0	0	0	0	1	0	0	0	0	1
Station Component	1	0	0	0	1	1	0	2	1	0	0	0	6

### RED SIGNAL OVERRUNS | TARGET ≤ 11

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	0	0	1	0	0	1	0	0	3	0	3	2	10
FY2020	2	0	1	3	2	1	0	0	3	0	1	1	14
FY2021	1	0	2	1	2	4	0	1	0	0	0	0	11







# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### MYTRIPTIME RAIL CUSTOMER ON-TIME PERFORMANCE | TARGET 88%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	86%	79%	90%	89%	87%	89%	90%	90%	89%	91%	90%	90%	88%
FY2020	89%	90%	89%	90%	90%	89%	92%	92%	92%	96%	96%	91%	90%
FY2021	93%	92%	91%	90%	90%	90%	89%	91%	93%	94%	89%	91%	91%

### MYTRIPTIME RAIL CUSTOMER ON-TIME PERFORMANCE | BY LINE

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
 Red Line	94%	94%	93%	93%	92%	92%	91%	92%	93%	94%	93%	92%	N/A
 Blue Line	96%	91%	88%	84%	86%	85%	83%	83%	#DIV/0!	#DIV/0!	87%	84%	86%
 Orange Line	96%	91%	89%	86%	86%	87%	87%	90%	91%	93%	87%	90%	89%
 Green Line	86%	91%	91%	91%	91%	90%	90%	92%	94%	93%	90%	94%	91%
 Yellow Line	92%	91%	90%	88%	90%	89%	88%	87%	91%	91%	80%	87%	88%
 Silver Line	99%	90%	89%	86%	82%	86%	87%	91%	92%	93%	91%	91%	90%

### MYTRIPTIME RAIL CUSTOMER ON-TIME PERFORMANCE | BY TIME PERIOD

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Rush [5AM-9:30AM]	95%	94%	92%	93%	91%	91%	89%	93%	96%	95%	92%	94%	93%
Midday [9:30AM-3PM]	92%	93%	92%	92%	93%	91%	92%	92%	92%	92%	86%	89%	91%
PM Rush [3PM-7PM]	94%	91%	88%	89%	88%	87%	85%	90%	94%	95%	90%	92%	90%
Evening [7PM-9:30PM]	91%	93%	92%	91%	93%	92%	92%	89%	91%	93%	91%	95%	92%
Late Night [9:30PM-12AM]	70%	95%	96%	95%	95%	95%	95%	91%	89%	93%	93%	96%	94%
Weekend	94%	90%	92%	84%	86%	90%	89%	90%	89%	92%	87%	86%	89%

# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### METROBUS ON-TIME PERFORMANCE | TARGET 75%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2020	78%	78%	74%	75%	76%	78%	78%	78%	78%	N/A	N/A	N/A	77%
FY2021	75%	75%	75%	75%	74%	74%	73%	72%	76%	78%	78%	78%	75%

### METROBUS ON-TIME PERFORMANCE | BY TIME PERIOD

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Early [4AM-6AM]	79%	79%	79%	80%	78%	78%	78%	76%	82%	84%	84%	84%	80%
AM Peak [6AM-9AM]	77%	76%	75%	76%	75%	75%	74%	72%	78%	80%	80%	79%	77%
Midday [9AM-3PM]	74%	74%	75%	75%	74%	73%	73%	71%	76%	78%	78%	78%	75%
PM Peak [3PM-7PM]	74%	72%	71%	72%	71%	71%	71%	69%	73%	75%	74%	74%	72%
Early Night [7PM-11PM]	76%	77%	77%	76%	75%	76%	75%	75%	78%	80%	79%	79%	77%
Late Night [11PM-4AM]	70%	75%	78%	76%	73%	74%	73%	75%	79%	81%	80%	79%	77%

### METROBUS ON-TIME PERFORMANCE | BY SERVICE TYPE

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Headway Service	57%	57%	57%	63%	62%	61%	53%	55%	60%	62%	62%	62%	59%
All Other Service	77%	76%	76%	76%	75%	75%	74%	73%	78%	80%	79%	79%	77%

### METROACCESS ON-TIME PICK-UP PERFORMANCE | TARGET 90%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	92%	92%	92%	92%	90%	91%	90%	89%	89%	89%	86%	88%	90%
FY2020	89%	89%	87%	88%	90%	91%	91%	91%	93%	97%	97%	97%	91%
FY2021	97%	97%	97%	97%	97%	96%	97%	96%	96%	96%	95%	95%	96%

# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### RAIL FLEET RELIABILITY: MEAN DISTANCE BETWEEN DELAY

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	124,123	119,755	145,352	141,878	161,039	162,407	134,683	146,531	238,078	198,102	265,139	194,907	160,985
FY2020	144,510	188,206	292,729	192,718	211,038	237,499	244,666	416,767	817,083	343,530	342,375	350,532	245,476
FY2021	257,108	229,463	198,095	237,311	222,876	296,163	381,439	390,774	468,012	668,798	573,704	383,009	314,389

### RAIL FLEET RELIABILITY: MEAN DISTANCE BETWEEN DELAY | BY RAILCAR SERIES

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
2000 series	N/A	N/A	N/A	N/A	4,224	105,184	1,920	N/A	N/A	N/A	N/A	N/A	55,664
3000 series	N/A	80,770	64,988	86,881	74,240	100,216	165,106	176,653	138,413	142,019	373,247	160,993	108,024
6000 series	N/A	133,107	104,044	244,479	292,119	N/A	N/A	N/A	N/A	N/A	N/A	N/A	157,791
7000 series	257,108	359,123	484,306	375,459	389,112	527,285	518,932	488,102	632,811	1,195,577	618,250	451,321	484,890

### RAIL FLEET RELIABILITY: MEAN DISTANCE BETWEEN FAILURE | TARGET 15,000

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	10,073	10,671	11,092	14,010	14,075	15,929	14,019	14,397	19,737	19,810	16,752	16,418	14,211
FY2020	15,344	19,374	20,799	20,998	20,784	23,425	26,760	24,142	37,567	94,471	81,518	68,396	24,010
FY2021	48,762	27,890	13,882	34,393	31,244	33,847	44,584	57,893	54,420	54,820	58,433	48,956	35,208

### RAIL FLEET RELIABILITY: MEAN DISTANCE BETWEEN FAILURE | BY RAILCAR SERIES

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
2000 series	N/A	N/A	N/A	N/A	1,408	10,518	1,920	N/A	N/A	N/A	N/A	N/A	8,564
3000 series	N/A	10,096	6,093	13,774	11,548	14,666	13,759	18,793	15,379	15,437	21,328	15,333	12,407
6000 series	N/A	13,652	9,147	17,463	17,183	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13,022
7000 series	48,762	45,934	21,744	63,330	58,143	49,154	81,546	88,018	75,335	78,656	76,223	64,474	55,685

# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### BUS FLEET RELIABILITY: MEAN DISTANCE BETWEEN FAILURE | TARGET 7,000

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	6,192	5,961	5,806	6,644	6,670	6,806	6,422	6,661	6,796	6,622	5,680	6,111	6,335
FY2020	6,166	6,001	6,066	7,006	7,788	8,527	8,533	7,785	10,506	12,758	14,028	10,310	7,652
FY2021	8,609	8,491	9,599	9,081	9,555	10,394	10,944	10,821	9,494	8,838	7,860	7,310	9,151

### BUS FLEET RELIABILITY: MEAN DISTANCE BETWEEN FAILURE | BY FUEL TYPE

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
CNG	10,769	10,665	11,066	10,954	9,574	11,032	12,263	15,157	12,764	12,546	9,794	8,457	11,037
HYBRID	8,149	7,766	9,294	9,029	10,246	11,282	10,558	9,455	8,113	7,494	6,819	6,788	8,565
CLEAN DIESEL	7,308	9,623	8,034	6,005	6,240	5,988	10,017	12,299	14,727	13,474	15,318	7,973	8,714
DIESEL	N/A	N/A	N/A	N/A	N/A	N/A							N/A

### METROACCESS FLEET RELIABILITY: MEAN DISTANCE BETWEEN FAILURE | TARGET 20,000

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	17,799	18,439	22,233	24,753	19,501	18,321	21,611	21,471	21,884	26,116	25,402	25,626	21,557
FY2020	23,823	24,162	26,297	25,137	22,691	21,738	23,118	29,861	35,570	34,626	34,362	22,851	25,462
FY2021	18,965	18,589	22,287	34,104	25,943	30,214	28,870	17,219	28,400	24,075	29,110	20,580	23,951

# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### ELEVATOR AVAILABILITY | TARGET 97%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	95%	96%	95%	97%	96%	97%	96%	96%	97%	97%	97%	97%	96%
FY2020	96%	97%	97%	98%	97%	97%	97%	97%	96%	97%	98%	98%	97%
FY2021	97%	98%	97%	97%	98%	98%	98%	99%	99%	99%	99%	99%	98%

### ESCALATOR AVAILABILITY | TARGET 92%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	93%	93%	92%	92%	94%	94%	94%	94%	94%	95%	94%	95%	94%
FY2020	94%	94%	94%	95%	95%	96%	96%	96%	97%	96%	96%	94%	95%
FY2021	94%	94%	94%	95%	94%	94%	94%	95%	95%	95%	96%	96%	95%

### RAIL GUIDEWAY CONDITION: FTA REPORTABLE SPEED RESTRICTIONS | TARGET 7.9%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	0.2%	2.1%	0.3%	1.8%	1.6%	3.6%	0.3%	0.2%	0.0%	0.0%	0.0%	9.1%	1.6%
FY2020	10.0%	10.7%	10.7%	0.5%	2.3%	2.0%	0.1%	0.1%	0.1%	0.1%	0.0%	18.9%	4.6%
FY2021	18.8%	22.2%	4.7%	0.0%	0.6%	0.8%	0.1%	0.1%	2.4%	3.1%	4.7%	6.5%	5.3%

### TRAINS IN SERVICE | TARGET 98%

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	97%	98%	98%	97%	97%	98%	96%	97%	98%	98%	98%	99%	65%
FY2020	99%	99%	98%	98%	97%	97%	98%	100%	101%	107%	106%	109%	47%
FY2021	119%	102%	98%	100%	97%	93%	98%	100%	105%	104%	103%	102%	100%









# APPENDIX A | DATA TABLE

## QUALITY SERVICE

OFFLOADS													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	88	91	69	79	75	83	94	76	58	58	65	99	935
FY2020	96	62	93	61	69	75	71	70	44	9	24	15	689
FY2021	15	30	49	37	41	41	27	31	25	22	27	29	374

METRORAIL CROWDING													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0%	0.2%	0.2%	0.2%	0.1%
FY2021	0.8%	0.2%	0.1%	0.0%	0.5%	0.1%	1.3%	0.1%	0.1%	0.1%	1.1%	2.2%	0.6%

METRORAIL CROWDING   BY LINE													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
 Red Line	1.6%	0.2%	0.0%	0.1%	0.1%	0.1%	0.7%	0.0%	0.2%	0.0%	0.3%	2.4%	0.6%
 Blue Line	0.1%	0.1%	0.2%	0.0%	0.7%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.1%	0.4%
 Orange Line	0.1%	0.0%	0.2%	0.0%	2.4%	0.2%	2.0%	0.1%	0.0%	0.0%	0.1%	1.1%	0.5%
 Green Line	1.1%	0.7%	0.1%	0.0%	0.0%	0.3%	0.0%	0.3%	0.1%	0.6%	4.6%	6.8%	1.5%
 Yellow Line	0.0%	0.0%	0.3%	0.0%	0.2%	0.0%	2.7%	0.0%	0.0%	0.0%	1.3%	3.3%	0.7%
 Silver Line	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.1%	0.3%	0.2%	0.1%

METRORAIL CROWDING   BY TIME PERIOD													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Weekday	0.9%	0.2%	0.0%	0.0%	0.0%	0.1%	1.6%	0.1%	0.1%	0.1%	1.1%	1.7%	0.6%
AM Rush [5AM-9:30AM]	1.0%	0.2%	0.1%	0.0%	0.0%	0.1%	1.1%	0.1%	0.0%	0.1%	0.6%	1.2%	0.4%
Midday [9:30AM-3PM]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.2%	0.1%
PM Rush [3PM-7PM]	1.7%	0.5%	0.0%	0.1%	0.0%	0.2%	2.7%	0.1%	0.3%	0.2%	2.4%	3.2%	1.1%
Evening [7PM-9:30PM]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.9%	1.4%	0.4%
Late Night [9:30PM-12AM]	N/A	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

# APPENDIX A | DATA TABLE

## QUALITY SERVICE

### METROBUS CROWDING

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2020	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	6.3%	2.2%	3.0%	5.3%	3.9%
FY2021	6.7%	4.8%	3.2%	3.7%	3.4%	3.3%	2.1%	2.1%	2.6%	3.1%	3.8%	4.2%	3.5%

### METROBUS CROWDING | BY TIME PERIOD

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Weekday	6.3%	4.5%	3.0%	3.6%	3.2%	3.5%	2.0%	2.0%	2.5%	3.0%	3.7%	4.1%	3.4%
AM Early [4AM-6AM]	9.7%	5.4%	2.0%	2.4%	1.9%	2.2%	1.4%	1.4%	2.0%	2.4%	3.6%	3.6%	2.8%
AM Peak [6AM-9AM]	7.0%	3.7%	1.5%	1.6%	1.6%	1.5%	0.9%	0.9%	1.3%	1.6%	2.4%	2.8%	2.0%
Midday [9AM-3PM]	6.0%	5.0%	4.4%	5.1%	4.8%	5.4%	3.1%	3.0%	3.3%	4.1%	4.7%	5.2%	4.5%
PM Peak [3PM-7PM]	8.3%	5.6%	3.9%	5.0%	4.4%	4.6%	2.8%	2.8%	3.5%	4.0%	4.8%	5.4%	4.5%
Early Night [7PM-11PM]	3.2%	2.5%	1.3%	1.5%	0.8%	0.9%	0.5%	0.6%	1.1%	1.5%	1.9%	2.4%	1.5%
Late Night [11PM-4AM]	0.2%	0.0%	0.2%	0.4%	0.2%	0.2%	0.1%	0.2%	0.3%	0.7%	0.9%	0.9%	0.5%
Weekend	9.7%	6.2%	3.9%	4.4%	3.9%	2.8%	2.2%	2.2%	3.0%	3.6%	4.3%	4.5%	3.9%

### METRORAIL CUSTOMER SATISFACTION RATING\*

	Q1	Q2	Q3	Q4
FY2019	75%	73%	80%	76%
FY2020	79%	83%	85%	N/A
FY2021	N/A	N/A	N/A	91%

\*Given smaller sample sizes and a higher margin of error during the pandemic period (March 2020 to present), Metrorail and Metrobus Customer Satisfaction results should not be compared to pre-pandemic numbers and should be interpreted as directional only. From March 2020 through the third quarter of FY21 (March 2021), Metro was not able to collect enough survey data to reliably measure Rail Customer Satisfaction due to significant decreases in ridership. The sample size for Metrobus during this same period was larger than Rail's, but smaller than usual. Bus results are directional only.

### METROBUS CUSTOMER SATISFACTION RATING\*

	Q1	Q2	Q3	Q4
FY2019	71%	77%	75%	76%
FY2020	76%	79%	76%	N/A
FY2021	64%	84%	88%	81%

# APPENDIX A | DATA TABLE

## SUPPORTING MEASURES

### VACANCY RATE

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	7%	7%	6%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%
FY2020	6%	6%	6%	6%	6%	7%	7%	6%	6%	6%	6%	6%	6%
FY2021	7%	7%	7%	7%	7%	7%	8%	8%	8%	8%	9%	10%	10%

### SUSTAINABILITY

#### ENERGY USE | TARGET 35.3

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	39.69	42.45	41.12	36.98	42.53	39.15	42.63	43.60	36.80	37.29	36.80	38.88	39.7
FY2020	39.26	39.86	38.98	35.99	37.49	39.72	38.53	38.00	38.86	49.47	52.53	58.33	40.3
FY2021	65.04	44.15	37.41	36.07	37.09	41.15	41.06	42.33	35.25	36.83	36.28	38.64	39.7

#### WATER USE | TARGET 0.73

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	1.34	1.30	1.26	0.78	0.54	0.39	0.42	0.62	0.41	0.56	0.77	0.92	0.77
FY2020	1.48	0.98	1.01	0.76	0.73	0.40	0.48	0.37	0.44	1.36	1.22	1.48	0.82
FY2021	2.73	1.29	0.75	0.81	0.51	0.39	0.53	0.57	0.45	0.64	0.76	0.91	0.76

#### GREENHOUSE GAS EMISSIONS | TARGET 2.15

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY2019	3.47	3.66	3.61	3.18	3.66	3.37	3.65	3.69	3.19	3.20	3.19	3.43	3.43
FY2020	3.50	3.59	3.56	3.19	3.30	3.53	3.40	3.33	4.93	4.55	4.95	5.44	3.70
FY2021	5.99	4.01	3.38	3.22	3.25	3.62	3.61	3.70	3.08	3.29	3.24	3.48	3.54

## APPENDIX B | DEFINITIONS

## RIDERSHIP + SUPPORTING MEASURES

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Ridership</b>	<p>Total Metro ridership</p> <p>Metrorail passenger trips + Metrobus passenger boardings + MetroAccess passenger trips</p>	<p>Ridership is a measure of total service consumed and an indicator of value to the region. Drivers of this indicator include service quality and accessibility.</p> <p>Passenger trips are defined as follows:</p> <ul style="list-style-type: none"> <li>▶ <b>Metrorail</b> reports passenger trips. A passenger trip is counted when a customer enters through a faregate. In an example where a customer transfers between two trains to complete their travel one trip is counted.</li> <li>▶ <b>Metrobus</b> reports passenger boardings. A passenger boarding is counted via the onboard Automatic Passenger Counter (APC) when a customer boards a Metrobus. In an example where a customer transfers between two Metrobuses to complete their travel two trips are counted. Metrobus totals also include shuttles* to accommodate rail station shutdowns and other track work.</li> <li>▶ <b>MetroAccess</b> reports passenger trips. A passenger traveling from an origin to a destination is counted as one passenger trip.</li> </ul> <p>*Metro does not include bus shuttle passenger trips in its budget or published ridership forecasts.</p>
<b>Vacancy Rate</b>	<p>Percentage of budgeted positions that are vacant</p> <p>(Number of budgeted positions – number of employees in budgeted positions) ÷ number of budgeted positions</p>	<p>This measure indicates how well Metro is managing its human capital strategy to recruit new employees in a timely manner. Factors influencing vacancy rate can include: recruitment activities, training schedules, availability of talent, promotions, retirements, among other factors.</p>

## APPENDIX B | DEFINITIONS

## RIDERSHIP + SUPPORTING MEASURES

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Water Usage</b>	<p>Rate of gallons of water consumed per vehicle mile</p> <p>Total gallons of water consumed ÷ Total vehicle miles</p>	This measure reflects the level of water consumption Metro uses to run its operations. Water consumption is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.
<b>Energy Usage</b>	<p>Rate of Thousand British Thermal Units (BTUs) consumed per vehicle mile</p> <p>Energy usage in native units (Gasoline + Diesel + Natural Gas + Compressed Natural Gas + Traction Electricity + Facility Electricity) × (individual formulas to convert to MBTU) ÷ Total vehicles</p>	This measure reflects the level of various types of energy Metro uses to provide service and power its operations. Energy consumption is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.
<b>Greenhouse Gas Emissions</b>	<p>Rate of CO<sub>2</sub>e emitted per vehicle mile</p> <p>(Energy/fuel consumption used by Metro facilities and revenue and non-revenue vehicles, expressed in native units) × (individual GHG conversion factors for each energy type, result expressed in kilograms) ÷ Total vehicle miles</p>	Greenhouse Gas emissions reflect how Metro sources its energy used to power its operations, as well as the amount of energy it uses. Reducing Greenhouse Gas emissions is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.

# APPENDIX B | DEFINITIONS

## QUALITY SERVICE

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>MyTripTime</b>  <b>Metrorail Customer On-Time Performance</b>	<p>Percentage of customer journeys completed on time</p> <p>Number of journeys completed on time ÷ Total number of journeys</p>	<p>Rail Customer On-Time Performance (OTP) communicates the reliability of rail service, which is a key driver of customer satisfaction. OTP measures the percentage of customers who complete their journey within the maximum amount of time it should take per WMATA service standards. The maximum time is equal to the train run-time + a headway (scheduled train frequency) + several minutes to walk between the fare gates and platform. These standards vary by line, time of day, and day of the week. Actual journey time is calculated from the time a customer taps a SmarTrip® card to enter the system, to the time when the SmarTrip® card is tapped to exit.</p> <p>Factors that can affect OTP include: railcar availability, fare gate availability, elevator and escalator availability, infrastructure conditions, speed restrictions, single-tracking around scheduled track work, railcar delays (e.g., doors), or delays caused by sick passengers.</p>
<b>Metrobus On-Time Performance</b>	<p>Percentage of bus service delivered on-time</p> <p>Schedule-based routes = Number of time points delivered on time based on a window of 2 minutes early and 7 minutes late ÷ Total number of time points delivered</p> <p>Headway-based routes = Number of time points delivered within the scheduled headway + 3 minutes ÷ Total number of time points delivered</p>	<p>Bus on-time performance (OTP) communicates the reliability of bus service, which is a key driver of customer satisfaction and ridership.</p> <ul style="list-style-type: none"> <li>▶ For schedule-based routes, OTP measures adherence to the published route schedule for delivered service.</li> <li>▶ For headway-based routes, OTP measures the adherence to headways, or the time customers wait between buses. Headway-based routes include routes 70, 79, X2, 90, 92, 16Y, and Metroway.</li> </ul> <p>Factors that can affect OTP include: traffic congestion, detours, inclement weather, scheduling, vehicle reliability, operational behavior, or delays caused by passengers.</p>
<b>MetroAccess On-Time Pick-up Performance</b>	<p>Adherence to Schedule</p> <p>Number of vehicle arrivals at the pick-up location within the 30 minute on-time window ÷ Total stops</p>	<p>This indicator illustrates how closely MetroAccess adheres to customer pick-up windows on a system-wide basis. Factors that effect on-time performance are traffic congestion, inclement weather, scheduling, vehicle reliability, and operational behavior. MetroAccess on-time pick-up performance is essential to delivering quality service to the customer.</p>

# APPENDIX B | DEFINITIONS

## QUALITY SERVICE

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Rail Fleet Reliability</b>	<p>Mean Distance Between Delays (MDBD)</p> <p>Total railcar revenue miles ÷ Number of failures during revenue service resulting in delays of four or more minutes</p>	<p>The number of miles traveled before a railcar experiences a failure. Some car failures result in inconvenience or discomfort, but do not always result in a delay of service (such as hot cars). Mean Distance Between Delay includes those failures that had an impact on customer on-time performance.</p>
	<p>Mean Distance Between Failure (MDBF)</p> <p>Total railcar revenue miles ÷ Total number of failures occurring during revenue service</p>	<p>Mean Distance Between Failure and Mean Distance Between Delay communicate the effectiveness of Metro's railcar maintenance and engineering program. Factors that influence railcar reliability are the age and design of the railcars, the amount the railcars are used, the frequency and quality of preventive maintenance, and the interaction between railcars and the track.</p>
<b>Bus Fleet Reliability</b>	<p>Mean Distance Between Failures (MDBF)</p> <p>Total bus mileage ÷ Total number of mechanical failures occurring during revenue service</p>	<p>Mean Distance Between Failures is used to monitor trends in vehicle breakdowns that cause buses to go out of service and to plan corrective actions. Factors that influence bus fleet reliability include vehicle age, quality of maintenance program, original vehicle quality, and road conditions affected by inclement weather and road construction.</p>
<b>MetroAccess Fleet Reliability</b>	<p>Mean Distance Between Failures (MDBF)</p> <p>Total MetroAccess vehicle odometer miles ÷ Total number of mechanical failures occurring during revenue service</p>	<p>The number of total miles traveled before a mechanical breakdown requiring the van to be removed from service or deviate from the schedule</p> <p>Mean Distance Between Failures is used to monitor trends in vehicle breakdowns that cause vans to go out of service and to plan corrective actions. Factors that influence MetroAccess van fleet reliability include vehicle age, quality of maintenance program, original vehicle quality, and road conditions affected by inclement weather and road construction.</p>



# APPENDIX B | DEFINITIONS

## QUALITY SERVICE

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Elevator and Escalator Availability</b>	<p>In-service percentage</p> $\text{Hours in service} \div \text{Operating hours}$ $\text{Hours in service} = \text{Operating hours} - \text{Hours out of service}$ $\text{Operating hours} = \text{Operating hours per unit} \times \text{number of units}$	<p>Escalator/elevator availability is a key component of customer satisfaction with Metrorail service. This measure communicates system-wide escalator and elevator performance (at all stations over the course of the day) and will vary from an individual customer's experience.</p> <p>Availability is the percentage of time that Metrorail escalators or elevators in stations and parking garages are in service during operating hours.</p> <p>Customers access Metrorail stations via escalators to the train platform, while elevators provide an accessible path of travel for persons with disabilities, seniors, customers with strollers, and travelers carrying luggage.</p> <p>An out-of-service escalator requires walking up or down a stopped escalator, which can add to travel time and may make stations inaccessible to some customers. When an elevator is out of service, Metro is required to provide alternative services which may include shuttle bus service to another station.</p>
<b>Available Track</b> (Federal Transit Administration Transit Asset Management Performance Measure)	<p>Percentage of track segments with performance restrictions at 9:00 AM the first Wednesday of every month</p> $\text{Number of track miles with performance restrictions} \div 234 \text{ total miles}$	<p>In 2016, the Federal Transit Administration (FTA) issued its Final Rule on Transit Asset Management, which requires transit properties to set targets and report performance on a variety of measures, including guideway condition. Guideway includes track, signals and systems.</p> <p>A performance restriction occurs when there is a speed restriction: the maximum train speed is set below the guideway design speed. Performance restrictions may result from a variety of causes, including defects, signaling issues, construction zones, and maintenance causes. FTA considers performance restrictions to be a proxy for both track condition and the underlying guideway condition.</p>
<b>Train On-Time Performance: Headway Adherence</b>	<p>Number of station stops delivered within the scheduled headway plus 2 minutes during rush (AM/PM) service <math>\div</math> Total station stops delivered</p> <p>Number of station stops delivered up to 150% of the scheduled headway during non-rush (midday and evening) <math>\div</math> Total station stops delivered</p>	<p>Train on-time performance measures the adherence to weekday headways, or the time customers wait between trains. Factors that can effect on-time performance include: infrastructure conditions, missed dispatches, railcar delays (e.g., doors), or delays caused by sick passengers. Station stops are tracked system-wide, with the exception of terminal and turn-back stations.</p>

# APPENDIX B | DEFINITIONS

## QUALITY SERVICE

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Trains in Service</b>	<p>Percentage of required trains that are in service at 8:15 AM and 5:00PM</p> <p>Number of Trains in service ÷ Total required trains</p>	<p>Trains in Service is a key driver of customer on-time performance and supports the ability to meet the Board standard for crowding. WMATA's base rail schedule requires 140 trains during rush periods. Fewer trains than required results in missed dispatches, which leads to longer wait times for customers and more crowded conditions. Key drivers of train availability include the size of the total fleet and the number of "spares", railcar reliability and average time to repair, operator availability, and balancing cars across rail yards to ensure that the right cars are in the right place at the right time.</p>
<b>Offloads</b>	<p>Number of railcar offloads</p>	<p>An offload is any time all passengers traveling on a train must get off the train for any un-scheduled reason (e.g., not a turnback or planned removal from service). Offloads are a key driver of customer on-time performance and communicates the impact of Metro's maintenance and engineering programs on customer service. Factors that influence railcar offloads are railcar performance, rail infrastructure performance, rail operations policies, and customer behavior.</p>
<b>Rail Crowding</b>	<p>Percentage of passenger time spent on vehicles exceeding crowding guidelines</p> <p>Number of crowded passenger minutes ÷ Total number of passenger minutes</p>	<p>Crowding is a key driver of customer satisfaction with Metrorail service. Crowding measures the percentage of passenger time spent on vehicles that exceed crowding guidelines per WMATA service standards:</p> <ul style="list-style-type: none"> <li>▶ Before Pandemic: 100 passengers per car</li> <li>▶ Pandemic: 23 passengers per car</li> </ul> <p>Crowding informs decision making regarding asset investments, service plans and scheduling. Factors that can effect crowding include: service reliability, missed trips insufficient schedule, or unusual demand.</p>

# APPENDIX B | DEFINITIONS

## QUALITY SERVICE

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Bus Crowding</b>	<p>Percentage of bus stops encountered by a bus that exceeds crowding guidelines</p> <p>Number of bus stops encountered by a crowded bus ÷ Total number of bus stops encountered</p>	<p>Crowding is a key driver of customer satisfaction with Metrobus service. Crowding measures the percentage of bus stops encountered by a bus that exceeds crowding guidelines per WMATA service standards:</p> <ul style="list-style-type: none"> <li>▶ Before Pandemic: 120% of seated capacity during peak for BRT, framework, and coverage routes, 100% off peak and at all times on commuter routes</li> <li>▶ Pandemic: 50% of seated capacity</li> </ul> <p>Crowding informs decision making regarding asset investments, service plans and scheduling. Factors that can affect crowding include: service reliability, missed trips insufficient schedule, or unusual demand.</p> <p>Note: Prior to the adoption of the Metrobus Service Guidelines in December 2020, crowding guidelines were 120% of seated load for all services except express bus during peak.</p>
<b>Customer Satisfaction</b>	<p>Survey respondent rating</p> <p>Number of survey respondents with high satisfaction ÷ Total number of survey respondents</p>	<p>Surveying customers about the quality of Metro's service delivery provides a mechanism to continually identify those areas of the operation where actions to improve the service can maximize rider satisfaction.</p> <p>Customer satisfaction is defined as the percent of survey respondents who rated their last trip on Metrobus or Metrorail as "very satisfactory" or "satisfactory." The survey is conducted via phone with approximately 400 bus and 400 rail customers who have ridden Metro in the past 30 days. Results are summarized by quarter (e.g., January–March).</p>

# APPENDIX B | DEFINITIONS

## SAFETY & SECURITY

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Crime</b>	Reported Part I Crimes	<p>Part I crimes reported to the Metro Transit Police Department for Metrobus (on buses), Metrorail (on trains and in rail stations), or at Metro-owned parking lots in relation to Metro's monthly passenger trips. Uniform Crime Reporting, managed by the Federal Bureau of Investigation, include Part I offense classifications of Criminal Homicide, Forcible Rape, Robbery, Aggravated Assault, Burglary, Larceny, Motor Vehicle Theft, and Arson.</p> <p>This measure provides an indicator of the perception of safety and security customers experience when traveling the Metro system. Increases or decreases in crime can have a direct effect on whether customers feel safe in the system.</p>
<b>Customer Injury Rate</b>	<p>Customer injury rate:</p> $\text{Number of injuries} \div (\text{Number of passengers} \div 1,000,000)$	<p>The customer injury rate is based on National Transit Database (NTD) Reporting criteria. This measure includes customers injured during Metro operations when the injury is considered serious or requires immediate medical attention away from the scene.</p> <p>Customer safety is the highest priority for Metro and a key measure of quality service. Customers expect a safe and reliable ride each day. The customer injury rate is an indicator of how well the service is meeting this safety objective.</p>
<b>Employee Injury Rate</b>	<p>Employee injury rate:</p> $\text{Number of injuries} \div (\text{Total work hours} \div 200,000)$	<p>An employee injury is recorded based on OSHA 1904 Recordkeeping Criteria, when the injury is (a) work related; and, (b) one or more of the following happens to the employee: 1) fatality, 2) injury or illness that results in loss of consciousness, days away from work, restricted work, or job transfer 3) receives medical treatment above first aid, 4) diagnosed case of cancer, chronic irreversible diseases, fractured or cracked bones or teeth, and punctured eardrums, 5) special cases involving needlesticks and sharps injuries, medical removal, hearing loss, and tuberculosis.</p> <p>Per the Occupational Safety and Health Act, employers are obligated to provide a workplace free of recognized hazards which may cause employee death or serious injury. OSHA recordable injuries are a key indicator of how safe employees are in the workplace.</p>
<b>NTD Bus Collision Rate</b>	<p>NTD bus collision rate:</p> $\text{Number of NTD reportable collisions} \div (\text{Total number of bus miles operated} \div 1,000,000)$	<p>The NTD collision rate is a subset of the Bus Collision Rate and is based on National Transit Database (NTD) Reporting criteria. It reflects bus collisions that result in injuries requiring transport for any involved vehicle or pedestrian; towaway of any involved vehicle; or total damages that cost \$25,000 or more.</p> <p>NTD-reportable collisions reflect a measure of serious bus collisions and represent an opportunity to fully investigate the incident; determining causal factors and root causes. The NTD bus collision rate is an indicator of how well service is meeting this safety objective.</p>

# APPENDIX B | DEFINITIONS

## SAFETY & SECURITY

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Rail Collisions</b>	Number of rail collisions	<p>Rail collision incidents reflect any incident on the mainline or yard where a train, with or without customers, or a Roadway Maintenance Machine (RMM) makes contact with another vehicle, equipment, or object, and meet the NTD threshold of substantial damage.</p> <p>The number of rail collision incidents is an indicator of how well Train and Equipment Operators and Rail Controllers are paying full time and attention to their operating environment and how efficient communications are from controllers to operators.</p>
<b>Derailments</b>	Number of derailments	<p>A derailment is a non-collision event that occurs when a train or other rail vehicle unintentionally comes off its rail, causing it to no longer be properly guided onto the railway.</p> <p>The number of derailment incidents is an indicator of how well Train Operators and Rail Controllers are paying full time and attention to their operating environment and how efficient communications are from controllers to operators. Derailments are also an indicator of the state of good repair of both the right-of-way and rail vehicles (trains, RMMs, Flat Cars, Hi-Rail trucks).</p>
<b>Fire Incidents</b>	Number of fire incidents	<p>Fire incidents consistent of any fire that occurs within the Metrorail system regardless if active suppression was required. There are three main types of fires that occur within the Metrorail system: non-electrical (e.g., debris, rubbish such as leaves, newspapers), cable, arcing events (track components, train components) and station equipment.</p> <p>The number of fire incidents is an indicator of how well Metro is keeping its right of way clean and dry, and its equipment in state of good repair.</p>
<b>Red Signal Overruns</b>	Number of red signal overruns	<p>Red signal overrun incidents reflect any time a train or equipment operator passes a red signal on the right-of-way (including in rail yards), or when the operator passes an employee on the roadway who's telling the train or Roadway Maintenance Machine (RMM) to not move any further.</p> <p>The number of red signal overruns is an indicator of how well Train Operators and Rail Controllers are paying full time and attention to their operating environment and how efficient communications are from controllers to operators.</p>

**APPENDIX B | DEFINITIONS****FINANCIAL RESPONSIBILITY**

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>Operating Financial Performance</b>	Summary of expenses in comparison to total funding sources.	This indicator tracks Metro's progress managing its operating revenue and expenses

# EXHIBIT V





## Dangers of Riding Drunk on Metro: New Video Shows Passengers Falling off Escalators, onto Tracks

Four passengers in the video are believed to be so drunk they have trouble navigating the system

By **Scott MacFarlane, News4 I-Team Reporter** • Published December 27, 2013 • Updated on December 30, 2013 at 7:44 pm



Some Washington, D.C.-area bars said they're going to direct intoxicated people to cab rides Tuesday, during New Year's Eve festivities, in the wake of a News4 I-Team investigation.



during New Year's Eve festivities, in the wake of a News4 I-Team investigation.

Dramatic surveillance camera footage shows at least five passengers, each suspected of being intoxicated, suffering falls inside Metro train stations since the beginning of November.

All survived, but the footage shows the passengers tumbling dozens of feet onto tracks, platforms and walkways.

The most recent happened at the L'Enfant Plaza station Sunday morning, when a passenger suspected of being under the influence of alcohol fell while sitting on a wall.

Managers of Tommy Joe's restaurant across the street from the Bethesda Red Line station said they've been directing intoxicated people to cabs to ensure a safer door-to-door trip home. Owner Alan Pohoryles said, "Literally every weekend, especially holiday weekends, there's a line of 15 cabs here, from 10 p.m. to 3 a.m."

A representative of Barracks Row Entertainment, which owns several D.C. bars including the Hawk N' Dove on Capitol Hill, said their restaurants have also established programs to direct intoxicated people to cab systems.

The surveillance video, first obtained by the News4 I-Team, also includes images of a man tumbling from atop an escalator at the Clarendon Metro station on the Orange Line in late November. The incident happened just before 2 a.m. on a Saturday.

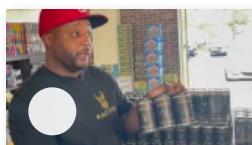
## Local

Washington, D.C., Maryland and Virginia local news, events and information



**2 HOURS AGO**

Rail Strike, Abortion Law and 50 Years of Kennedy Center: The News4 Rundown



**4 HOURS AGO**

First Black-Owned Brewing Company in Montgomery County Seeks to Expand



running toward a nearby wall to find the victim.

The video also shows a man and woman riding an escalator at 2:28 a.m. at the Archives station on the Green Line. After nearing the top of the escalator, the man is seen leaning against the rail, then tumbling over.

- **WATCH:** [Metro Says Drunk Passengers Can be Dangerous to Themselves, Others](#)

A woman at the Stadium-Armory station, on the Orange Line, is seen stumbling as she approaches the edge of the platform on a Saturday morning in late November. She pauses near the edge, then falls on to the tracks.

- **READ MORE:** [Video Shows Metro Fare Cheaters in Action](#)

Good Samaritans pulled her out of the tracks about a minute later.

Dan Stessel, a spokesman for the transit agency, said each of the victims shown in the footage was under the influence of alcohol. Stessel said passengers should be aware of the danger of riding the system while drunk. "We want folks to ride responsibly," Stessel said, "If they do find themselves in a position where they have trouble walking or standing, they might want to take a cab instead."

- **READ MORE:** [Metro Proposes 'Downtown Loop' by 2040](#)

Joseph Kitchen, a former member of Metro's Riders' Advisory Council, said intoxicated passengers are also a danger to others riding the trains.

Kitchen said, "Sometimes someone is too drunk and can't control themselves. And (other passengers) are tired of their outrageous behavior."

D.C. Council member Jim Graham said he's been notified of several instances in which drunken passengers risked injury along Metrobuses. Bus drivers, Graham said, have repeatedly complained about the threat of intoxicated people falling from – or near – buses.



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# **EXHIBIT W**





# FY19 Metro Performance Report

The following is Metro's system-wide performance for FY2019 in the areas of quality service, safety, security and financial responsibility. Performance is compared to targets that Metro aims to achieve, or where applicable, to previous fiscal year performance.



## Quality Service

### **MyTripTime — 88% of customers on-time** ●

More than 88% of Metrorail customers' trips were completed on-time during FY2019, meeting Metro's target. Weekday on-time performance (OTP) reached close to 90%, and weekend OTP notably improved across FY2019, increasing from 75% in the first quarter to 85% in the fourth.

Planned trackwork—including five major capital rebuilding efforts—lowered customer OTP by 2.6 percentage points across the year. Furthermore, these capital rebuilding efforts also contributed to Metro's assets operating in a State of Good Repair and service remaining reliable for customers.

During 16 days of continuous single-tracking in August 2018 on the Orange, Blue and Silver Lines, Metro rebuilt the tightest curve in the system near McPherson Square. This had the biggest impact on customer OTP, decreasing it by about 10 percentage points in August.

The four shutdowns in FY2019, all for structural repairs and other infrastructure improvements, included a 45-day Red Line shutdown from July to August 2018; a 14-day shutdown of the Yellow Line Bridge and four-day shutdown at National Airport in November 2018; and most recently, a six-station shutdown south of National Airport from May to September 2019 for the Platform Improvement Project. Metro strived to maintain normal service levels outside of the shutdown areas, and as a result, has minimized the system-wide impact of these events.

Unplanned delays made up the rest of the impact to customer OTP. Police activity and other customer-related incidents accounted for more than a third of all unplanned delays on rail, increasing by 7% compared to FY2018. The overall crime rate for Rail also increased slightly from 3.6 to 4.3 per million passengers from FY2018 to FY2019. Railcar issues accounted for another third of unplanned delays but have decreased by almost 40% relative to FY2018 thanks to improved maintenance practices and the retirement of the poorest performing railcars.

The remaining third of unplanned delays are split between infrastructure failures and operations (e.g., operator personal breaks). Since FY2018, infrastructure failures have decreased by approximately 78% thanks to the track preventive maintenance program and intensive rebuilding efforts. There were also 9% fewer smoke and fire incidents in FY2019 as compared to FY2018, and 22% fewer as compared to FY2017.

## Rail Fleet Reliability — 160,985 miles between delay ●

Railcar performance continues to be the best in eight years, reaching almost 161,000 miles between customer delays—a 74% improvement compared to FY2018. Performance reached a record high in May compared to the last several years, with cars traveling 265,000 miles on average before leading to a delay. For customers, this has resulted in 41% fewer offloads and more on-time arrivals at destinations.

Using reliability analysis, Metro continues to better align its engineering efforts to the issues causing the most problems. For example, Metro adjusted the periodic inspection program to 90 days for the 7000-series railcars and 60 days for the rest of the fleet, while also adding tasks to address frequent sources of failures. A new ultrasonic pneumatic leak detection task has greatly reduced failures related to the pneumatic system and compressors. Metro's rail fleet reliability has also been steadily increasing thanks to investments in new, high-quality railcars and retiring poor-performing ones. The 7000-series railcars now represent 57% of the available fleet and are the top performers: In May and June 2019, 7000-series railcars traveled almost 600,000 and 500,000 miles between delays, respectively. Metro retired all 192, 5000-series cars in FY2019.

## Rail Infrastructure Availability — 97.4% of infrastructure available ●

Rail infrastructure availability was better than target and higher than FY2018, with over 97% of track available during passenger hours. Planned track work was the main reason track was out of service, reducing availability by 2.3 percentage points compared to 1.4 percentage points in FY2018.

In addition to major work on the Orange, Blue, and Silver Lines during the first quarter, there were four planned shutdowns across FY2019, closing parts of the track for what equated to about 100 days out of the fiscal year.

Unplanned disruptions lowered availability by only 0.3 percentage points, a sign of improving rail infrastructure condition — and a vast improvement over FY2018 which saw 3.8% of unavailable track due to unplanned disruptions—including a power-related speed restriction in the core of the system.

Thanks to the preventive maintenance program and capital rebuilding efforts addressing the parts of the system in the poorest condition, the duration of emergency single-tracking events decreased by 33%. Notably, there were no speed restrictions in June 2019.

Metro continues to focus on increasing the amount of work accomplished during overnight non-revenue hours, limiting work impact to customers. Metro increased its work-wrench hours during non-revenue hours by 33% from the first to fourth quarters of FY2019 thanks to better planning and coordination. Metro continued to maintain lower emergency wayside work events (work that must be accomplished within 48 hours): emergencies made up fewer than 5% of all overnight work requests for 11 of the 12 months.

## Bus On-Time Performance — results unavailable *[pilot KPI]* ●

In July 2018, Metrobus began piloting a new calculation for bus OTP. Since beginning the pilot, data quality errors were identified that impact monitoring and reporting. These errors were driven by errors in timepoints and older, defective software installed on the on-board equipment of approximately 10% of the Metrobus fleet. This combination resulted in reporting of incorrect departure and arrival times, thus compromising the performance results.

Together with Metro's external intelligent transportation system (ITS) partners, work has now been completed

to replace the identified defective on-board equipment as well as to correct the underlying timepoint attributes. Reporting will resume in the Q1/FY2020 Metro Performance Report which will be released in early November 2019.

### **Bus Fleet Reliability — 6,335 miles between failure ●**

In FY2019, buses on average traveled just over 6,300 miles between service interruption, a 9% decline from last fiscal year. The compressed natural gas (CNG) fleet ended the year as the top performer, improving 20% compared to last fiscal year, traveling almost 8,000 miles between failure. Performance of the hybrid fleet, which delivered over 60% of service, declined 16% compared to last fiscal year traveling just over 6,500 miles between failure.

Metro is taking several actions to improve the bus customer experience and reduce travel times, including improving reliability of the hybrid fleet through working with bus manufacturers to address fleet failures, continuing to replace older, less reliable buses with 140 new 40-foot CNG and 12 new 60-foot hybrid buses placed into service as of June 30, 2019, as well as developing an electric bus deployment strategy.

### **MetroAccess On-Time Performance — 90% of vehicles on-time ●**

MetroAccess OTP was 90% in FY2019, near the target of 92%. In FY2019, MetroAccess transitioned from primarily scheduling direct single-passenger trips to scheduling shared rides for most trips. Transitioning to shared rides reduces emissions, decreases traffic congestion, and provides important economic benefits; however, this transition affected OTP. Looking forward to FY2020, MetroAccess is actively adjusting the scheduling parameters for the system to improve OTP while maintaining shared ride benefits.

### **Elevator Availability — 96% available ●**

Despite a steady improvement in performance over the course of the year, Elevator Availability slightly missed the FY2019 annual target. Availability was also just short of target in Q4/2019.

Metro is taking several actions to improve performance. Beginning in FY2020, a dedicated team will focus on repairing elevators (previously, staff repaired both elevators and escalators) and the team plans to more aggressively address frequent failure causes on elevators. Management also plans to add a dedicated elevator Master tech position and an additional “helper” staff position and; 10 “helper” staff have recently been hired and an additional four are under recruitment. These “helper” positions would be allocated across both elevator and escalator support.

### **Escalator Availability — 94% available ●**

Escalator Availability comfortably exceeded the FY2019 annual target of 92%. Q4/2019 escalator availability also exceeded target, with 94% of units available on average throughout April, May and June. This achievement comes despite Metro’s aggressive and expansive plan to replace a significant number of escalators across the system. Nearly twice as many units were replaced in FY2019 compared to FY2018. Current recruiting efforts to expand the number of “helper” staff positions are expected to increase both the rigor and timeliness of inspections and maintenance, thus further increasing escalator availability.



## Safety & Security

### Crime — 1,336 Part I crimes ●

The FY2019 Part I crime rate decreased 6% compared to last fiscal year and performed better than target, recording no more than 1,650 crimes throughout the Metro system. About 63% of crimes committed on Metro were against property, with the remaining 37% against persons. The overall decline in the rate was driven by a 15% decrease in the rate of crimes against property, with reductions in bike thefts and thefts from cars parked at Metro facilities. This improvement was offset slightly by a 17% increase in the rate of crimes against persons, with robberies as the biggest contributor. The combined crime rate of 3.8 crimes per million passenger trips represents the lowest rate in recent years.

### Red Signal Overruns — 10 incidents ●

The target for red signal overruns is a general downward trend compared to the prior year, which was not achieved for FY2019. The overall incident count remained static compared to FY2018, with 10 incidents. The upward trend began in the fourth quarter, after being relatively flat for the first three quarters. There were five overruns through the first three quarters of FY2019, and five in the fourth quarter. In April 2019 there were no incidents, while there were three in May and two in June. The three overruns in May were all in rail yards (two in New Carrollton yard, one in West Falls Church yard) although the circumstances of the movements were different. One of the June incidents occurred at the new temporary terminus at National Airport for the Blue/Yellow Lines due to the Platform Improvement Project and the other was in Brentwood Yard. There were no red signal overruns by roadway maintenance machine (RMM)/equipment operators in the last three quarters.

Despite the uptick in the last three months, engineered mitigations and corrective action programs were proving effective at limiting red signal overrun incidents. Metro will continue to perform efficiency testing and spot checks to ensure rules and procedures, such as ‘100% repeat-back’ are enforced. In addition to the engineering controls mentioned in previous reports, rules and procedures are similarly important in preventing red signal overruns.

### Fire Incidents — 71 incidents ●

Rail system fires decreased by 14% compared to FY2018. All types of fires decreased, including 15% fewer arcing insulators. None of the three cable fires in FY2019 (down from five in FY2018) were related to high voltage power feeder cables.

Current mitigations and preventive maintenance programs appear effective at reducing fire incidents. Preventive maintenance activities include but are not limited to stray current testing; cable inspection, meggering and replacement; track bed cleaning; and drain maintenance.

## Rail Collisions — 12 collisions ●

Operational rail collisions remained static compared to FY2018, with 12 incidents; however, the 12-month trend indicates a decreasing incident rate. The rail collision metric includes incidents of minor damage that were the result of a preventable incident (e.g., trains striking equipment/objects when pulling into or out of a maintenance shop).

There were two collisions in the fourth quarter of FY2019: one involving a Roadway Maintenance Machine (RMM) in May, and a train incident in April. The RMM incident involved a Prime Mover traveling backwards through an interlocking when a cross tie hanging off the side of the flat car contacted an ATC push button signal, which damaged and bent the associated pole. The railcar collision involved contact with a loose third rail cover board, which subsequently damaged the train's train-to-wayside (TWC) communications coil.

## Derailments — 3 incidents ●

There were three derailments in FY2019 compared to 13 incidents in FY2018, a 77% decrease. There were no revenue vehicle derailments in FY2019. There was one derailment in the fourth quarter: a hi-rail vehicle was being tested for certification in Alexandria yard and derailed at low speed.

## Bus Collisions — 66.9 per million miles ●

Bus collisions are rated as preventable or non-preventable. Preventable means the employee failed to do everything reasonably expected of a trained professional driver. Examples are a bus rear-ending another vehicle or striking a parked vehicle. Non-preventable means the employee took every reasonable action and/or could not have possibly avoided the accident. Examples are a bus being struck while servicing a bus stop or being struck by a vehicle that ran a red light at high speed.

The overall FY2019 collision rate is 66.9 per million miles, broken down to 29.2 preventable collisions per million miles and 37.7 non-preventable collisions. The target rate for bus collisions is specific to preventable collisions, which is set at 22.5 preventable collisions per million miles. The preventable collision rate increased 16% compared to FY2018. Preventable collisions primarily consisted of striking fixed objects, sideswipes, hitting parked vehicles, and hitting other vehicles in the rear.

In FY2019, Bus Services reviewed collision data during safety committee meetings and retreats to develop different strategies to mitigate accidents. DriveCam review continues to be a tool to coach and retrain operators on accidents, incidents and near-misses. Deceleration light and front strobe installation was completed on the remaining fleet in the fourth quarter of FY2019. There is a general downward trend in 'Hit in Rear' collisions over the last 12 months. Bus Services also worked with other municipalities to review and investigate collision hotspot locations. In June, the District of Columbia implemented bus-only lanes along specific sections of I & H streets NW to help with on-time performance and reduce the amount of interactions with other vehicles; however, the installation of these lanes occurred too recently to have measurable impacts in FY2019.



## Bus Pedestrian Strikes — 24 incidents ●

Overall, FY2019 had 24 pedestrian strikes compared to 14 in FY2018, which is a 71% increase. This metric includes pedestrian contact that results in transport for immediate medical attention. Both FY2018 and FY2019 exhibited similar contributing factors: the majority of those struck were not in crosswalks or possibly crossing against a signal, and approximately half of the operators involved had five or less years of experience. Despite the increase, the last four months of FY2019 contributed to a downward trend over the last twelve months.

A Pedestrian Summit was held earlier in the year to retrain operators involved in pedestrian collisions on how to operate a bus within a pedestrian/cyclist environment and allowed the operators to identify challenges they face. The summit allowed operators to share their driving experience and to coach and retrain on situational awareness when driving at night, in intersections and near crosswalks. Metro also installed flashing amber lights on the front of all the buses to alert pedestrians that a bus is in motion and approaching.

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## Metrorail Customer Injuries — 1.38 per million riders ●

The target rate for Metrorail customer injuries is less than 1.45 injuries per one million passenger trips. FY2019 performed better than target and matched FY2018 performance.

Injuries on escalators and inside rail facilities (mezzanine, platform, station) were the primary contributors. Slips/trips/falls accounted for nearly half of all injuries. The top key factors were customers being inattentive to their surroundings, intoxication, and wet surfaces. The most common locations for injuries were primarily transfer stations, such as: Gallery Place (15), L'Enfant Plaza (12), Metro Center (11), followed by Columbia Heights (10) and Dupont Circle (9).

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## Metrobus Customer Injuries — 2.99 per million riders ●

The target rate for Metrobus customer injuries is less than 2.45 injuries per one million passenger trips. In FY2019, 325 passengers were injured due to collisions or other factors, resulting in an injury rate of 2.99, which is above target. There was a spike in injuries during the fourth quarter driven by several non-preventable collisions that resulted in seven or more customer transports for medical attention. Slips/trips/falls and vehicle collisions were the most common sources of injury for the fiscal year. For the slips/trips/falls injuries, vehicle motion (e.g., turning or accelerating) was the most common causal factor.

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## MetroAccess Customer Injuries — 2.17 per 100,000 riders ●

The customer injury rate for MetroAccess was 2.17 per 100,000 passenger trips in FY2019, which is below the target of 2.85. A year-long safety messaging campaign contributed to a 37% reduction in the customer injury rate from preventable causes; however, the overall injury rate increased by 2% due to increases in non-preventable injuries. Injuries most frequently resulted from slips/trips/falls and non-preventable collisions.

## Rail System Employee Injuries — 3.4 per 100 employees ●

The target rate for rail system employee injuries is less than 4.0 per 200,000 hours worked. Rail had an employee injury rate of 3.4, which was below the target rate and a 17% decrease from FY2018. It represented an overall decrease of 35 injuries (236 vs. 201). Slips/trips/falls, lifting/lowering, and stress/assault were the most common injury types.

## Bus Employee Injuries — 10.9 per 100 employees ●

The target rate for bus employee injuries is less than 9.4 injuries per 200,000 hours worked. The bus employee injury rate was 10.9 for FY2019. While it did not meet target, the rate improved by 11% compared to FY2018. The most common injury types were related to vehicle collisions, stress/assault, and slips/trips/falls. Most of the collision-related injuries were the result of collisions rated as non-preventable.



## Financial Responsibility

### Ridership — 301.8 million passengers ●

Total FY2019 ridership of 301.8 million is 0.3% below the budget forecast of 302.7 million.

	FYTD19 Actual	Variance from Forecast	FYTD19 Weekday Average	Change from Prior Year	FYTD19 Weekend Average	Change from Prior Year
Metrorail	175.2	+1.0%	610,00	-0.5%	202,000	+0.3%
Metrobus	124.3	-2.1%	357,000	-4.1%	157,000	-2.7%
MetroAccess	2.3	-2.7%	8,000	0.7%		
	<b>301.8</b>	<b>-0.3%</b>				

Note: Metro is transitioning to using an automatic passenger counter (APC) as the source of official Metrobus ridership totals. In previous years, bus ridership was reported using farebox (AFC) figures. In FY2018, the FTA approved the use of the APC method which uses onboard sensors to count passengers boarding the vehicles. In the FY2019 Approved Budget, AFC ridership figures are adjusted to account for this change. Prior year figures are actual APC counts collected during the transition. In the above table, Metrobus FYTD19 Actual totals use APC and Metrobus average weekday and weekend totals use farebox.

### Legend

● Met or above target | ● Near target | ● Target not met | ● No target





# Q4 FY2019 Metro Performance Report

Fiscal Year 2019  
July 2018 – June 2019



## QUALITY SERVICE

### MY TRIP TIME - RAIL ●

**88%** of customers  
arrived on-time

● Target  $\geq$  88% on-time

### BUS ON-TIME PERFORMANCE ●

**N/A** of buses  
arrived on-time

● Pilot KPI

### METROACCESS ON-TIME PERFORMANCE ●

**90%** of vehicles  
arrived on-time

● Target  $\geq$  92% on-time



## SAFETY & SECURITY

### RED SIGNAL OVERRUNS ●

**10** red signal  
overrun  
incidents

● FYTD Prior Year 10

### BUS COLLISIONS ●

**66.9** collisions per  
million miles

● FYTD Prior Year 63.0

### PART I CRIME ●

**1,136** 3.8 per million  
passengers

● FY19 Target  $\leq$  1,650 Part I Crimes



## FINANCIAL RESPONSIBILITY

### RIDERSHIP ●

**301.8** million  
passengers

● Budget Forecast 302.7 million passengers

**Quality Service Performance Data**

July 2018 - June 2019

**KPI: MYTRIPTIME --METRORAIL CUSTOMER ON-TIME PERFORMANCE [TARGET 88%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	71%	69%	64%	65%	61%	63%	66%	71%	70%	75%	76%	79%	70%
FY 2018	86%	89%	87%	88%	87%	86%	86%	87%	88%	88%	87%	88%	87%
FY 2019	86%	79%	90%	89%	87%	89%	90%	90%	89%	91%	90%	90%	88%

**KPI: MYTRIPTIME -- METRORAIL CUSTOMER ON-TIME PERFORMANCE BY LINE**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Red Line	85%	79%	88%	87%	87%	89%	89%	90%	91%	92%	90%	91%	88%
Blue Line	85%	75%	87%	87%	82%	86%	87%	86%	87%	89%	86%	87%	86%
Orange Line	86%	72%	91%	89%	86%	89%	89%	87%	83%	90%	89%	87%	86%
Green Line	91%	91%	94%	94%	93%	94%	94%	92%	93%	94%	93%	89%	93%
Yellow Line	89%	89%	89%	91%	78%	82%	89%	88%	91%	92%	88%	89%	88%
Silver Line	86%	75%	90%	91%	87%	88%	92%	88%	88%	92%	91%	89%	88%

**KPI: MYTRIP TIME -- METRORAIL CUSTOMER ON-TIME PERFORMANCE BY TIME PERIOD**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Rush (5AM-9:30AM)	89%	80%	93%	92%	91%	92%	91%	92%	92%	93%	93%	91%	91%
Mid-day (9:30AM-3PM)	88%	80%	91%	91%	90%	91%	92%	92%	92%	91%	91%	90%	90%
PM Rush (3PM-7PM)	88%	78%	92%	91%	89%	89%	91%	91%	89%	92%	90%	89%	89%
Evening (7PM-9:30PM)	86%	78%	88%	88%	87%	88%	94%	94%	93%	94%	94%	92%	90%
Late Night (9:30PM-12AM)	91%	92%	93%	89%	90%	92%	92%	90%	91%	94%	93%	93%	92%
Weekend	71%	79%	77%	76%	65%	80%	82%	74%	81%	86%	81%	87%	79%

continued

**KPI: RAIL INFRASTRUCTURE AVAILABILITY [TARGET 97%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017							94%	93%	92%	92%	92%	92%	92%
FY 2018	94%	94%	94%	95%	93%	94%	95%	95%	95%	95%	95%	99%	95%
FY 2019	99%	95%	98%	99%	97%	99%	99%	99%	99%	99%	97%	89%	97%

**KPI: FTA REPORTABLE SPEED RESTRICTIONS [TARGET 2.1%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	13%	12%	14%	16%	16%	15%	10%	10%	13%	11%	12%	15%	13%
FY 2018	10%	13%	10%	10%	12%	14%	10%	10%	10%	10%	10%	0%	10%
FY 2019	0%	2%	0%	2%	2%	4%	0%	0%	0%	0%	0%	0%	1%

**TRAIN ON-TIME PERFORMANCE (HEADWAY ADHERENCE) [TARGET 91%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	78%	76%	78%	80%	74%	76%	76%	82%	80%	84%	83%	82%	79%
FY 2018	90%	92%	89%	92%	89%	88%	89%	91%	91%	92%	92%	93%	91%
FY 2019	90%	78%	93%	93%	91%	93%	91%	92%	92%	93%	92%	91%	91%

**TRAIN ON-TIME PERFORMANCE BY LINE (HEADWAY ADHERENCE)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Red Line	87%	64%	94%	93%	93%	93%	92%	94%	95%	95%	93%	93%	91%
Blue Line	90%	83%	91%	91%	88%	91%	88%	88%	87%	89%	89%	86%	89%
Orange Line	91%	72%	93%	92%	90%	92%	90%	91%	89%	92%	92%	90%	90%
Green Line	95%	93%	96%	96%	96%	95%	95%	94%	95%	96%	94%	93%	95%
Yellow Line	93%	94%	95%	95%	93%	95%	93%	92%	94%	95%	93%	91%	94%
Silver Line	91%	71%	92%	91%	89%	91%	90%	90%	89%	92%	91%	88%	89%

**TRAIN ON-TIME PERFORMANCE BY TIME PERIOD (HEADWAY ADHERENCE)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Rush	87%	72%	91%	89%	88%	90%	86%	88%	88%	91%	90%	87%	88%
Mid-day	95%	83%	97%	97%	96%	96%	95%	96%	96%	96%	95%	95%	95%
PM Rush	86%	71%	91%	91%	88%	90%	89%	89%	89%	91%	89%	87%	88%
Evening	96%	97%	98%	93%	96%	98%	97%	96%	96%	97%	97%	97%	97%

continued

**RAIL FLEET RELIABILITY (RAIL MEAN DISTANCE BETWEEN DELAYS) [TARGET 90,000 MILES]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	55,850	73,246	65,416	86,174	66,697	76,244	79,105	85,489	80,348	118,958	101,585	104,461	79,656
FY 2018	92,927	84,111	84,278	104,128	80,687	85,310	61,004	95,119	113,361	103,228	125,658	117,519	92,657
FY 2019	124,123	119,755	145,352	141,878	161,039	162,407	134,683	146,531	238,078	198,102	265,139	194,907	160,985

**RAIL FLEET RELIABILITY (RAIL MEAN DISTANCE BETWEEN DELAYS BY RAILCAR SERIES)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
2000 series	95,568	83,807	230,624	163,611	73,894	454,796	151,711	126,627	224,891	258,574	222,565	50,587	137,469
3000 series	84,905	88,157	77,736	104,095	139,627	74,195	67,444	73,869	184,913	127,211	117,354	74,491	92,242
5000 series	22,744	37,116	76,830	37,686	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	46,621
6000 series	96,185	147,417	141,853	72,916	98,357	88,620	112,453	117,115	244,162	91,058	157,965	221,248	116,166
7000 series	210,439	152,268	211,855	213,541	237,397	384,686	235,081	255,354	262,859	374,879	591,240	499,751	268,899

**RAIL FLEET RELIABILITY (RAIL MEAN DISTANCE BETWEEN FAILURE) [TARGET 8,500 MILES]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	4,333	4,606	5,538	6,321	6,355	6,819	6,787	7,723	6,878	7,902	8,425	8,215	6,395
FY 2018	7,430	8,227	9,711	10,881	10,376	10,496	10,021	11,280	11,202	13,699	11,755	12,850	10,408
FY 2019	10,073	10,671	11,092	14,010	14,075	15,929	14,019	14,397	19,737	19,810	16,572	16,418	14,211

**RAIL FLEET RELIABILITY (RAIL MEAN DISTANCE BETWEEN FAILURE BY RAILCAR SERIES)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
2000 series	7,466	8,730	9,609	9,439	7,697	11,370	10,114	7,449	17,299	17,238	15,349	5,727	9,280
3000 series	6,820	7,279	6,947	9,831	10,308	9,659	9,303	8,984	10,418	11,392	8,001	7,907	8,317
5000 series	2,843	2,749	2,401	4,187	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,787
6000 series	5,186	6,229	6,490	6,851	8,062	9,601	11,781	9,582	13,565	11,957	10,432	10,663	7,544
7000 series	22,463	20,480	23,686	26,852	23,328	30,225	19,773	25,707	34,911	35,422	31,959	33,767	24,671

**TRAINS IN SERVICE [TARGET 98%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017			94%	96%	92%	99%	94%	98%	97%	97%	96%	97%	96%
FY 2018	99%	99%	98%	101%	99%	99%	97%	98%	98%	99%	98%	98%	99%
FY 2019	97%	98%	98%	97%	97%	98%	96%	97%	98%	98%	98%	99%	98%

continued

## OFFLOADS [TARGET &lt;85 PER MONTH]

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	151	100	103	89	96	112	75	67	90	62	74	78	1,097
FY 2018	60	64	65	41	64	53	98	61	53	51	55	54	719
FY 2019	48	44	35	40	25	38	44	33	25	16	28	49	425

## RAIL LOADING [OPTIMAL PASSENGERS PER CAR (PPC) OF 100, WITH MINIMUM OF 80 AND MAXIMUM OF 120 PPC]

AM Rush Max Load Points		Travel Direction	Apr-18	May-18	Jun-18	Apr-19	May-19	Jun-19
Gallery Place	Red	Shady Grove	102	99	106	97	102	106
Dupont Circle		Glenmont	94	93	102	95	92	100
Pentagon	Blue	Largo Town Center	76	88	80	88	82	78
Rosslyn		Largo Town Center	65	68	67	65	67	63
L'Enfant Plaza		Franconia-Springfield	48	52	49	50	49	47
Court House	Orange	New Carrollton	103	93	102	96	98	102
L'Enfant Plaza		Vienna	73	86	78	75	68	66
Pentagon	Yellow	Mt. Vernon Square	89	89	97	100	90	82
Waterfront	Green	Greenbelt	93	89	100	96	95	100
Shaw-Howard		Branch Avenue	84	80	88	88	97	63
Rosslyn	Silver	Largo Town Center	100	102	94	98	100	106
L'Enfant Plaza		Wiehle-Reston	63	56	55	57	56	53
PM Rush Max Load Points								
Metro Center	Red	Glenmont	102	94	107	100	94	107
Farragut North		Shady Grove	92	83	90	90	86	100
Rosslyn	Blue	Franconia-Springfield	81	86	90	80	86	61
Foggy Bottom-GWU		Franconia-Springfield	82	93	88	82	80	59
Smithsonian		Largo Town Center	50	45	53	54	45	46
Foggy Bottom-GWU	Orange	Vienna	83	79	98	84	86	91
Smithsonian		New Carrollton	64	68	74	70	62	69
L'Enfant Plaza	Yellow	Huntington	107	107	108	107	98	94
L'Enfant Plaza	Green	Branch Avenue	87	93	108	103	100	85
Mt. Vernon Sq		Greenbelt	73	74	80	80	85	54
Foggy Bottom-GWU	Silver	Wiehle-Reston	81	68	69	71	66	71
L'Enfant Plaza		Largo Town Center	58	56	60	55	47	52

**KPI: METROBUS ON-TIME PERFORMANCE [PILOT KPI]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

\*Beginning in July 2018, Metro is piloting a new calculation for Bus OTP; the new calculation introduces a headway-based measure for routes 70, 79, X2, 90, 92, 16Y, and Metroway and modifies the schedule-based OTP to include all timepoints [previously excluded all last timepoints]

**KPI: METROBUS ON-TIME PERFORMANCE BY TIME PERIOD**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Early (4AM-6AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AM Peak (6AM-9AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mid Day (9AM-3PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM Peak (3PM-7PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Early Night (7PM-11PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Late Night (11PM-4AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**KPI: METROBUS ON-TIME PERFORMANCE BY SERVICE TYPE**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Schedule Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Headway Service	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**KPI: METROBUS ON-TIME PERFORMANCE BY HEADWAY ROUTE**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
70	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
79	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
X2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
90,92	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Metroway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16Y	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

continued

**KPI: METROBUS SERVICE DELIVERED [PILOT KPI]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2019	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**KPI: METROBUS SERVICE DELIVERED BY TIME PERIOD**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
AM Early (4AM-6AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
AM Peak (6AM-9AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mid Day (9AM-3PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PM Peak (3PM-7PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Early Night (7PM-11PM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Late Night (11PM-4AM)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

**BUS FLEET RELIABILITY (BUS MEAN DISTANCE BETWEEN FAILURES) [TARGET 8,000 MILES]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	7,540	7,425	8,428	8,378	8,262	8,421	7,962	9,881	9,254	8,499	7,784	8,350	8,283
FY 2018	7,555	7,764	7,571	6,923	7,492	7,776	6,221	6,164	7,485	6,124	6,209	6,515	6,925
FY 2019	6,192	5,961	5,806	6,644	6,670	6,806	6,422	6,661	6,796	6,622	5,680	6,111	6,335

**BUS FLEET RELIABILITY (BUS MEAN DISTANCE BETWEEN FAILURE BY FLEET TYPE)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
CNG 29% of Fleet Average Age 6.8	7,425	7,965	6,918	6,929	7,190	7,443	8,401	7,861	9,474	9,155	9,224	8,828	7,961
Hybrid 61% of Fleet Average Age 6.7	5,909	6,136	6,430	7,188	7,317	7,933	6,652	6,655	6,690	6,643	5,612	5,910	6,517
Clean Diesel 9% of Fleet Average Age 10.5	4,755	2,819	2,420	3,773	3,251	3,599	3,417	4,734	3,854	3,632	2,764	4,022	3,442
Diesel 1% of Fleet Average Age 19.0	3,900	1,644	7,722	4,194	1,658	1,026	1,754	2,488	2,671	1,711	1,371	1,616	1,764

continued



BUS LOADING - Q4/FY 2019 TOP 10 ROUTES BY JURISDICTION							
Jurisdiction	Line Name	Route Name	Time Period	Highest Passenger Load	Max Load Factor	Performance Threshold	Max Load Factor
DC	16th Street	S1	AM Peak	66	1.7	Below Threshold	< 0.3
	Mount Pleasant	43	AM Peak	63	1.6	Standards Compliant	0.3 - 0.5
	Mount Pleasant	43	PM Peak	62	1.6	Occasional Crowding	0.6 - 0.7
	14th Street	54	Midday	60	1.5	Recurring Crowding	0.8 - 0.9
	14th Street	54	PM Peak	60	1.5	Regular Crowding	1.0 - 1.3
	Benning Road - H Street Limited	X9	AM Peak	61	1.5	Continuous Crowding	> 1.3
	Benning Road - H Street Limited	X9	PM Peak	60	1.5	Highest passenger load = the average of all the highest max loads recorded by route, trip and time period	
	Georgia Avenue Limited	79	PM Peak	58	1.5		
	Takoma - Petworth	63	PM Peak	57	1.5		
	16th Street	S1	Midday	57	1.5	Passenger Loads:	
MD	Riggs Road	R1	AM Peak	59	1.5	40' Bus (standard size) accommodates 40 sitting and 69 with standing	
	Riggs Road	R1	PM Peak	64	1.4	60' Bus (articulated) accommodates 61 sitting and 112 with standing	
	New Hampshire Ave - Maryland Limited	K6	Midday	54	1.4	* Route has articulated buses, allowing for passenger load above 100	
	Georgia Ave - Maryland	Y7	Midday	53	1.3		
	Connecticut Ave - Maryland	L8	AM Peak	52	1.3	Load Factor = highest passenger load divided by actual bus seats used	
	New Hampshire Ave - Maryland Limited	K6	AM Peak	53	1.3		
	Calverton - Westfarm	Z6	Midday	52	1.3		
	New Carrollton - Silver Spring	F4	PM Peak	53	1.3		
	New Hampshire Ave - Maryland Limited	K6	PM Peak	52	1.3		
	Georgia Ave - Maryland	Y8	Midday	51	1.3		
VA	Columbia Pike - Farragut Square	16Y	AM Peak	69	1.7		
	Mt Vernon Express	11Y	AM Peak	67	1.7		
	Columbia Pike - Farragut Square	16Y	PM Peak	67	1.6		
	Mt Vernon Express	11Y	PM Peak	63	1.6		
	Lincolnia - Pentagon	7W	AM Peak	62	1.5		
	Lincolnia - North Fairlington	7Y	AM Peak	61	1.5		
	Columbia Pike - Farragut Square	16Y	Midday	61	1.5		
	Lincolnia - North Fairlington	7Y	PM Peak	60	1.5		
	Lee Highway - Farragut Square	3Y	PM Peak	60	1.5		
	Burke Centre	18P	AM Peak	57	1.5		

**KPI: METROACCESS ON-TIME PERFORMANCE [TARGET 92%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	92%	91%	84%	83%	84%	87%	88%	87%	85%	88%	87%	92%	87%
FY 2018	89%	91%	90%	93%	93%	94%	94%	92%	93%	92%	93%	92%	92%
FY 2019	92%	92%	92%	92%	90%	91%	90%	89%	89%	89%	86%	88%	90%

**ESCALATOR SYSTEM AVAILABILITY [TARGET 92%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	93%	92%	93%	94%	94%	94%	95%	95%	96%	96%	96%	95%	94%
FY 2018	95%	94%	95%	94%	94%	94%	93%	93%	93%	93%	91%	93%	94%
FY 2019	93%	93%	92%	92%	94%	94%	94%	94%	94%	95%	94%	95%	94%

**ELEVATOR SYSTEM AVAILABILITY [TARGET 97%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	96%	97%	97%	97%	97%	97%	96%	97%	97%	97%	98%	97%	97%
FY 2018	97%	97%	97%	97%	97%	98%	97%	97%	97%	96%	96%	96%	97%
FY 2019	95%	96%	95%	97%	96%	97%	96%	96%	97%	97%	97%	97%	96%

**KPI: METRORAIL CUSTOMER SATISFACTION RATING**

	Q1	Q2	Q3	Q4	FYTD
FY 2017	66%	66%	69%	72%	72%
FY 2018	74%	73%	76%	79%	79%
FY 2019	75%	73%	80%	76%	76%

**KPI: METROBUS CUSTOMER SATISFACTION RATING**

	Q1	Q2	Q3	Q4	FYTD
FY 2017	78%	79%	74%	76%	76%
FY 2018	76%	72%	75%	80%	80%
FY 2019	71%	77%	75%	76%	76%

continued

**Safety & Security Performance Data**

July 2018 - June 2019

**RED SIGNAL OVERRUNS**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	4	2	1	1	1	1	2	1	1	1	0	0	15
FY 2018	0	0	1	0	1	1	1	1	2	1	1	1	10
FY 2019	0	0	1	0	0	1	0	0	3	0	3	2	10

**FIRE INCIDENTS**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	5	15	9	8	3	8	7	5	7	15	6	10	98
Non-Electrical	3	9	6	3	1	4	3	2	1	4	2	3	41
Cable	0	0	1	0	0	0	0	0	1	0	0	0	2
Arcing Event	2	6	2	5	2	2	4	3	5	11	4	7	53
Train Component	0	0	0	0	0	2	0	0	0	0	0	0	2
FY 2018	15	8	9	7	3	9	8	2	1	3	13	5	83
Non-Electrical	4	2	4	3	3	7	3	0	1	2	5	2	36
Cable	1	1	0	2	0	0	1	0	0	0	0	0	5
Arcing Event	9	5	5	2	0	0	4	2	0	1	8	3	39
Train Component	1	0	0	0	0	2	0	0	0	0	0	0	3
FY 2019	10	11	5	3	5	2	3	5	7	7	4	9	71
Non-Electrical	4	1	1	2	4	2	3	3	3	4	3	4	34
Cable	0	3	0	0	0	0	0	0	0	0	0	0	3
Arcing Event	6	6	4	1	1	0	0	2	4	3	1	5	33
Train Component	0	1	0	0	0	0	0	0	0	0	0	0	1

**RAIL COLLISIONS**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	1	1	1	2	3	0	2	0	3	1	1	2	17
FY 2018	1	1	1	0	0	1	1	1	2	1	1	2	12
FY 2019	2	3	0	0	1	0	0	2	2	1	1	0	12

**continued**

DERAILMENTS													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	4	0	3	2	2	0	1	1	0	1	2	0	16
Trains Carrying Customers	1	0	0	0	0	0	0	0	0	0	0	0	1
Trains with No Customers	2	0	1	0	0	0	0	0	0	1	0	0	4
Roadway Maintenance Machines	1	0	2	2	2	0	1	1	0	0	2	0	11
FY 2018	2	1	2	0	0	1	2	1	2	1	1	0	13
Trains Carrying Customers	0	0	0	0	0	0	1	0	0	0	0	0	1
Trains with No Customers	0	0	0	0	0	0	1	0	0	0	0	0	1
Roadway Maintenance Machines	2	1	2	0	0	1	0	1	2	1	1	0	11
FY 2019	0	1	0	0	1	0	0	0	0	0	1	0	3
Trains Carrying Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Trains with No Customers	0	0	0	0	0	0	0	0	0	0	0	0	0
Roadway Maintenance Machines	0	1	0	0	1	0	0	0	0	0	1	0	3

BUS COLLISION RATE [PER MILLION VEHICLE MILES] [PREVENTABLE COLLISIONS TARGET 22.5]													
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	52.9	59.7	60.2	68.4	56.5	61.4	53.2	53.7	59.6	57.9	58.3	55.9	58.2
Non-Preventable	30.4	35.6	35.6	44.7	34.2	39.3	31.2	31.8	37.1	39.0	36.4	37.5	36.1
Preventable	22.5	24.1	24.5	23.8	22.4	22.0	22.1	21.9	22.5	18.9	21.9	18.4	22.1
FY 2018	58.7	65.0	59.6	58.3	62.5	61.1	61.0	61.2	66.2	66.9	71.7	62.7	63.0
Non-Preventable	33.8	36.4	38.4	34.0	37.8	40.1	36.0	38.2	36.1	42.3	49.3	32.1	37.9
Preventable	24.9	28.6	21.2	24.2	24.8	20.9	25.0	23.0	30.0	24.7	22.4	30.6	25.1
FY 2019	68.8	70.0	67.6	70.0	57.7	67.7	64.0	61.3	66.0	72.9	67.4	67.8	66.9
Non-Preventable	35.6	42.6	38.9	36.1	34.3	37.2	34.4	32.2	36.6	43.9	40.8	38.1	37.7
Preventable	33.2	27.3	28.6	33.9	23.4	30.5	29.5	29.2	29.4	29.0	26.6	29.7	29.2

continued

**BUS PEDESTRIAN STRIKES [PEDESTRIAN / CYCLIST STRIKES]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	1	1	3	3	0	1	1	1	3	2	0	1	17
FY 2018	3	0	0	0	2	2	1	0	2	3	0	1	14
FY 2019	2	4	2	3	2	1	4	3	0	0	1	2	24

**CUSTOMER INJURY RATE (PER MILLION PASSENGERS)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	1.78	1.79	2.01	1.73	1.73	2.58	2.14	2.59	2.05	1.52	2.19	1.67	1.97
FY 2018	1.57	2.02	2.61	1.87	1.92	2.13	2.91	2.60	2.53	2.01	1.20	1.58	2.06
FY 2019	2.50	1.86	2.86	2.04	1.82	1.98	1.97	2.61	1.85	1.94	1.97	2.55	2.16

\*Includes Metrobus, Metrorail, rail transit facilities (stations, escalators and parking facilities) and MetroAccess customer injuries

**RAIL CUSTOMER INJURY RATE (PER MILLION PASSENGERS) [TARGET ≤ 1.45]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	0.79	1.13	1.62	1.07	1.36	2.33	1.91	2.05	1.40	1.10	1.61	1.34	1.46
Non-Preventable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Preventable	0.79	1.13	1.62	1.07	1.36	2.33	1.91	2.05	1.40	1.10	1.61	1.34	1.46
FY 2018	1.45	1.24	1.18	0.82	1.50	1.37	2.47	1.90	1.53	1.01	1.09	1.22	1.38
Non-Preventable	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Preventable	1.45	1.24	1.18	0.82	1.50	1.37	2.47	1.90	1.53	1.01	1.09	1.22	1.38
FY 2019	2.09	1.19	1.16	1.30	1.32	1.06	1.75	2.05	1.28	1.19	1.18	1.09	1.38
Non-Preventable	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Preventable	2.09	1.19	1.16	1.30	1.25	1.06	1.75	2.05	1.28	1.19	1.18	1.09	1.38

**continued**

**BUS CUSTOMER INJURY RATE (PER MILLION PASSENGERS) [TARGET ≤ 2.45]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	2.28	2.35	2.22	2.22	1.66	2.45	2.11	3.07	2.62	2.10	2.52	1.84	2.28
Non-Preventable	0.85	1.27	1.85	0.74	0.78	0.53	0.32	0.95	1.65	0.50	0.84	0.97	0.95
Preventable	1.42	1.09	0.37	1.48	0.88	1.92	1.80	2.12	0.97	1.60	1.68	0.87	1.33
FY 2018	1.37	2.94	4.36	2.84	2.27	3.04	3.17	2.52	3.49	3.32	1.30	2.14	2.72
Non-Preventable	0.63	1.86	1.42	1.66	0.97	1.87	2.12	0.96	1.69	1.50	0.70	0.53	1.32
Preventable	0.74	1.08	2.94	1.17	1.30	1.17	1.06	1.56	1.80	1.82	0.60	1.60	1.40
FY 2019	2.70	2.35	5.27	2.99	2.19	3.04	1.61	2.92	2.32	2.72	3.11	4.52	2.99
Non-Preventable	0.54	0.78	2.86	0.50	0.00	1.46	0.49	0.00	0.77	1.30	0.62	2.48	0.99
Preventable	2.16	1.57	2.42	2.49	2.19	1.58	1.11	2.92	1.55	1.41	2.49	2.05	2.00

**METROACCESS CUSTOMER INJURY RATE (PER 100,000 PASSENGERS) [TARGET ≤ 2.85]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	5.26	1.90	2.00	2.49	3.09	2.60	2.15	1.61	2.49	0.52	2.88	1.95	2.41
Non-Preventable	2.11	0.95	1.00	1.49	1.03	1.04	1.08	0.54	0.50	0.52	1.44	0.98	1.06
Preventable	3.16	0.95	1.00	0.99	2.06	1.56	1.08	1.07	1.99	0.00	1.44	0.98	1.35
FY 2018	2.14	1.46	2.09	3.39	1.55	1.07	2.18	5.48	3.62	1.99	0.48	0.51	2.14
Non-Preventable	1.61	0.97	2.09	1.45	1.55	0.00	0.54	4.38	1.55	1.49	0.48	0.00	1.33
Preventable	0.54	0.49	0.00	1.94	0.00	1.07	1.63	1.10	2.07	0.50	0.00	0.51	0.81
FY 2019	2.54	2.36	1.06	1.39	2.10	1.66	3.38	2.84	2.45	2.94	0.96	2.57	2.17
Non-Preventable	2.54	2.36	1.06	0.46	2.10	1.66	2.82	1.70	1.96	1.47	0.48	1.54	1.66
Preventable	0.00	0.00	0.00	0.93	0.00	0.00	0.56	1.14	0.49	1.47	0.48	1.03	0.51

continued

**EMPLOYEE INJURY RATE (PER 200,000 HOURS WORKED)**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	5.9	5.3	6.0	5.7	4.1	6.5	4.6	4.1	7.9	7.1	6.4	6.6	5.9
FY 2018	7.2	6.1	7.7	8.1	6.5	5.5	7.6	7.0	7.2	6.6	7.5	8.0	7.1
FY 2019	5.8	5.6	6.5	6.8	5.2	8.1	5.9	7.1	5.5	5.4	5.5	5.6	6.1

**RAIL EMPLOYEE INJURY RATE (PER 200,000 HOURS WORKED) [TARGET ≤ 4.0]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	5.5	4.8	3.8	3.8	2.9	3.9	3.6	2.8	5.7	3.1	3.7	3.4	3.9
Non-Preventable	0.6	1.3	0.4	0.8	0.6	0.4	0.2	0.2	0.5	0.0	1.2	1.2	0.6
Preventable	4.9	3.5	3.4	3.1	2.3	3.5	3.4	2.6	5.1	3.1	2.5	2.2	3.3
FY 2018	5.7	3.9	3.7	4.9	2.6	3.6	5.4	3.1	3.9	4.3	3.9	4.0	4.1
Non-Preventable	2.0	0.8	1.3	0.8	0.2	1.5	1.8	1.1	0.4	0.8	0.2	1.3	1.0
Preventable	3.7	3.1	2.4	4.1	2.4	2.1	3.6	2.0	3.5	3.5	3.7	2.7	3.1
FY 2019	4.9	3.1	4.0	2.3	2.9	4.5	3.1	4.9	3.7	2.2	3.7	1.4	3.4
Non-Preventable	1.0	0.8	1.1	0.8	0.8	1.3	0.6	0.4	1.4	0.4	0.8	0.2	0.8
Preventable	3.9	2.3	3.0	1.6	2.1	3.2	2.5	4.5	2.4	1.8	2.9	1.2	2.6

**BUS EMPLOYEE INJURY RATE (PER 200,000 HOURS WORKED) [TARGET ≤ 9.4]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	7.0	8.3	9.0	11.5	7.0	10.7	6.9	6.7	12.2	14.4	10.9	12.7	9.8
Non-Preventable	4.3	4.9	5.7	6.1	5.2	4.6	4.4	4.0	6.4	9.3	5.6	6.7	5.6
Preventable	2.7	3.5	3.3	5.5	1.8	6.1	2.5	2.7	5.8	5.1	5.3	6.0	4.2
FY 2018	11.0	10.2	14.0	14.0	13.8	7.3	11.7	12.2	14.0	12.3	11.0	14.7	12.3
Non-Preventable	6.5	5.7	7.5	7.5	6.4	5.1	6.5	8.1	5.7	7.2	6.6	8.7	6.8
Preventable	4.5	4.5	6.5	6.5	7.4	3.2	5.2	4.1	8.4	5.0	4.5	6.1	5.5
FY 2019	8.2	10.0	10.4	16.1	9.8	14.2	11.0	11.2	7.8	11.2	9.3	11.9	10.9
Non-Preventable	5.5	4.3	7.5	9.2	4.4	8.5	4.3	5.8	4.4	6.5	4.8	6.9	6.0
Preventable	2.7	5.7	2.9	6.9	5.4	5.7	6.7	5.4	3.4	5.0	4.5	5.0	5.0

continued



**KPI: PART I CRIME RATE [PER MILLION PASSENGERS]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	6.3	6.2	5.4	4.9	4.5	4.9	4.5	3.8	3.5	4.2	4.6	4.5	4.8
FY 2018	4.3	4.8	5.0	4.0	3.8	3.7	3.5	2.4	3.6	4.5	3.7	4.3	4.0
FY 2019	3.3	4.2	3.7	3.6	3.8	3.8	4.3	3.2	3.0	3.4	3.8	5.2	3.8

**KPI: PART I CRIMES [TARGET ≤ 1,650 PART I CRIMES]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	160	163	140	126	107	111	110	87	92	107	120	119	1,442
FY 2018	113	127	126	107	90	79	79	52	90	116	97	114	1,190
FY 2019	89	110	90	99	89	83	95	71	77	92	104	137	1,136

**PART I CRIMES BY TYPE**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Property Crime	63	77	58	68	50	51	54	41	46	57	65	87	717
Larceny (Snatch/ Pickpocket)	15	19	12	10	19	21	15	15	21	26	34	38	245
Larceny (Other)	48	50	43	52	24	29	33	22	25	29	31	47	433
Burglary	0	0	1	1	0	0	0	1	0	0	0	0	3
Motor Vehicle Theft	0	7	1	3	2	1	1	1	0	1	0	2	19
Attempted M V Theft	0	1	1	1	3	0	3	2	0	0	0	0	11
Arson	0	0	0	1	2	0	2	0	0	1	0	0	6
Violent Crime	26	33	32	31	39	32	41	30	31	35	39	50	419
Aggravated Assault	7	10	10	7	13	8	12	11	8	6	12	15	119
Rape	0	0	1	0	1	0	1	0	0	0	0	1	4
Robbery	19	23	21	24	25	24	28	19	23	29	27	34	296
FY 2019 Part1 Crimes	89	110	90	99	89	83	95	71	77	92	104	137	1,136
FY 2019 Homicides	1	0	0	0	0	0	0	0	0	1	0	0	2

\* Homicides that occur on WMATA property are investigated by other law enforcement agencies. These cases are shown for public information; however, the cases are reported by the outside agency and are not included in MTPD crime statistics.

**continued**

**Fiscal Responsibility Performance Data**

July 2018 - June 2019

**KPI: RIDERSHIP BY MODE [BUDGET FORECAST 302.7 MILLION]**

		Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
Rail	Forecast	15,903,800	14,932,500	14,767,800	15,279,400	13,059,500	12,946,700	13,042,000	12,730,000	15,019,300	15,556,900	14,741,800	15,452,800	173,432,600
	Actual	15,773,079	14,280,028	13,787,738	16,212,860	13,593,699	12,268,426	12,539,782	12,661,125	15,614,840	16,864,474	16,056,949	15,576,658	175,229,658
Bus	Forecast	11,065,400	11,002,000	11,002,000	11,255,700	10,342,100	9,910,700	9,847,200	9,669,600	10,481,700	10,796,600	10,481,700	10,862,400	126,897,000
	Actual: Farebox	9,249,939	10,194,578	9,101,318	10,030,755	8,690,980	8,220,704	8,093,550	7,867,230	9,032,931	9,206,480	9,639,601	9,287,038	108,615,104
	Actual: APC	10,609,856	11,516,149	10,444,123	11,373,010	9,819,756	9,635,095	9,413,549	9,060,201	10,212,163	10,374,804	11,385,490	10,419,558	124,263,754
Access	Forecast	202,500	206,100	203,200	213,200	193,600	197,000	178,600	184,300	204,200	209,400	209,600	211,200	2,412,700
	Actual	196,666	212,050	188,964	215,654	190,276	181,256	177,581	175,966	203,794	203,979	207,369	194,487	2,348,042
Total	Forecast	27,171,600	26,140,600	25,972,900	26,748,200	23,595,200	22,054,300	23,067,900	22,583,800	25,705,100	26,742,900	25,433,100	26,526,400	302,742,200
	Actual: Farebox	25,219,684	24,686,656	23,078,020	26,459,269	22,474,955	20,670,386	20,810,913	20,704,321	24,851,565	26,274,933	25,903,619	25,058,183	286,192,504
	Actual: APC	26,579,601	26,008,227	24,420,825	27,801,524	23,603,731	22,084,777	22,130,912	21,897,292	26,030,797	27,443,257	27,649,508	26,190,703	301,841,154

Note: Metro is transitioning to using automatic passenger counter (APC) ridership as the source of official Metrobus ridership totals. In FY2018, the FTA approved the use of the APC method that is considered a more accurate count. The FY2019 Approved Budget ridership figures are adjusted to account for this change. Prior year figures are actual APC counts collected during the transition.

**continued**

**VACANCY RATE [TARGET 6%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	6%	7%	7%
FY 2018	7%	7%	7%	6%	7%	7%	6%	6%	7%	7%	7%	7%	7%
FY 2019	7%	7%	6%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%

**OPERATIONS CRITICAL VACANCY RATE [TARGET 9%]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	10%	10%	10%	8%	8%	8%	7%	7%	7%	8%	8%	11%	11%
FY 2018	13%	12%	13%	12%	12%	12%	11%	11%	11%	10%	10%	11%	11%
FY 2019	10%	9%	9%	9%	8%	8%	8%	9%	9%	10%	9%	9%	9%

**WATER USAGE (GALLONS PER VEHICLE MILE) [TARGET 0.82]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	1.37	1.29	1.56	1.05	0.61	0.50	0.69	0.52	0.64	0.66	0.67	1.13	0.89
FY 2018	1.25	1.39	1.40	1.29	0.65	0.67	0.55	0.62	0.56	0.68	0.83	1.22	0.93
FY 2019	1.34	1.22	1.50	0.86	0.51	0.59	0.36	0.43	0.67	0.41	0.64	1.24	0.81

**ENERGY USAGE (BTU/VEHICLE MILE) [TARGET 38,290]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	42,404	39,734	44,477	37,665	38,352	40,112	45,493	42,813	39,927	40,877	36,782	41,244	40,776
FY 2018	41,548	38,877	40,219	35,308	38,773	40,066	44,078	42,060	36,393	37,798	37,508	40,594	39,372
FY 2019	39,448	42,631	40,890	37,032	42,824	38,599	43,839	45,647	37,366	38,696	37,259	38,859	40,152

**GREENHOUSE GAS EMISSIONS PER VEHICLE MILE [TARGET 4.00]**

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	FYTD
FY 2017	4.11	3.80	4.34	3.63	3.66	3.81	4.54	4.34	3.95	4.22	3.77	4.29	4.15
FY 2018	4.34	4.03	4.22	3.78	4.08	4.02	4.65	4.19	3.68	3.93	3.87	4.31	4.08
FY 2019	4.16	4.40	4.35	3.81	4.43	4.01	4.31	4.35	3.80	3.94	3.85	4.00	4.12

continued

## Definitions

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>QUALITY SERVICE</b>		
Metrorail Customer On-Time Performance	<p>Percentage of customer journeys completed on time</p> <p>Number of journeys completed on time ÷ Total number of journeys</p>	<p>Rail Customer On-Time Performance (OTP) communicates the reliability of rail service, which is a key driver of customer satisfaction. OTP measures the percentage of customers who complete their journey within the maximum amount of time it should take per WMATA service standards. The maximum time is equal to the train run-time + a headway (scheduled train frequency) + several minutes to walk between the fare gates and platform. These standards vary by line, time of day, and day of the week. Actual journey time is calculated from the time a customer taps a SmarTrip® card to enter the system, to the time when the SmarTrip® card is tapped to exit.</p> <p>Factors that can effect OTP include: railcar availability, fare gate availability, elevator and escalator availability, infrastructure conditions, speed restrictions, single-tracking around scheduled track work, railcar delays (e.g., doors), or delays caused by sick passengers.</p>
Rail Infrastructure Availability	<p>Percentage of track available for customer travel during operating hours</p>	<p>Rail Infrastructure Availability is a key driver of customer on-time performance. Planned and unplanned maintenance of track, signaling, and traction power can result in single-tracking and/or speed restrictions that slow customer travel throughout the system. This measure includes both the duration and distance of restrictions. Single-tracking events reduce availability to zero for the portion of track impacted. Slow speed restrictions reduce availability of affected track segments by 85%, while medium restrictions reduce availability by 40%.</p>
FTA Reportable Speed Restrictions (Federal Transit Administration Transit Asset Management Performance Measure)	<p>Percentage of track segments with performance restrictions at 9:00 AM the first Wednesday of every month</p> <p>Number of track miles with performance restrictions ÷ 234 total miles</p>	<p>In 2016, the Federal Transit Administration (FTA) issued its Final Rule on Transit Asset Management, which requires transit properties to set targets and report performance on a variety of measures, including guideway condition. Guideway includes track, signals and systems.</p> <p>A performance restriction occurs when there is a speed restriction: the maximum train speed is set below the guideway design speed. Performance restrictions may result from a variety of causes, including defects, signaling issues, construction zones, and maintenance causes. FTA considers performance restrictions to be a proxy for both track condition and the underlying guideway condition.</p>
Train On-Time Performance	<p>Number of station stops delivered within the scheduled headway plus 2 minutes during rush (AM/PM) service ÷ Total station stops delivered</p> <p>Number of station stops delivered up to 150% of the scheduled headway during non-rush (midday and evening) ÷ Total station stops delivered</p>	<p>Train on-time performance measures the adherence to weekday headways, or the time customers wait between trains. Factors that can effect on-time performance include: infrastructure conditions, missed dispatches, railcar delays (e.g., doors), or delays caused by sick passengers. Station stops are tracked system-wide, with the exception of terminal and turn-back stations.</p>

KPI	How is it measured?	What does this mean and why is it key to our strategy?
Rail Fleet Reliability	<p>Mean Distance Between Delays (MDBD)</p> <p>Total railcar revenue miles ÷ Number of failures during revenue service resulting in delays of four or more minutes</p> <hr/> <p>Mean Distance Between Failure (MDBF)</p> <p>Total railcar revenue miles ÷ Total number of failures occurring during revenue service</p>	<p>The number of miles traveled before a railcar experiences a failure. Some car failures result in inconvenience or discomfort, but do not always result in a delay of service (such as hot cars). Mean Distance Between Delay includes those failures that had an impact on customer on-time performance.</p> <p>Mean Distance Between Failure and Mean Distance Between Delay communicate the effectiveness of Metro's railcar maintenance and engineering program. Factors that influence railcar reliability are the age and design of the railcars, the amount the railcars are used, the frequency and quality of preventive maintenance, and the interaction between railcars and the track.</p>
Trains in Service	<p>Percentage of required trains that are in service at 8:15 AM and 5:00PM</p> <p>Number of Trains in service ÷ Total required trains</p>	<p>Trains in Service is a key driver of customer on-time performance and supports the ability to meet the Board standard for crowding. WMATA's base rail schedule requires 140 trains during rush periods. Fewer trains than required results in missed dispatches, which leads to longer wait times for customers and more crowded conditions. Key drivers of train availability include the size of the total fleet and the number of "spares", railcar reliability and average time to repair, operator availability, and balancing cars across rail yards to ensure that the right cars are in the right place at the right time.</p>
Railcar Offloads	<p>Number of railcar offloads that were a result of a railcar malfunction</p>	<p>Railcar Offloads are a key driver of customer on-time performance and communicates the impact of Metro's railcar maintenance and engineering program on custom. Factors that influence railcar offloads are the age and design of the railcars, the amount the railcars are used, the frequency and quality of preventive maintenance, and the interaction between railcars and the track.</p>
Rail Loading	<p>Number of rail passengers per car</p> <p>Total passengers observed on-board trains passing through a station during a rush hour ÷ Actual number of cars passing through the same station during the rush hour</p> <p>Trained Metro observers are strategically placed around the system during its busiest times to monitor and report on crowding.</p> <p>Counts are taken at select stations where passenger loads are the highest and in the predominant flow direction of travel on one to two dates each month (from 6 AM to 10 AM and from 3 PM to 7 PM). In order to represent an average day, counts are normalized with rush ridership.</p>	<p>The Board of Directors has established Board standards of rail passengers per car to measure railcar crowding. Car crowding informs decision making regarding asset investments and scheduling.</p> <p>Additional Board standards have been set for:</p> <ul style="list-style-type: none"> <li>▲ Hours of service—the Metrorail system is open to service customers</li> <li>▲ Headway—scheduled time interval between trains during normal weekday service</li> </ul>

KPI	How is it measured?	What does this mean and why is it key to our strategy?
Metrobus On-Time Performance	<p>Percentage of bus service delivered on-time</p> <p>Schedule-based routes = Number of time points delivered on time based on a window of 2 minutes early and 7 minutes late ÷ Total number of time points delivered</p> <p>Headway-based routes = Number of time points delivered within the scheduled headway + 3 minutes ÷ Total number of time points delivered</p>	<p>Bus on-time performance (OTP) communicates the reliability of bus service, which is a key driver of customer satisfaction and ridership.</p> <ul style="list-style-type: none"> <li>▶ For schedule-based routes, OTP measures adherence to the published route schedule for delivered service.</li> <li>▶ For headway-based routes, OTP measures the adherence to headways, or the time customers wait between buses. Headway-based routes include routes 70, 79, X2, 90, 92, 16Y, and Metroway.</li> </ul> <p>Factors that can effect OTP include: traffic congestion, detours, inclement weather, scheduling, vehicle reliability, operational behavior, or delays caused by passengers.</p>
Bus Fleet Reliability	<p>Mean Distance Between Failures (MDBF)</p> <p>The number of total miles traveled before a mechanical breakdown requiring the bus to be removed from service or deviate from the schedule</p>	<p>Mean Distance Between Failures is used to monitor trends in vehicle breakdowns that cause buses to go out of service and to plan corrective actions. Factors that influence bus fleet reliability include vehicle age, quality of maintenance program, original vehicle quality, and road conditions affected by inclement weather and road construction.</p>
Bus Service Delivered	<p>Percentage of scheduled bus service delivered</p> <p>Number of delivered time points ÷ Total number of scheduled time points (by route)</p>	<p>Bus service delivered is a key driver of bus on-time performance and supports the ability to meet the published route schedule and headways. When a trip is missed due to bus reliability, operator availability, or a collision and service is not delivered to customers, this leads to longer wait times for customers and more crowded conditions.</p>
Bus Loading	<p>Ratio of bus seats filled</p> <p>Top load recorded on a route during a time period ÷ actual bus seat capacity</p>	<p>Bus loading is a factor of bus customer satisfaction. This measure can inform decision making regarding bus service plans.</p>
MetroAccess On-Time Performance	<p>Adherence to Schedule</p> <p>Number of vehicle arrivals at the pick-up location within the 30 minute on-time widow ÷ Total trips delivered</p>	<p>This indicator illustrates how closely MetroAccess adheres to customer pick-up windows on a system-wide basis. Factors that effect on-time performance are traffic congestion, inclement weather, scheduling, vehicle reliability, and operational behavior. MetroAccess on-time performance is essential to delivering quality service to the customer.</p>
Elevator and Escalator Availability	<p>In-service percentage</p> <p>Hours in service ÷ Operating hours</p> <p>Hours in service = Operating hours – Hours out of service</p> <p>Operating hours = Operating hours per unit × number of units</p>	<p>Escalator/elevator availability is a key component of customer satisfaction with Metrorail service. This measure communicates system-wide escalator and elevator performance (at all stations over the course of the day) and will vary from an individual customer's experience.</p> <p>Availability is the percentage of time that Metrorail escalators or elevators in stations and parking garages are in service during operating hours.</p> <p>Customers access Metrorail stations via escalators to the train platform, while elevators provide an accessible path of travel for persons with disabilities, seniors, customers with strollers, and travelers carrying luggage. An out-of-service escalator requires walking up or down a stopped escalator, which can add to travel time and may make stations inaccessible to some customers. When an elevator is out of service, Metro is required to provide alternative services which may include shuttle bus service to another station.</p>

KPI	How is it measured?	What does this mean and why is it key to our strategy?
Customer Satisfaction	<p>Survey respondent rating</p> <p>Number of survey respondents with high satisfaction ÷ Total number of survey respondents</p>	<p>Surveying customers about the quality of Metro's service delivery provides a mechanism to continually identify those areas of the operation where actions to improve the service can maximize rider satisfaction.</p> <p>Customer satisfaction is defined as the percent of survey respondents who rated their last trip on Metrobus or Metrorail as "very satisfactory" or "satisfactory." The survey is conducted via phone with approximately 400 bus and 400 rail customers who have ridden Metro in the past 30 days. Results are summarized by quarter (e.g., January–March).</p>
<b>SAFETY AND SECURITY</b>		
Customer Injury Rate	<p>Customer injury rate:</p> <p>Number of injuries ÷ (Number of passengers ÷ 1,000,000)</p>	<p>The customer injury rate is based on National Transit Database (NTD) Reporting criteria. It includes injury to any customer caused by some aspect of Metro's operation that requires immediate medical attention away from the scene of the injury.</p> <p>Customer safety is the highest priority for Metro and a key measure of quality service. Customers expect a safe and reliable ride each day. The customer injury rate is an indicator of how well the service is meeting this safety objective.</p>
Employee Injury Rate	<p>Employee injury rate:</p> <p>Number of injuries ÷ (Total work hours ÷ 200,000)</p>	<p>An employee injury is recorded when the injury is (a) work related; and, (b) one or more of the following happens to the employee: 1) receives medical treatment above first aid, 2) loses consciousness, 3) takes off days away from work, 4) is restricted in their ability to do their job, 5) is transferred to another job, 6) death.</p> <p>OSHA recordable injuries are a key indicator of how safe employees are in the workplace.</p>
Crime	Reported Part I Crimes	<p>Part I crimes reported to Metro Transit Police Department for Metrobus (on buses), Metrorail (on trains and in rail stations), or at Metro-owned parking lots in relation to Metro's monthly passenger trips.</p> <p>This measure provides an indicator of the perception of safety and security customers experience when traveling the Metro system. Increases or decreases in crime statistics can have a direct effect on whether customers feel safe in the system.</p>

KPI	How is it measured?	What does this mean and why is it key to our strategy?
<b>FINANCIAL RESPONSIBILITY</b>		
Ridership	<p>Total Metro ridership</p> <p>Metrorail passenger trips + Metrobus passenger boardings + MetroAccess passenger trips</p>	<p>Ridership is a measure of total service consumed and an indicator of value to the region. Drivers of this indicator include service quality and accessibility.</p> <p>Passenger trips are defined as follows:</p> <ul style="list-style-type: none"> <li>▲ Metrorail reports passenger trips. A passenger trip is counted when a customer enters through a faregate. In an example where a customer transfers between two trains to complete their travel, one trip is counted.</li> <li>▲ Metrobus reports passenger boardings. A passenger boarding is counted via the onboard Automatic Passenger Counter (APC) when a customer boards a Metrobus. In an example where a customer transfers between two Metrobuses to complete their travel, two trips are counted.</li> <li>▲ MetroAccess reports passenger trips. A fare paying passenger traveling from an origin to a destination is counted as one passenger trip.</li> </ul> <p>*For performance measures and target setting, Metro uses total ridership numbers including passengers on bus shuttles to more fully reflect total passengers served. Metro does not include bus shuttle passenger trips in its budget or published ridership forecasts.</p>
Vacancy Rate	<p>Percentage of budgeted positions that are vacant</p> <p>(Number of budgeted positions – number of employees in budgeted positions) ÷ number of budgeted positions</p>	<p>This measure indicates how well Metro is managing its human capital strategy to recruit new employees in a timely manner, in particular operations-critical positions. Factors influencing vacancy rate can include: recruitment activities, training schedules, availability of talent, promotions, retirements, among other factors.</p>
Water Usage	<p>Rate of gallons of water consumed per vehicle mile</p> <p>Total gallons of water consumed ÷ Total vehicle miles</p>	<p>This measure reflects the level of water consumption Metro uses to run its operations. Water consumption is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.</p>
Energy Usage	<p>Rate of British Thermal Units (BTUs) consumed per vehicle mile</p> <p>MBTU(Gasoline + Natural Gas + Compressed Natural Gas + Traction Electricity + Facility Electricity) × 1000 ÷ Total vehicles miles</p>	<p>This measure reflects the level of various types of energy Metro uses to power its operations. Energy consumption is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.</p>
Greenhouse Gas Emissions	<p><b>Rate of metric tons of CO<sub>2</sub> emitted per vehicle mile</b></p> <p><b>(CO<sub>2</sub> metric tons generated from gas, CNG and diesel used by Metro revenue and non-revenue vehicles + CO<sub>2</sub> metric tons generated from electricity and natural gas used by facilities and rail services) ÷ Total vehicle miles</b></p>	<p>Greenhouse Gas emissions reflect how Metro sources its energy used to power its operations, as well as the amount of energy it uses. Reducing Greenhouse Gas emissions is a key area of Metro's Sustainability Initiative, which brings focus to Metro's efforts to provide stewardship of the environmental systems that support the region.</p>



# EXHIBIT X

TRANSPORTATION

## Miller Lite sponsoring New Year's Eve DC Metro rides

BY KEITH LAING - 12/17/15 3:26 PM ET

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The transit agency said passengers will have to use fare cards or passes to enter and exit train stations but they will be not charged because MillerCoors is footing the bill. The free rides will be offered on all six D.C. Metro subway lines and all of the agency's bus routes.

{mosads}The beer company said it is glad to help reduce the likelihood of accidents involving drunk drivers on New Year's Eve.

"We're excited to bring our flagship Miller Lite Free Rides program to Washington, D.C. for the first time on New Year's Eve," said Diane Wagner, who is responsibility commerce manager for Miller Lite's parent company, MillerCoors.

"Our partnership with Metro is part of MillerCoors overall commitment to help prevent drunk driving by bringing alcohol responsibility programs to more markets," Wagner continued. "Working together, Miller Lite, Metro and Premium Distributors will help ensure people have a great time this New Year's Eve and get home safely from their celebrations."

Metro officials said they hoped the free rides would encourage more New Year's Eve revelers to opt for transit in lieu of driving to their destinations where alcohol will be consumed.

"I am pleased to announce this exciting new partnership with Miller Lite to support safe transportation for our customers on New Year's Eve," new Metro General Metro Paul Wiedefeld said.

"We hope this promotion will encourage those celebrating across the region to leave the driving to us this holiday," he continued.

Metro is the second busiest transit system in the U.S., trailing only the New York City subway.

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# EXHIBIT Y

**D.C. Politics**

Local news

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**D.C. Politics**

# D.C. students will be riding Metro for free this year

By [Abigail Hauslohner](#)

August 17, 2015

D.C. Mayor Muriel E. Bowser on Monday boarded a Metro train with a group of D.C. public school students to kick off an initiative that will allow them to ride free.

The \$7 million initiative expands a 2013 measure passed by the D.C. Council that allowed the city's schoolchildren to ride Metro buses for free; now they'll have access to Metrorail, too.

Bowser said that the budget appropriation, which the D.C. Council approved in May, represented "real dollars" for economically strapped families of students at public and public charter schools, who previously paid \$30 a month per child for transportation to school.

"We're not like the suburban jurisdictions where we have a free bus system where all the kids walk outside and get on the school bus," Bowser said Monday at a small news conference before boarding a train at the Archives Metro station downtown with an entourage of city education officials and students. "Our school bus is, in fact, the Metro system."

City officials say about 75 percent of District schoolchildren attend schools outside of their neighborhoods. Sometimes, that means multiple buses and journeys that last more than an hour.

The Metro rail option, Bowser said, could save time for many students.

Schools Chancellor Kaya Henderson also suggested that access to Metrorail could reduce truancy. Citing a meeting with truant students a few years ago, Henderson said that "one of the biggest reasons" for student absences was transportation.

"This is a game-changer for our young people. It takes a huge problem off the table," she said.

However, the program will also add potentially thousands of children to an already troubled underground transit system that has been plagued by endemic delays and by frequent train and track malfunctions.

Even as Bowser and her group descended to a largely empty Metro train platform about 3 p.m. Monday, display boards warned of track "delays in both directions" and "a track condition outside Clarendon."

Metro union leaders have previously complained that bus drivers and Metro station managers have limited authority to deal with fare evaders, fights and other problems on buses and trains because of strict rules of conduct for Metro staff members as well as a sometimes limited Metro police presence on crowded transit routes.


A spokeswoman for the transit authority said Monday that Metro would not devote additional security staff to accomodate the additional young riders.

But Morgan Dye, the spokeswoman, said Metro Transit Police has been involved in planning for the launch of the program and that officers will be providing “special attention to stations and trains at times when students are traveling.”

*Correction: An earlier version of this report gave an incorrect location for where Mayor Muriel E. Bowser boarded the Metro after her news conference. It was at the Archives station.*

 **Comments**

#### **Abigail Hauslohner**

Abigail Hauslohner is a national security reporter at The Washington Post. In her decade at the newspaper, she has been a roving national correspondent, writing on topics ranging from immigration to political extremism and the pandemic, and she covered the Middle East as the Post's Cairo bureau chief. **Follow** 

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# EXHIBIT Z



## Chapter 4 - Enrollment Patterns

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Trends in Distance to School by Where Student  
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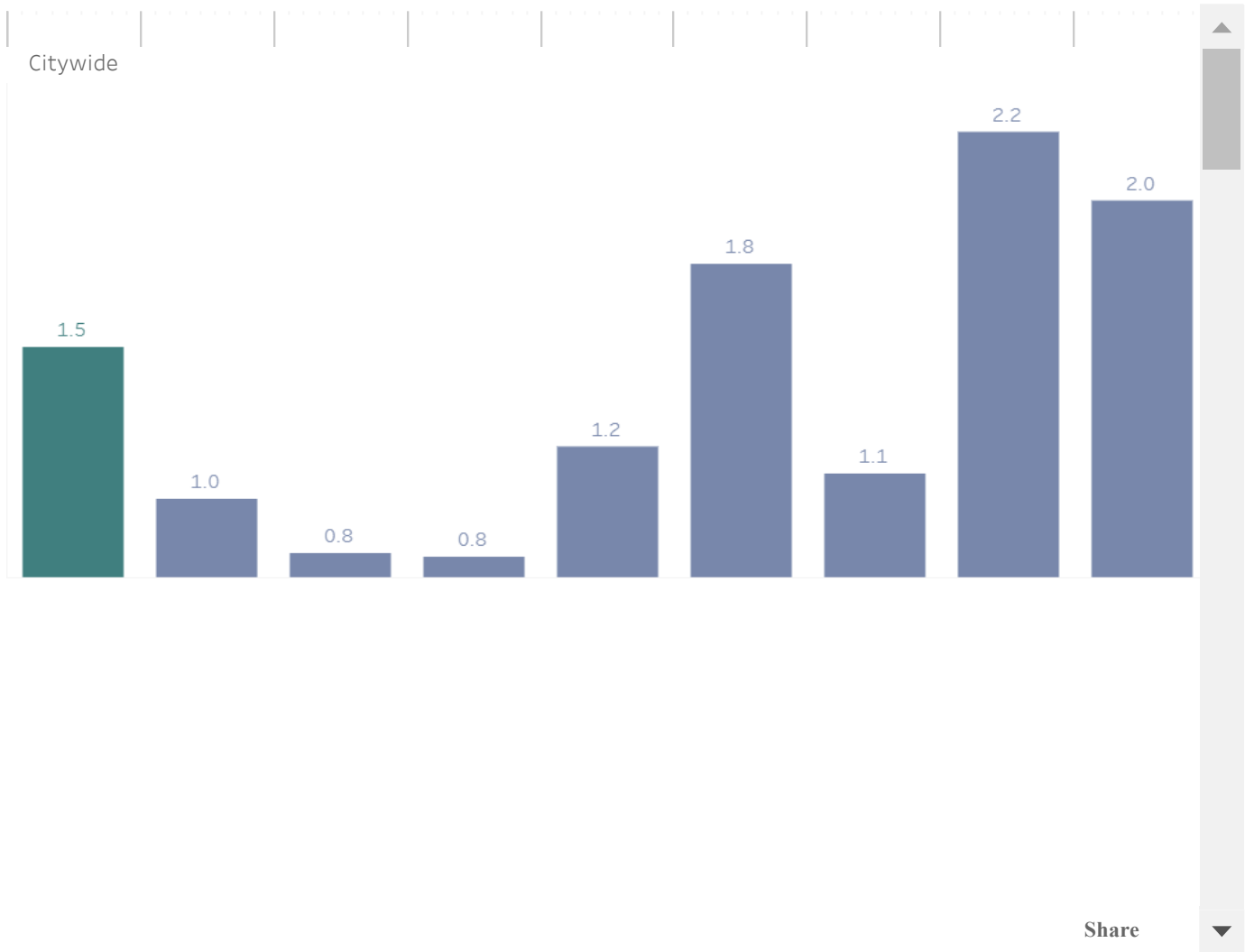
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## Trends in Distance to School by Where Student Lives

In addition to varying widely by grade level and enrollment category, students in some wards of the city travel farther than others. Examining travel distances by 2022 Ward boundaries, students living in Wards 5, 7, and 8 travel farther than the city median typically, while students in Wards 2, 3, and 6 travel the shortest median distance. Walk distances by ward have trended up slightly in Wards 1, 7, and 8 since SY13-14.

### Citywide Walk Distance from Home to School by Ward, 2013-2021





Source: OSSE Audited Enrollment, SY13-14 to SY21-22

Across both sectors, students in neighborhoods with physical barriers, like highways and parks, travel the farthest to school, on average. Predictably, these distances vary by grade band and enrollment category. However, students in neighborhoods like Joint Base Anacostia-Bolling, Kenilworth, Colonial Village, Fairfax Village, and Hillbrook (Clusters 44, 29, 16, 35, and 30) consistently travel the farthest, and students in Shaw and Downtown (Clusters 7 and 8) consistently travel the shortest distances. Citywide, over 25,000 (29%) PK3-12 students travel 3 or more miles to school. In addition to neighborhood clusters, view median walk distances by Comprehensive Plan planning area and wards (2022 and 2012 boundaries) using the options below.

### Walk Distance from Home to School by Geography, 2021



Not all grade bands are available for all enrollment categories and geographies. If the map disappears, choose Filter for filter selection.

## Filter

VIEW ENROLLMENT CATEGORY:

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All Enrollment Categories



Source: OSSE Audited Enrollment, SY21-22



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# **EXHIBIT AA**



RESEARCH REPORT

# The Road to School

How Far Students Travel to School in the Choice-Rich Cities of  
Denver, Detroit, New Orleans, New York City, and Washington, DC

*Urban Institute Student Transportation Working Group*

*March 2018*



## ABOUT THE URBAN INSTITUTE

The nonprofit Urban Institute is a leading research organization dedicated to developing evidence-based insights that improve people's lives and strengthen communities. For 50 years, Urban has been the trusted source for rigorous analysis of complex social and economic issues; strategic advice to policymakers, philanthropists, and practitioners; and new, promising ideas that expand opportunities for all. Our work inspires effective decisions that advance fairness and enhance the well-being of people and places.

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# Executive Summary

**How to get to school is an important issue for families who want to send their children to schools outside their neighborhood and for education policymakers seeking to implement school choice policies that mitigate rather than exacerbate educational inequality.**

We analyze travel times between the homes and schools of nearly 190,000 students across five large US cities that offer a significant amount of educational choice: Denver, Detroit, New Orleans, New York City, and Washington, DC.

Key findings, which both confirm and question conventional wisdom, include the following:

- Most students in our cities do not live farther than about a 20-minute drive from home to school, but travel patterns vary across age and demographic groups.
- The distance that students travel (as measured in driving time) appears to vary more by grade than by city, despite wide variation across cities in student transportation policy, public transit availability, geography, and school choice policies. Older students travel farther to school than younger students, and black students travel farther than white or Hispanic students. However, the small proportion of students who are not low income tend to travel slightly farther than their more numerous low-income peers.
- Although many perceive enrollment in a charter school as opting into a school farther from home, this is not universally true. Particularly among older students, those enrolled in traditional public schools tend to travel as far, or in some cases farther, than those attending charter schools. These differences across demographics and school types may reflect differences in family preferences for nonneighborhood schools, as well as differences in school siting decisions and transportation policies for different types of schools.
- Access to “high quality” high schools varies across cities, race and ethnicity, and on the quality measure used. However, ninth-grade students, on average, tend to live about a 10-minute drive from a “high quality” high school.
- Access to a car can significantly increase the number of schools available to a family. Typical travel times to school by public transit are significantly greater than by car, especially in cities with less efficient transit networks. As a result, a student whose parents can drive her 15

minutes to school has more schools to choose from than a student considering the same commute on public transit. According to US Census data, disadvantaged households are less likely to have access to a car, although this varies widely by city.

Where students live relative to the schools they attend is only one important consideration in a well-functioning school choice system. Other factors that affect equitable access could include how families are informed of their school choice options, policies such as centralized lotteries that allocate students to schools, and the capacity of high-performing schools to expand to meet demand. No single factor is decisive on its own, but ensuring that students can reliably travel to a school is a critical factor in making a choice in theory a choice in reality.

# The Road to School

Families in many cities now have a great deal of choice about where to send their children to school, at least on paper. Although a neighborhood school is still usually an option, families can increasingly opt into a traditional public school in a different neighborhood, a charter school, a magnet school, or even a private school. In 2012, 37 percent of all parents indicated that they had a choice of public school options, and 49 percent of those in cities reported having public school choice.<sup>1</sup>

But for these other school options to be feasible choices for families, parents must be able to get their children to the school. For a parent with a car and flexible schedule, this may not be an issue. But for many working parents or for those who do not have access to a reliable form of transportation, it could be a challenge to consistently get students to school on time.

Cities vary widely in the assistance they provide to parents who send their children to nonneighborhood schools. For example, New Orleans requires nearly all schools to provide bus service to students who live at least a mile away. Washington, DC, provides free public transit to all students but does not provide school buses for regular-education students. Denver has a school bus system, where charter school students have access to district buses in designated neighborhoods, and other charter schools contract with the system for bus access (students who are not served receive transit passes instead).

How choice-rich urban education systems confront the trade-offs between the costs and benefits of different student transportation policies may have implications for whether their policies provide more equitable access to education by increasing the choices available to students. But there is little research that looks at the distance between where children live and where they go to school, and existing research tends to focus on individual cities (Denice and Gross 2016).

In this report, we examine the relationship between where students live, where they go to school, and the availability of other school options in five cities with a high degree of school choice: Denver, Detroit, New Orleans, New York City, and Washington, DC. We examine how far different students travel to get to school, how long it would take them to make the trip by car or public transit, and how travel patterns vary across cities, grade levels, and demographic groups.

Our report reveals new information about the pattern of student travel in these cities. This analysis provides policymakers and advocates with the opportunity to understand which students in their communities are traveling the farthest to attend school, and how resources such as family income,

availability of nearby schools, and school district and city transportation policy may affect how far students travel.

## Why Student Travel Matters

A student's trip to school can affect more than whether they can access a desired school. The time that the trip takes and the quality of the trip could also impact a student's academic outcomes and engagement. A long commute to school might affect a student's ability to get to school on time, her number of absences, and her availability to participate in before- or after-school activities (Blackmon and Cain 2015; Canfield et al. 2016; Grossman, Walker, and Raley 2001; Teasley 2004).

Families generally value a school that is convenient, all else equal. A study of school lottery choices in Washington, DC, found that a typical middle school parent would be willing to send their child to a school with lower test scores if it were closer (Glazerman and Dotter 2017). In a recent survey of 8 cities, 60–72 percent of parents reported that an adult in the household was responsible for getting their child to school (Jochim et al. 2014).

The use of school-provided transportation (typically yellow bus service) is often the easiest option for families but may bring logistical challenges for schools and districts. For example, school-provided transportation could limit available school starting times because of the constraints of bus availability and route length. School start times have been shown to have an impact on student achievement, and older students, who are often assigned the earliest start times, tend to benefit the most from a later start (Carrell, Maghakian, and West 2011; Wolfson et al. 2007). Changing district bus schedules to give older students a later start time is one relatively low-cost solution (Wahistrom 2002). But transportation changes, particularly to bus schedules, may be accompanied by an increase in costs and pushback from families (Edwards 2012; Jacob and Rockoff 2011).<sup>2</sup>

Patterns of school quality, distance to school, and transportation availability also vary by race, ethnicity, and income. An analysis of students entering high school in Chicago showed that students from affluent neighborhoods were more likely to attend school close to home, but students from low-income neighborhoods were more likely to travel farther and were 35 percent more likely to be the only student from their neighborhood at a given school (Burdick-Will 2015). In Denver, black families were more likely to apply to a distant, “high quality” school than Hispanic or white families (Denice and Gross 2016).

## The Landscape of Education in Cities with School Choice

All five cities in our study have substantially increased the choices available to their students. Students in these cities can enroll in nonneighborhood schools (traditional, magnet, and charter), and may also have access to outside options through private-school scholarship programs and interdistrict choice. We document how choice-oriented education policies have evolved in each city over the last few decades and how the number of public schools available to students often varies more across cities than across demographic groups within a given city.

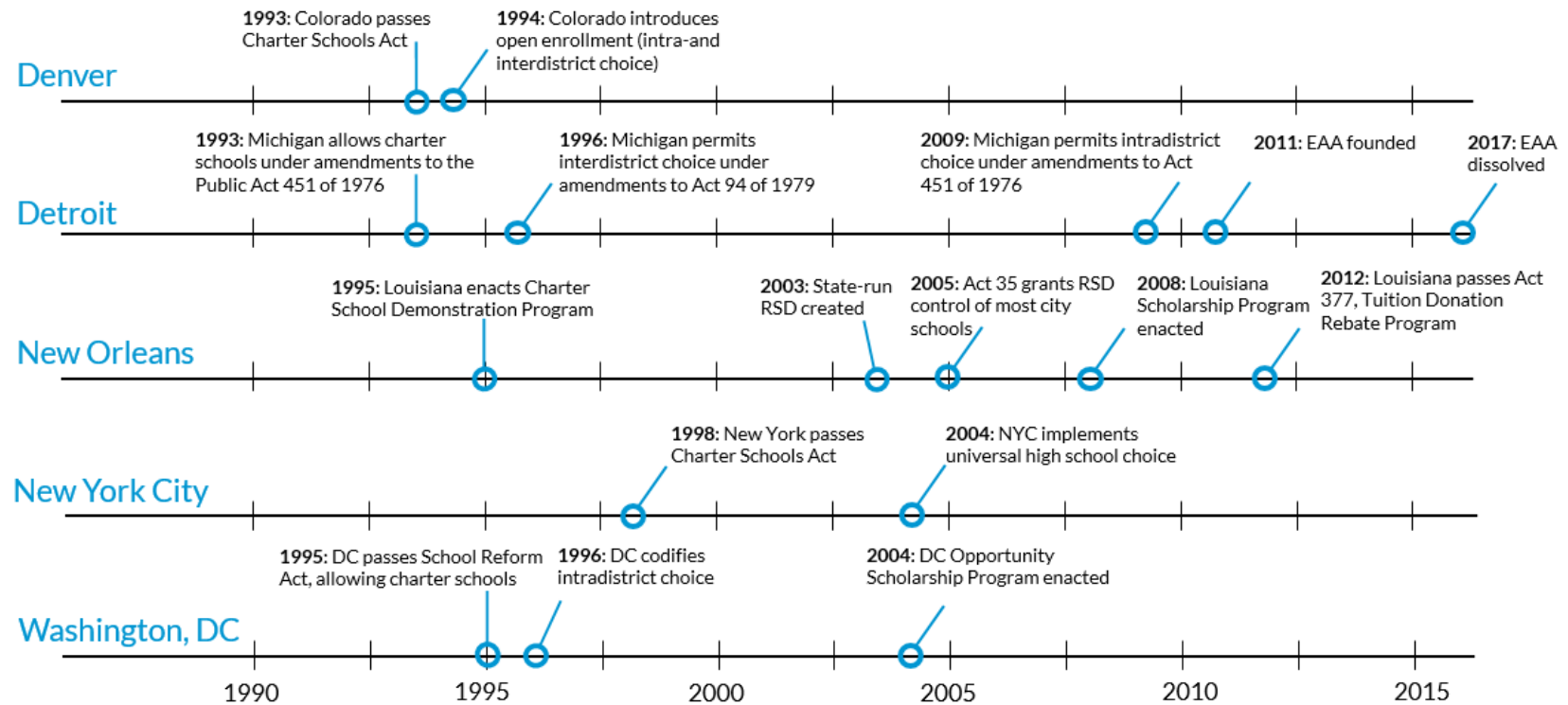
### Increased School Options and School Choice

Since the 1990s or earlier, policymakers have acted to expand school choice in our study cities. Inter- and intradistrict choice, charter schools, and scholarships for private schools provide new school options to families (figure 1). Many of these policies, such as interdistrict choice or school voucher policies, are implemented at the state level. In some cases, school choice policies are implemented at the state level but mediated through local districts. For example, interdistrict choice programs typically rely on the capacity of neighboring receiving districts.

FIGURE 1

**School Choice Policy Timelines**

1990–2018



URBAN INSTITUTE

**Source:** Analysis of school choice legislation.**Notes:** In Washington, DC, interdistrict choice options predate the 1990 start date of this timeline. In addition, intradistrict choice has been an option in at least some New York City Community School Districts, such as East Harlem's District 4, since the 1970s. EAA = Emergency Achievement Authority; RSD = Recovery School District.

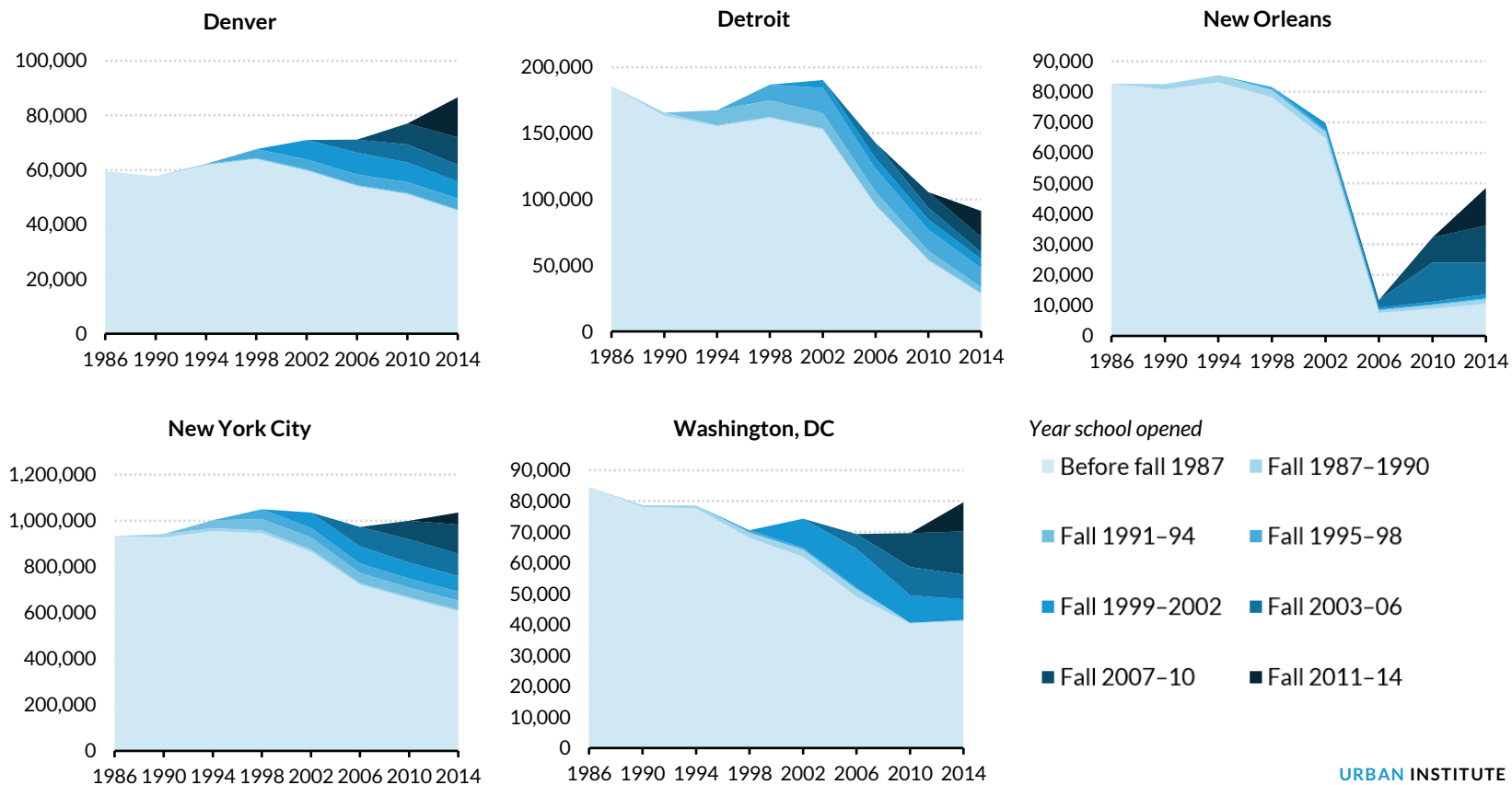
Most of our cities have adopted interdistrict choice, where city students may attend schools in nearby school districts, as policy since the mid-1990s or earlier. Interdistrict choice typically makes participation voluntary for receiving districts. In Washington, DC, interdistrict choice to schools in Maryland and Virginia is an option, but only if the sending student's family pays tuition to the receiving school district.

Intradistrict choice, sometimes called open enrollment, allows students to attend district schools outside their zoned neighborhood school. This kind of choice among public schools is available to at least some degree in all our study cities, with implementation years ranging from as early as 1994 (in Denver) to as late as 2009 (in Detroit).

All the cities in our study also have charter schools within their district boundaries. Our cities were affected by state-level charter authorization laws that were first enacted in the 1990s, between 1993 (Denver and Detroit) and 1998 (New York City). School districts have different levels of control over the operation of charter schools within their boundaries. For example, in Denver, charter schools have a contract with Denver Public Schools, and the Denver Public School Board decides on the opening and closing of schools. In Detroit, the district may authorize charter schools, but schools may also be authorized by public higher education institutions and intermediate (county-level) school districts.<sup>3</sup>

Over nearly three decades, shifts and changes in school district policies have led to an increase in the overall number of new schools in each district. However, the patterns of enrollment in these choices over time have varied by city. For example, when we look at the opening of new schools, we find public school enrollment trends that are influenced both by policy changes and by larger economic and demographic changes (figure 2). Although enrollment levels do not always capture the level of growth of a sector (for example, a city could see a sudden increase in the number of new schools, but these schools steadily increase to their full enrollment share over the years as they add grades), examining these levels offers a baseline understanding of the shifts in school enrollment over time.

FIGURE 2

**Enrollment in New Schools over Time***Fall 1986 to fall 2014*

**Source:** Analysis of NCES Common Core of Data from fall 1986, 1990, 1994, 1998, 2002, 2006, 2010, and 2014.

**Notes:** Analysis is of student membership in city public schools that were operational during the school year. We identify new schools as those that have a new National Center for Education Statistics identification number.

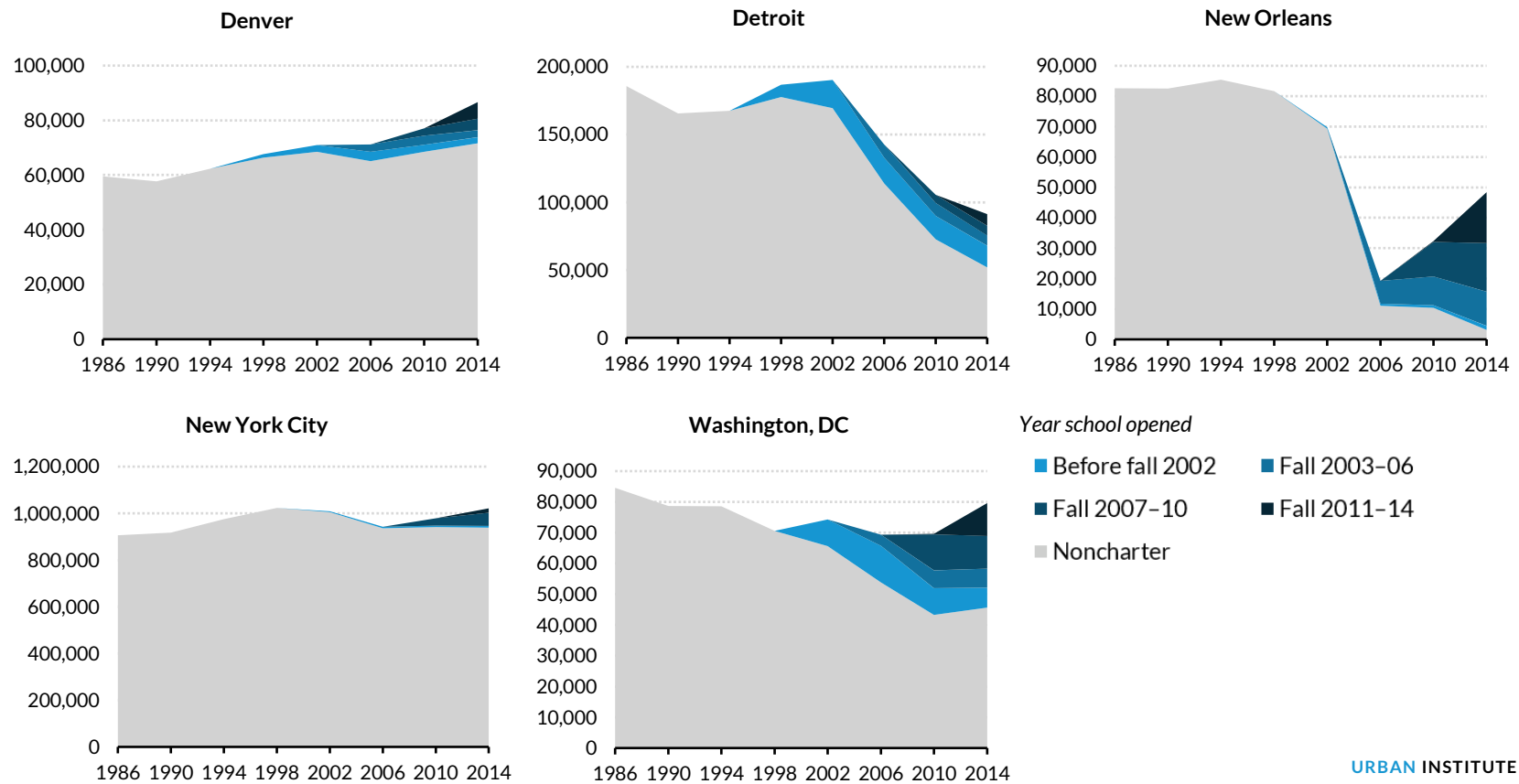


The largest enrollment change occurs in New Orleans, where enrollment dropped sharply after Hurricane Katrina, as measured in the fall of 2006. Since the storm, the city has slowly recovered more than half of its previous public school enrollment. Most of the recovery has been in the form of enrollment in new public (typically charter) schools, many of which were founded after the storm. In Detroit, the decline in student population echoes declines in the city's overall population in the early 2000s. However, even as enrollment has fallen, Detroit has opened a substantial number of new schools; more than half of Detroit public school students are enrolled in schools that were opened after the fall of 1987.

Shifts in enrollment in new public schools are less dramatic in Denver, New York City, and Washington, DC, but patterns still emerge. For example, among schools founded since 1987, schools that were opened from fall 1999 forward tend to enroll a larger share of students than schools founded before this period. Part of the reason for this trend is the increase in the number of new schools during this time. For example, roughly 230 new schools opened in New York City in the 12 years between fall 1987 and fall 1998, but about 710 new schools opened in the 12 years between fall of 1999 and fall 2010. Many of these schools may be small schools that are located within former large comprehensive high schools, particularly in New York City, where the movement was prevalent (Bloom and Unterman 2014; Schwartz, Stiefel, and Wiswall 2013). The evolution of these new school options, whether in new buildings or colocated on previous school sites, changes the set of school choices available to families.

All five cities have seen large enrollment increases in new schools, but enrollment growth in new charter schools varies more widely across cities. For example, New York City and Denver have experienced relatively slow charter growth, at least as a percentage of total enrollment, while the vast majority of New Orleans students are now enrolled in charters (figure 3). Detroit has seen substantial growth in enrollment in its charter sector, with a large share enrolled in schools that were founded before the fall of 2002. Washington, DC, has similarly experienced a large increase in charter school enrollment, with the largest share of new charter students enrolled in schools that were founded between fall of 2007 and fall of 2010.

FIGURE 3

**Enrollment in Charter Schools over Time***Fall 1986 to fall 2014*

**Source:** Analysis of NCES Common Core of Data from Fall 1986, 1990, 1994, 1998, 2002, 2006, 2010, and 2014,

**Notes:** Analysis is of student membership in city public schools that were operational during the school year. In some cases, schools that did not report as charters in previous years of data later reported as charters under the same NCES school ID. Those schools are counted in the first year that they identify as a charter school.

## Differences in School and Student Location

How far students travel to school may depend, in part, on the number and location of choices available to them. For example, we might expect students who live near an abundance of schools to be less likely to travel far than a student who has fewer choices nearby. Further, we may expect these patterns to vary by city and by family characteristics.

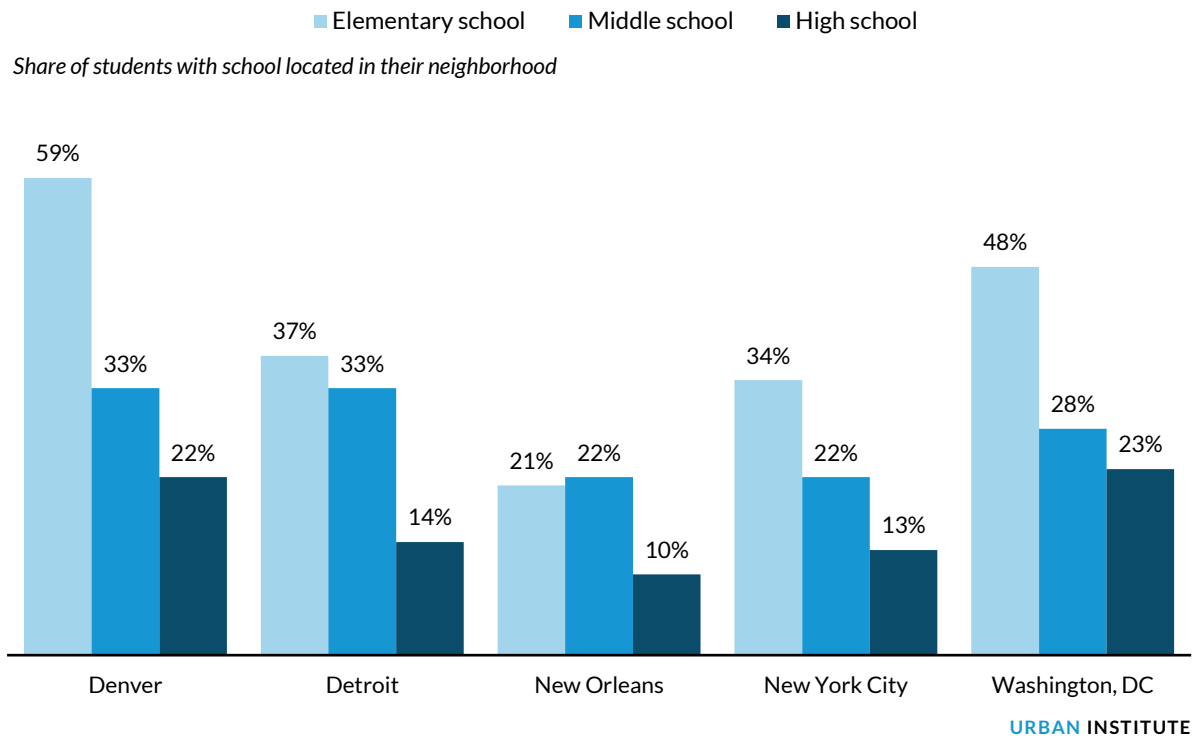
We use publicly available data from the American Community Survey to measure the location of students relative to public schools by school-age group: elementary (ages 5 through 9), middle (10 through 14), and high school (15 through 17). Although proximity to schools varies by poverty status as well as race and ethnicity within our cities, we find that proximity to schools generally varies more across our five cities than between student demographics within them (appendix tables A.1a–c).

When we look at the share of school-age students who have at least one public school (traditional or charter) in their home neighborhood (defined as the census tract), we find substantial differences across cities (figure 4). For example, though nearly 60 percent of elementary-age children in Denver have at least one public elementary school in their neighborhood, 21 percent of elementary-age students in New Orleans have a school in their neighborhood. Some of this variation may be because of differences in the average number of students in each census tract across cities. For example, New Orleans and Detroit experienced population declines in the past several decades, a trend that may affect the distribution of students relative to schools.

The likelihood of having a nearby public school generally declines as students grow older, though the steepness of this decline also varies by city. For example, students in Denver and Washington, DC, generally see a much steeper decline in the availability of middle schools relative to elementary schools in their neighborhood (in large part because they are much more likely to have an elementary school in their neighborhood). In Detroit and New Orleans, the steeper drop-off in neighborhood school availability is between the middle school and high school years. In New York City, there is a steadier drop-off in the availability of elementary, middle, and high schools.

These differences across cities could reflect historic school siting policies (e.g., an effort to have small elementary schools that serve individual neighborhoods or an effort to locate high schools in the urban center or near transportation hubs), but these differences could also reflect the preferences of families. For example, families who prefer that their children walk or bike to school may opt to move to a neighborhood with a local elementary and middle school. Families may also choose to live closer to schools if the nearby available housing stock is more amenable for families (e.g., multiple bedrooms).

FIGURE 4

**School-Age Children with at Least One Public School in Their Neighborhood**

**Sources:** Analysis of NCES Common Core of Data from Fall 2014 and ACS tract-level data from 2011–15.

**Notes:** Analysis is of traditional and charter public schools that were operational during the school year. Schools that offer kindergarten are classified as elementary, sixth grade as middle, and ninth grade as high school. Schools that offer multiple grades are included in both of the relevant analyses (e.g., kindergarten and sixth grade are included in both elementary and middle school). A neighborhood is defined as a census tract.

The cities in our report differ not only in the availability of at least one neighborhood option, but also in the total number of nearby school options. The average New York City elementary-age child has 13.9 schools within a one-mile radius, and the average New Orleans child has just 2.1 schools within the same distance. We would expect to see some differences across our cities based on differences in population density and urban form. However, across all cities, children from families in poverty have, on average, an equal or greater number of nearby schools compared with children who do not come from families in poverty (table 1).

There are several possible explanations for the fact that low-income families tend to live near a greater number of schools than other families. In cities with stronger private school traditions (such as New Orleans, New York City, or Washington, DC), new public schools may be less likely to be sited near students who have the means to attend a private option. Students from low-income households may be more likely to live in areas with a high population density, which might require a higher number of

schools to serve students in the areas. Further, school reforms aimed at improving the achievement of low-income students may have the effect of adding additional choices for these students. For example, charter schools may locate in areas near low-income students, and new public options may be added through other reforms, such as the division of previously large traditional schools, or the founding of new traditional public schools.

TABLE 1

## Average Number of Schools within a One-Mile Radius for School-Age Children

Household poverty status	Elementary school	Middle school	High school
<b>Denver</b>			
Poverty	3.8	2.1	1.9
Nonpoverty	3.2	1.8	1.4
<b>Detroit</b>			
Poverty	3.4	3.2	1.9
Nonpoverty	3.4	3.0	1.7
<b>New Orleans</b>			
Poverty	2.1	1.9	1.0
Nonpoverty	1.9	1.9	1.0
<b>New York City</b>			
Poverty	16.6	13.1	11.2
Nonpoverty	12.6	9.2	8.1
<b>Washington, DC</b>			
Poverty	8.5	4.2	3.2
Nonpoverty	7.8	4.3	3.0

**Sources:** Analysis of NCES Common Core of Data from Fall 2014 and ACS tract-level data from 2011–15.

**Notes:** Analysis is of traditional and charter public schools that were operational during the school year. Schools that offer kindergarten are classified as elementary, sixth grade as middle, and ninth grade as high school. Poverty is measured as being below the poverty threshold for the given family size.

When assessing the number of school choices within one mile by race and ethnicity, the patterns within cities are less clear (appendix tables A.1a–c). For example, Hispanic and black students in Denver, New York City, and Washington, DC, consistently have more nearby options than white students for elementary, middle, and high school. However, in Detroit and New Orleans, variations among the most common racial and ethnic groups are less pronounced, and, in some cases, white students appear to live closer to more schools than students of color.

## Measuring Student Travel Times to School

Though data on straight-line distance to schools are valuable, it is perhaps even more important to understand how long these journeys would take by different transportation modes, both to students' actual schools and to other schools their families might choose. Using individual-level data on where students live and the schools they attend, we calculate estimates of travel time to school, both by car and public transportation, in our five cities. We estimate travel times for kindergarteners in New Orleans, New York City, and Washington, DC; for sixth-graders in Denver, Detroit, and Washington DC; and for ninth-graders in all five cities.

We calculate the travel time for each student to her own school, as well as to all other schools that serve her grade. We report our results in terms of travel time by car or transit (e.g., bus, subway, ferry), rather than in distance traveled, both because time matters more than distance for families and to ensure consistency across cities (e.g., traveling a mile takes longer in some places than others).

We use estimated driving times and travel times by public transit from the Google Distance Matrix application programming interface (API). To simplify calculations, student addresses were matched to census blocks, and distance calculations were made from the population-weighted centroid of each census block.<sup>4</sup> Travel times were computed assuming the usual traffic for a departure time that is 30 minutes before the estimated start time for schools in the city. In cases where a school is less than one half-mile as the crow flies from the student's residence, the walking time was also calculated, and the estimated walking time replaced the estimated transit time if it was shorter.

Individual-level data for the study is from the 2013–14 or 2014–15 school years, but the Google API does not permit the calculation of travel times in the past. This study uses the estimate of driving and transit time as calculated for Wednesday, September 13, 2017. Although our cities have made small changes to their transportation system in the intervening three years (for example, Denver opened two new commuter rail lines, and Washington, DC, implements quarterly adjustments to its Metrobus routes), we believe that these changes are not substantial enough to bias our estimates. Moreover, there have not been significant enough changes in the residential patterns of students in these cities over the last four years to suggest gaps would look different with contemporaneous data.

# Student Transportation in Five Cities

## Transportation Policies Vary across City

Each of our cities has evolved its own set of transportation policies to help students move to and from school. Table 2 summarizes the transportation options that are available to students in our study, who were enrolled in kindergarten, sixth grade, or ninth grade. (See Urban Institute Student Transportation Working Group 2017 for detailed descriptions of the differences in student transportation policies.)

In Washington, DC, all students enrolled in regular education are provided with a pass for use on public transit to get to school. High school students in New York City, as well as some high school students in Detroit and Denver, also are given public transit cards to attend school, depending on distance. In all of our cities except Washington, DC, students in kindergarten and sixth grade are typically given yellow bus service if they live at least a specified minimum distance from school.

Each city provides transportation options, but the availability of these options can vary by school. All of our cities offer yellow bus or public transit transportation to the student's neighborhood school, but transportation to nonneighborhood schools and charter schools varies. Washington, DC, and New Orleans provide yellow bus or public transit service to nearly all public schools, but Denver and Detroit are less likely to provide transportation to nonneighborhood or charter schools. Students in sixth grade or below in New York City typically receive yellow bus transportation to schools in their neighborhood school district or to charter schools within the same borough.

TABLE 2

## School Transportation for Eligible Students

Student access	Mode	Eligible distance (miles)
<b>Kindergarten</b>		
<i>New Orleans</i>		
Students in RSD charter, OPSB direct-run, or RSD direct-run school	Yellow bus	1
<i>New York</i>		
Students in regular education	Yellow bus	0
Students not served by yellow bus route	Public transit	0.5 <sup>a</sup>
<i>Washington, DC</i>		
Students in regular education	Public transit	0
<b>Sixth grade</b>		
<i>Denver</i>		
Students in regular education	Yellow bus	2.5
<i>Detroit</i>		
Students in regular education	Yellow bus	0.75
<i>Washington, DC</i>		
Students in regular education	Public transit	0
<b>Ninth grade</b>		
<i>Denver</i>		
Students in a Success Express neighborhood	Yellow bus	0
Students outside a Success Express neighborhood	Public transit	3.5
<i>Detroit</i>		
Students who attend an EAA school	Yellow bus	1.5
Students who attend a DPS school	Public transit	2 <sup>b</sup>
<i>New Orleans</i>		
Students in RSD charter, OPSB direct-run, or RSD direct-run school	Yellow bus/public transit	1
<i>New York</i>		
Students in regular education	Public transit	1.5 <sup>a</sup>
<i>Washington, DC</i>		
Students in regular education	Public transit	0

**Source:** Analysis of district transportation policies.

**Notes:** New York offers half-fare public transportation to some students who live closer to school. For Denver, yellow bus includes both standard routes and Success Express routes. In all cities, students enrolled in special education have access to yellow bus service as needed. The Education Achievement Authority is Michigan's state-run school district. DPS = Detroit Public Schools; EAA = Education Achievement Authority; OPSB = Orleans Parish School Board; RSD = Recovery School District.

<sup>a</sup>New York City Public Schools offers a half-fare benefit to kindergarteners living less than a 0.5 mile and ninth-grade students living more than 0.5 miles but less than 1.5 miles.

<sup>b</sup>Detroit Public Schools offers a fare benefit for high school students who live more than 2 miles from school and are eligible for free and reduced-price lunch.



TABLE 3

**Likelihood of Public Student Transportation Assistance by School Attended**

	Traditional neighborhood school	Traditional nonneighborhood school	Charter school	Private school	Other districts
Denver	All	Few	Some	None	None
Detroit	All	Few	Some	None	Some
New Orleans	NA <sup>a</sup>	All	Most	None	None
New York City	All	Some	Most	Some	None
Washington, DC	All	All	All	Most	None

**Source:** Analysis of district transportation policy.

**Notes:** Transportation for charter schools in Denver and Detroit is provided at discretion of the school, except for charter students in Denver's Success Express regions, who are eligible for transportation through that service. Transportation for other district schools neighboring Detroit is provided at the discretion of the district. This table excludes assistance for students with special needs.

<sup>a</sup> New Orleans no longer has assigned neighborhood schools.

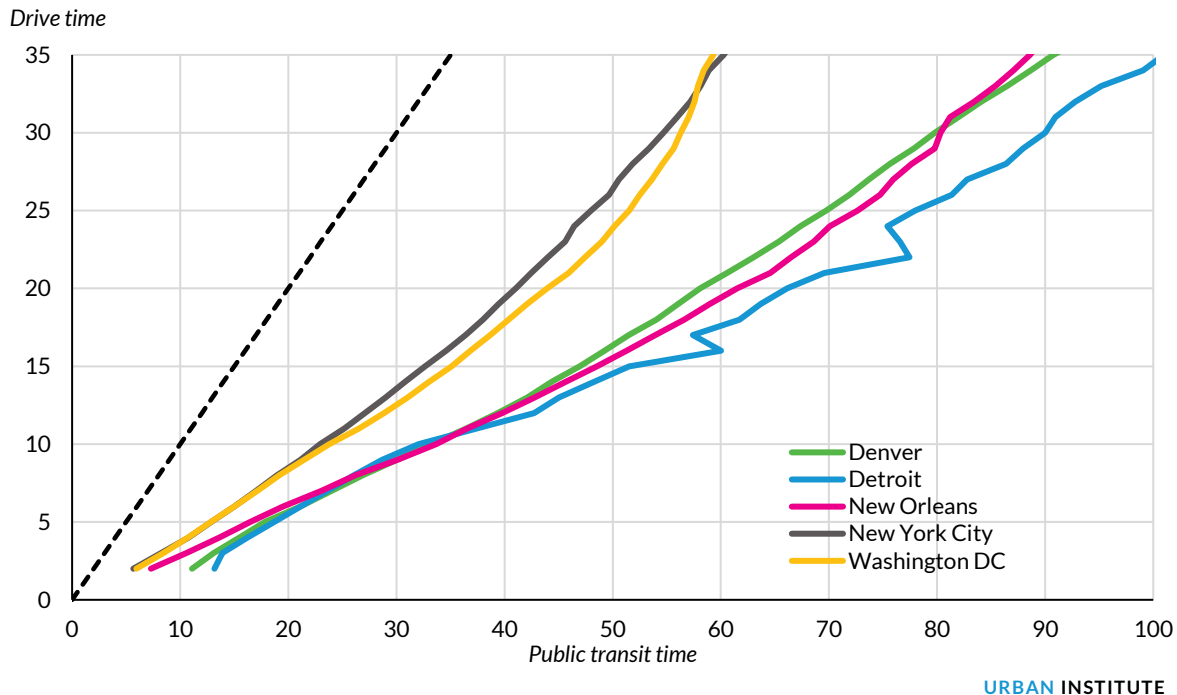
**Relative Efficiency of Public Transit**

Of our five study cities, New York City and Washington, DC, rely most heavily on public transportation to help students travel to school. Using our data on the driving and transportation time from each student block to each school they are eligible to attend, we can compare the relative efficiency of public transportation to driving in each city.

Figure 5 shows the average public transit time for all trips that take a given number of minutes driving. The black dotted line represents a scenario where public transit takes the same amount of time as driving (in traffic) would. As might be expected, traveling by public transportation takes longer than the same trip by car. However, both New York City and DC are closer to parity between driving and public transportation. On average, a 10-minute car ride to a school is equivalent to a roughly 23-minute public transportation trip in these cities. In Detroit, Denver, and New Orleans, a 10-minute drive is more likely to take 32 to 34 minutes by public transportation. As drive time increases, average transportation time grows at a slower rate in New York City and Washington, DC, while transit time generally increases more linearly in other cities.

FIGURE 5

### Comparison of Driving Time (in Traffic) and Public Transportation Time from Students' Homes to Schools



**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

**Notes:** Figure reflects comparison of average transit time to school at each drive time interval, for every school a student would be able to attend. The black dotted line indicates a scenario where travel time by public transit time is equal to travel time by car, in traffic.

These results show that the policies enacted by our five cities are largely in line with the efficiency of the local transportation system. Cities that can more quickly deliver students to school tend to rely more on public transportation to transport students. In cities with less-efficient transportation, students are more likely to be offered yellow bus service. However, high school students in Denver and Detroit may still rely on public transportation for school, which means that a school that is a 15-minute car ride away could easily be a 50-minute journey by public transit.

### Car Ownership in Low- and High-Poverty Neighborhoods

Access to a car is associated with an increased likelihood of employment among low-income households, as well as an increased likelihood of moving to neighborhoods with higher levels of school

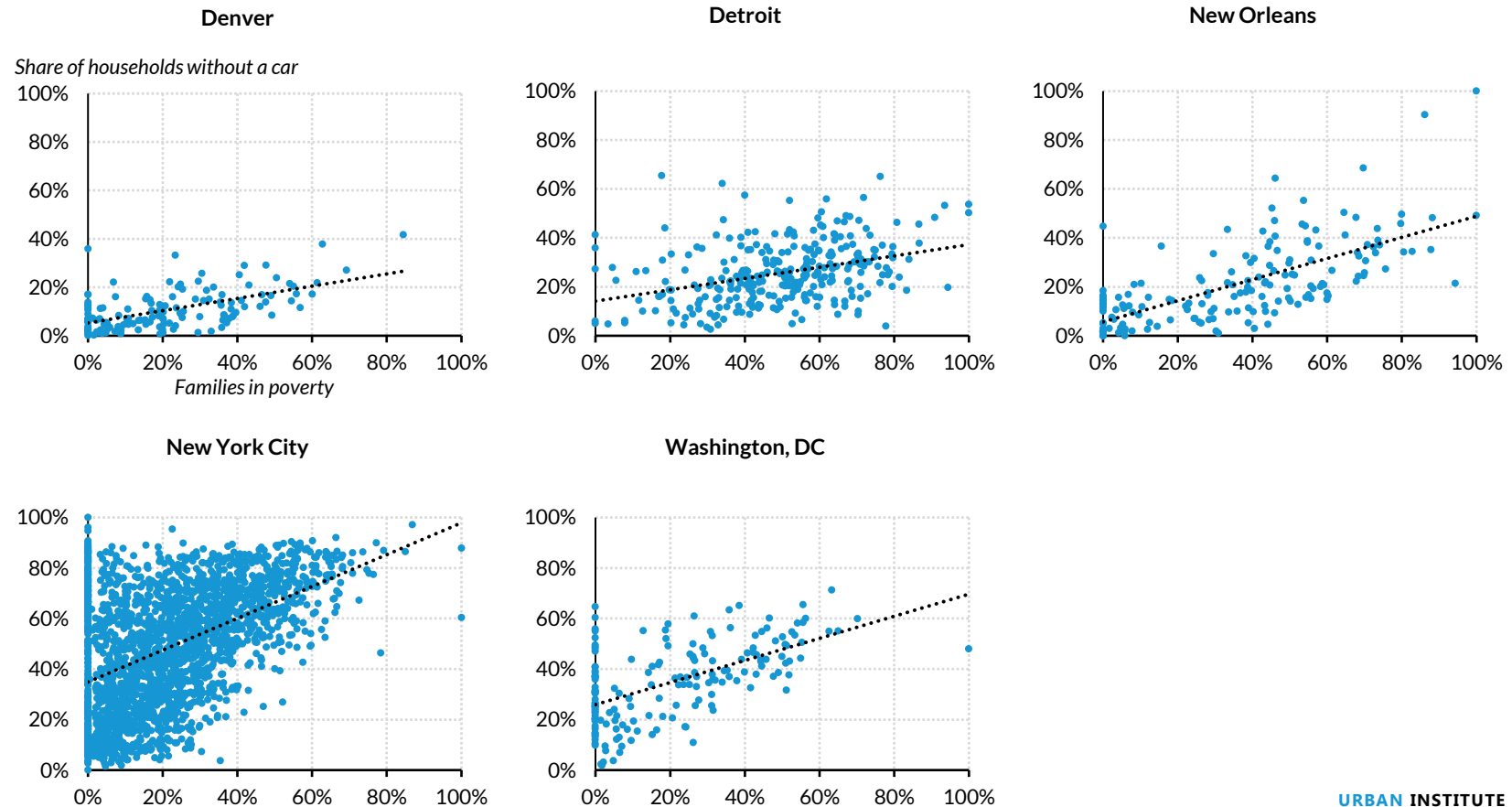
performance (Gurley and Bruce 2005; Ong 2002; Pendall et al. 2014). When we look at car ownership in our five cities by census tract, we find that the likelihood of owning a car decreases as the share of families in poverty increases (figure 6). However, the overall levels of car ownership tend to differ across our five cities.

Car ownership is more prevalent in cities with less-efficient transportation systems. Even in census tracts with the highest share of families in poverty, a household is more likely to have access to a car than not in these cities. In the highest-poverty quartile of census tracts in Denver, for example, just 15 percent of households do not own a car (relative to 4 percent in the lowest-poverty quartile). In New Orleans, 30 percent of households in the highest-poverty quartile of tracts do not own a car (relative to 6 percent). In the highest-poverty census tracts in Detroit, 28 percent of households do not have a car (relative to 17 percent).

Cities with more robust transportation systems have comparatively lower car ownership levels. Fifty-one percent of households in the highest-poverty tracts do not have a car in Washington, DC, (relative to 21 percent for low-poverty tracts), and 71 percent of high-poverty tracts in New York City do not have a car (relative to 37 percent in low-poverty tracts).

FIGURE 6

## Poverty Rate for Families with School-Age Children and Share of Households without a Car by Census Tract



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Source: Analysis of ACS tract-level data from 2011–15.

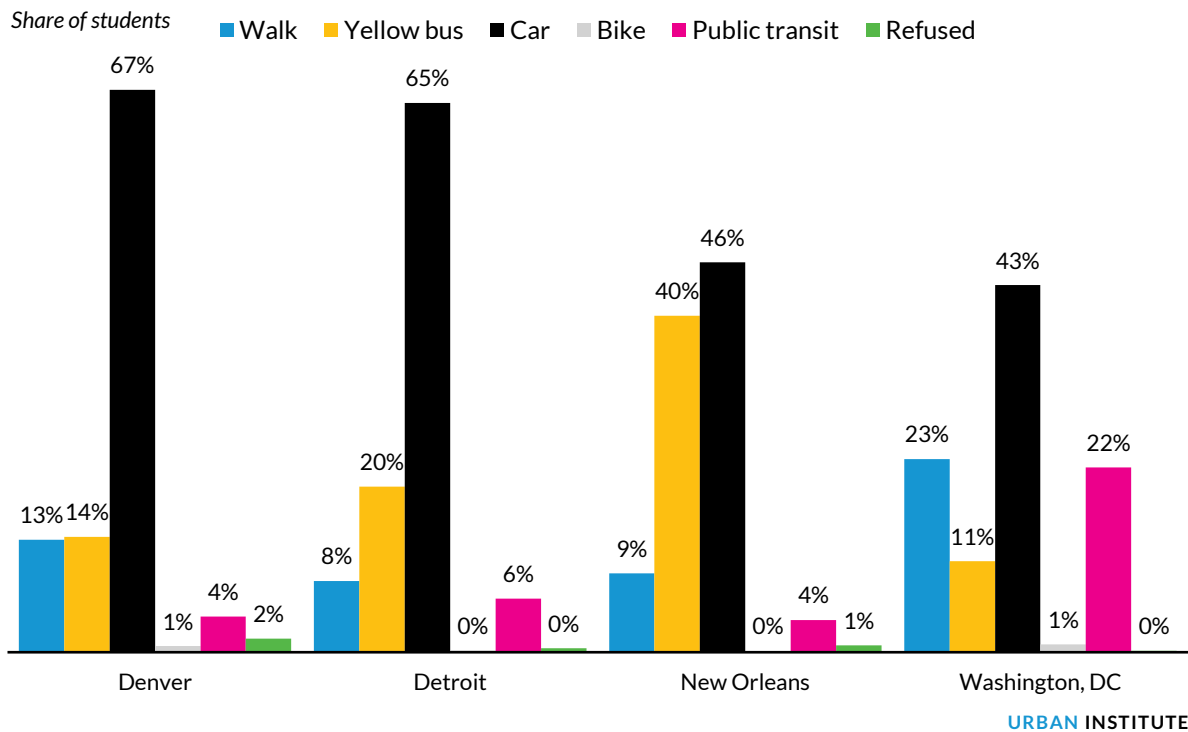
Note: Stippled line indicates line of best fit for data.

Surveys of public school families in four of our five cities show that car travel is the most frequent mode of transportation (figure 7). Car transportation is highest in Denver (67 percent reporting that they usually drive their students to school) and Detroit (65 percent), where publicly provided transportation to a given school tends to be less certain. Car transportation is lower in New Orleans (46 percent), with yellow bus transportation functioning as the second-most common option (40 percent). In Washington, DC, 43 percent of students drive or are driven to school, and 23 percent take public transit. Although parent survey data is unavailable for New York City, about 27 percent of adults in the city commute to work by car (compared with 39 percent in Washington, DC) and 57 percent commute via public transportation (compared with 38 percent in Washington, DC) (Urban Institute Student Transportation Working Group 2017).

FIGURE 7

### Typical Mode of Transportation to School

For students in four of our five study cities



Source: Center on Reinventing Public Education.

Note: Survey responses include parents of children enrolled in any public traditional or charter school in the city.

Despite city-level differences in school transportation mode, we can compare the share of parents who report that transporting students to school is difficult across the four surveyed cities (appendix

figure A.2). Transportation to school is a concern for roughly a quarter of parents across our cities; at the low end, 23 percent of public school parents report transportation concerns in Washington, DC, and, at the high end, 30 percent of parents report concerns in New Orleans.

## Assessing Travel Times to School

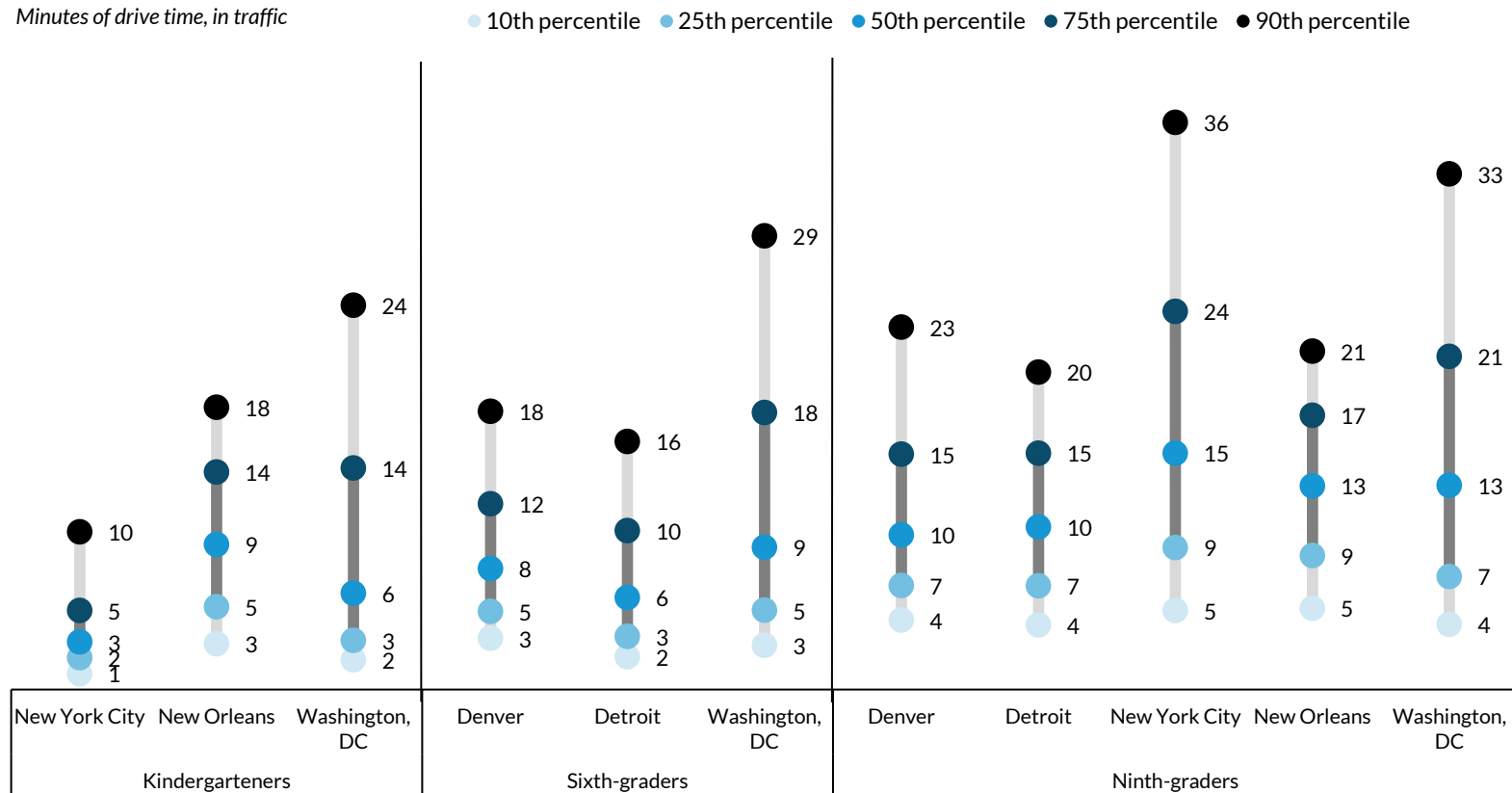
### Grade Level

Travel times to school vary more by grade within a city than they do across cities. Even when students have access to school choices, younger students tend not to travel as far as older students (figure 8). Among the three cities for which we measured travel by kindergartners, the estimated median travel time ranges from 3 to 9 minutes from home (driving with usual traffic). Among sixth-graders, the median travel ranges from 6 to 9 minutes, and among ninth-graders, the range increases to 10 to 15 minutes from home.

These typical travel times mask some variation across students, but the variation is not substantial. For example, 75 percent of New York kindergarteners attend a school that is no more than 5 minutes away from their home by car (90 percent are less than 20 minutes away). In New Orleans and Washington, DC, 75 percent of kindergarten students attend school within 15 minutes of home (90 percent are within 18 to 21 minutes). These numbers are only modestly higher for older students in these cities, with 75 percent of ninth-graders attending school no more than 24 minutes from home across all five cities (and 90 percent no more than 40 minutes from home).

FIGURE 8

## Distribution of Estimated Travel Time to School



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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

These data also indicate that cities that make it easier for students to attend schools farther away do not have a substantially larger share of students traveling great distances. Though New Orleans mandates yellow bus service for nearly all students who live more than a mile from their school and DC only provides transit passes, kindergarteners do not travel much farther to school in New Orleans than in DC. The same is true for ninth-graders in these cities. Of course, there are differences between cities that may account for differences in travel patterns, but these results suggest that there are other factors limiting the degree to which students attend school far from home.

Few students live more than 25 minutes by car from their school, but commuting time increases at least twofold if they travel by public transportation (appendix figure A.2). For kindergarteners, the median time by walking or public transportation ranges from 7 minutes (New York City) to 28 minutes (New Orleans). For sixth-graders, the median time is 20 minutes for students in Detroit and Washington, DC, and 26 minutes in Denver. For high schoolers, the median public transit travel time ranges from 27 minutes (Washington, DC) to 45 minutes (New Orleans).

The larger differences in travel times by public transit across cities likely reflect the differences in the efficiency of the transit systems (relative to driving) documented above. We might not expect all groups of students to have the same travel patterns from home to school. The ability to travel to a school may depend on the resources families can devote to transportation, the enrollment capacity of nearby and distant schools, and many other factors. Given these differences, we also examine travel times by race and ethnicity, income, and school type, to see which students are traveling farthest to school, on average.

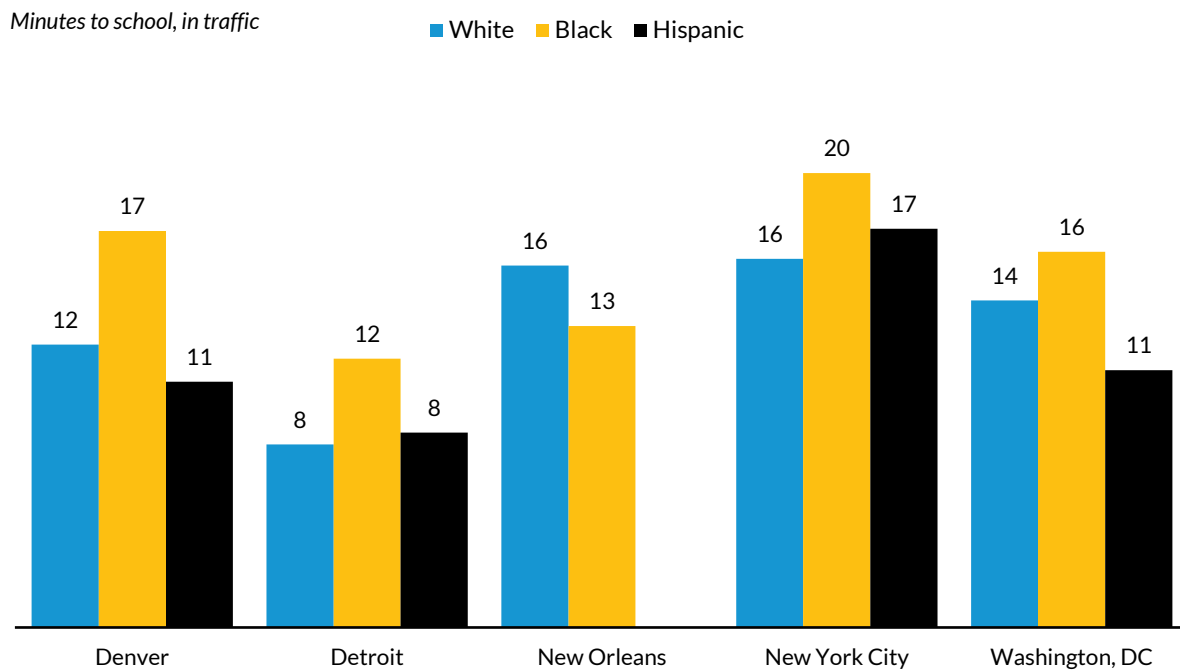
## Race and Ethnicity

In four of our five cities, black high school students attend schools that are 2 to 5 minutes farther away by car, on average, compared with their white peers (figure 9). Hispanic high school students do not travel as far as black students, and, in Denver and Washington, DC, Hispanic students also have shorter driving-time commutes than their white counterparts.

The pattern we observe for high school students holds for students in the lower grades as well. In nearly every grade we observe, black students travel an average of 1 to 5 minutes farther than white students. This difference is not the influence of a few outlier students. Black students at the 25th, median, and 75th percentiles all travel farther relative to their white counterparts at the same percentiles.



FIGURE 9

**Average Driving Time to School for Ninth-Graders by Race and Ethnicity**

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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

**Notes:** New Orleans data come from an imputation of race and ethnicity based on student's home location. See appendix C for more details.

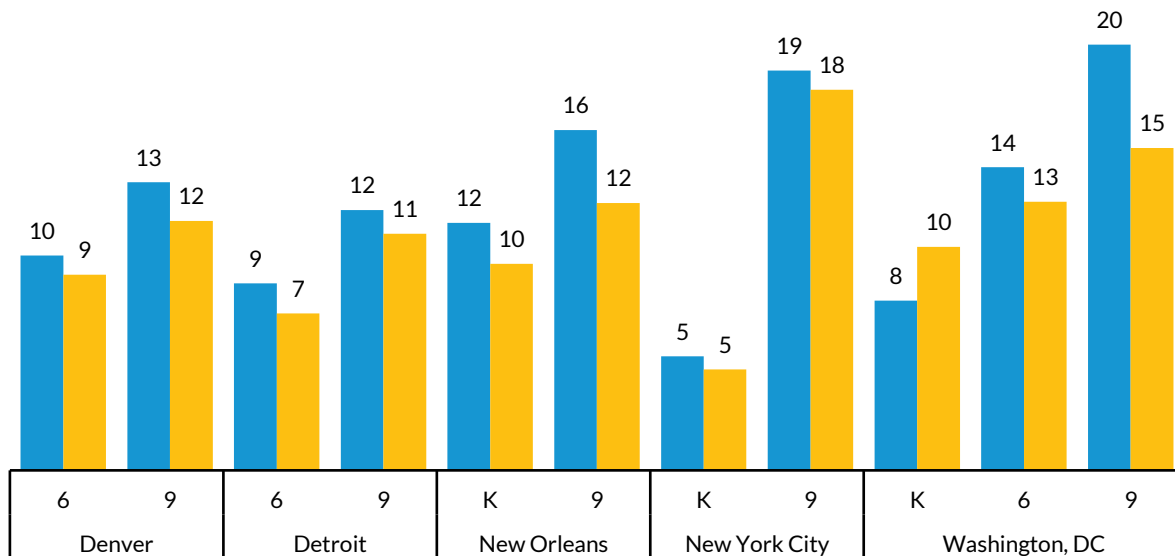
**Income**

When we look at travel time by family income (as measured by receipt of a free or reduced-price lunch), we find that students from low-income families typically do not travel farther than their comparatively advantaged peers. In fact, in nearly every city-grade pair, low-income students face relatively lower travel times (figure 10). Differences by family income between the two groups are generally not as large as the difference between black and white students, but they exist across all five of our cities.

FIGURE 10

**Average Driving Time to School by Income Status***Minutes to school, in traffic*

■ Not low income ■ Low income



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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

**Notes:** Low-income status is defined differently for different cities based on available data; consult the appendix C for further information. New Orleans data come from an imputation of low-income status based on student's home location.

Because black students in these five cities also tend to be students identified as low-income, these results may seem surprising. However, these results reflect the high proportion of students who are classified as low-income in our data (ranging from 75 percent in Denver to 92 percent in New Orleans). Among the minority of students who are not low income, we often observe a reversed pattern by race: black students who are not low income tend to attend distant schools, and white students who are not low income tend to attend schools that are closer. Data from Washington, DC, tabulated by both race and income illustrates this pattern (table 4).

TABLE 4

**Average Travel Times for Black and White Sixth-Grade Students in Washington, DC**

	Not low income	Low income	All
Black	20.8 mins <i>n</i> = 251	12.6 mins <i>n</i> = 3,354	13.2 mins
White	9.6 mins <i>n</i> = 306	12.5 mins <i>n</i> = 350	11.2 mins
All	14.5 mins	12.6 mins	

**Sources:** Analysis of student-level data from the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

## School Type

It is possible that charter school students will travel farther to school than their counterparts in traditional public schools because charters typically admit students without regard to where they live. Additionally, parents may be willing to tolerate a longer commute in exchange for perceived higher academic quality or a diverse student body (Glazerman and Dotter 2017). Demand for charter schools, as measured by student waitlists, is also high in our study cities, particularly in New York City and Washington, DC, so capacity constraints at nearby charter schools could push students to more-distant charter options.

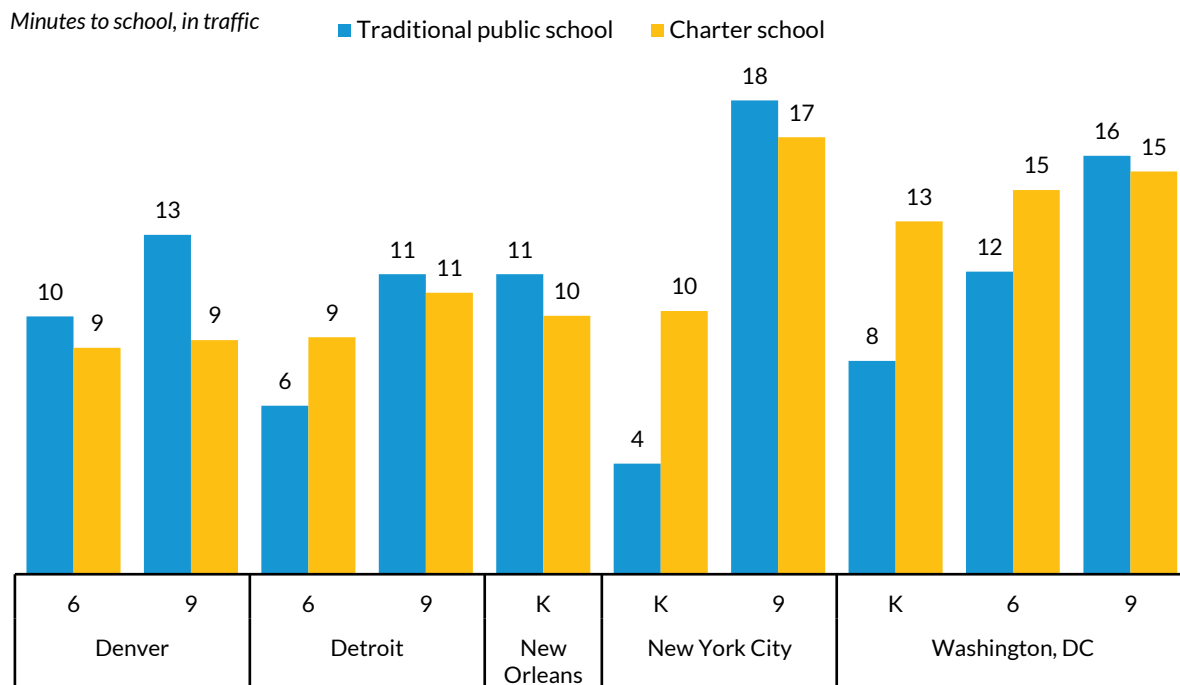
But this may not be true universally. Charter schools are often located in neighborhoods with a large share of students of color and in neighborhoods where traditional public options may be perceived as less desirable by parents (Burdick-Will, Keels, and Schuble 2013; Glomm, Harris, and Lo 2005; Jacobs 2013). Given parental preferences for schools that are nearby (Glazerman and Dotter 2017), we might expect charter schools to draw students from roughly similar distances as traditional public schools. Additionally, traditional public schools may also draw students from outside their attendance zones under intradistrict choice policies.

When we look at travel times by type of school attended, we see diverging patterns by grade level and city. The younger students attending charter schools (those in kindergarten) tend to travel significantly farther from home, compared with their peers in traditional public schools. Students who attend charter school in New York City travel nearly twice as far by car than students who attend traditional public school (10 versus 4 minutes), and the difference in Washington, DC, is also substantial (13 versus 8 minutes). The difference in New Orleans, where there are very few traditional public schools (and no neighborhood-zoned schools), is smaller.

A similar pattern holds for sixth-graders in two of the three cities for which data are available (Detroit and DC, with Denver as the exception). But among ninth-graders, the pattern is reversed: those attending traditional public schools tend to travel as far or farther than those in charter schools (figure 11). The difference is largest in Denver; in the other cities, average travel times are roughly similar between sectors.

In sum, younger students in Detroit, New York City, and Washington, DC, travel farther, on average, to charter schools than traditional public schools, and students in Denver tend to travel farther to traditional public schools. The differences across grade levels may stem, in part, from the great ability and willingness of older students to travel further to school (regardless of sector) and that high schools are often seen as citywide resources that offer specialized programs or vocational training.

FIGURE 11

**Average Driving Time to School by School Type**

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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board.

## Student Travel Patterns

In every city, black students travel farther to school than white or Hispanic students. However, the small proportion of students who are not low income tend to travel slightly farther than their more numerous low-income peers. These differences may be indicative of differences in both preferences and residential location relative to desired schools. We might expect that charter school students travel farther than those who attend traditional public schools, but this is not always the case. This may reflect school siting decisions by charter schools and may also reflect increased student enrollment in nonneighborhood district schools.

When we look at maps of student travel in our five cities (appendix B and interactive maps available at [www.urban.org/research/publication/road-school](http://www.urban.org/research/publication/road-school)), we find that transportation times tend to be unevenly distributed across student populations in neighborhoods across each city. In general, students who are nearer to the edges of our school districts tend to have longer average travel times to school. Students in areas that are separated by natural barriers (such as rivers or public parks) tend to travel farther. Students in the Algiers and New Orleans East neighborhoods in New Orleans are isolated from the main part of the city by the Mississippi River and navigation canals. Students in Wards 7 and 8 in Washington, DC, have to travel across the Anacostia River to get to schools in the central downtown area. In addition, political boundaries, such as district boundaries, can also play a role. For example, students in the Far Northeast neighborhood of Denver are isolated from the rest of the district because of the way district boundaries are drawn.

## Some Students Are Farther from High-Quality Schools

### Defining High-Quality High Schools

In all of our cities, the students who travel the farthest to school are those who travel to high schools. Average travel time ranges from 11 minutes of driving in traffic in Detroit to 18 minutes in New York City. This higher travel time may be a function of high schools having larger enrollments (and therefore fewer locations) as well as the fact that some high schools are designed for specific student interests (such as performance arts or vocational education).

Because of the longer distances that these students must travel, we examined how far ninth-grade students must travel to get to a “high quality” school in each of our five cities. The definition of “high quality” may vary by family and by individual student needs. We thus use several measures of high

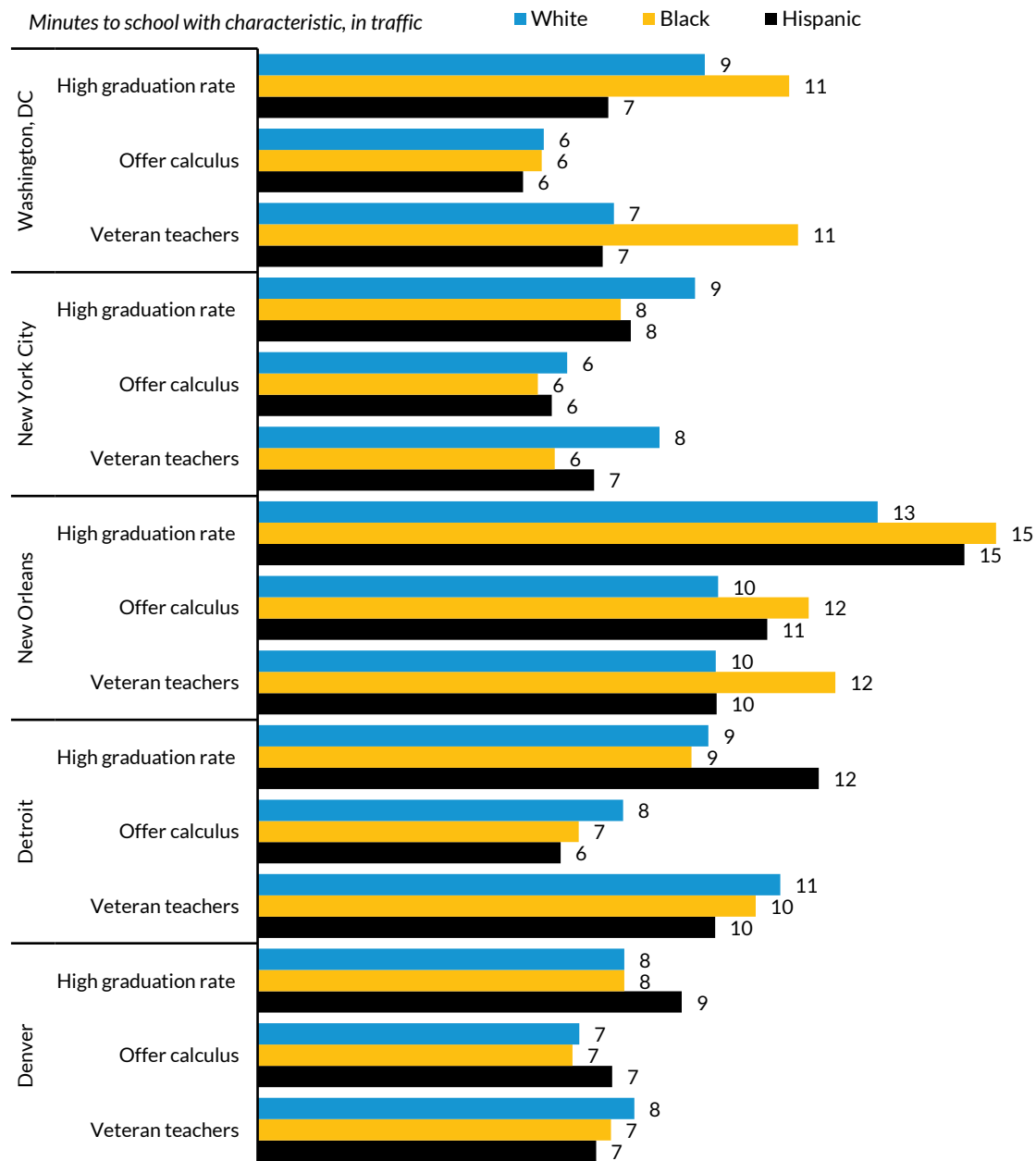
school resources<sup>5</sup> and student outcomes. The first measure assesses how far a student would have to travel to get to a school that has a high (i.e., is in the top quartile) proportion of veteran teachers (teachers who have more than two years of experience). The second measure estimates how far an average student would have to travel to access a city school that offers calculus, an important course for postgraduate success in STEM fields (Tyson et al. 2007). The final measure assesses how far a student would have to travel to reach a school with a high (top quartile) graduation rate.

This analysis is only done for students who have already opted into the public school system (e.g., are not enrolled in private school). Further, these numbers do not account for capacity constraints at schools or other barriers, such as a high school application process or lottery-based enrollment that would keep a student from enrolling in their nearest “quality” school.

### **Distance to High-Quality High Schools**

The data show that average distance to our variously defined high-quality high schools differs substantially across cities and across student demographics (figure 12). For example, in Washington, DC, black ninth-grade students would have to travel an average of 4 minutes farther by car than white or Hispanic student to access a school in the top quartile of veteran teachers. In other cities, such as Denver and Detroit, it is white students who live slightly farther, in terms of driving distance in traffic, from high-quality schools than students of color.

FIGURE 12

**Distance to Quality High School***As defined by three metrics*

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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board and analysis of the 2013–14 data collection of the Office for Civil Rights.

**Notes:** “Veteran teachers” indicates average distance to a school that is in the lowest quartile among city schools in terms of percentage of new teachers (those with one or two years of experience). “Offer calculus” indicates average distance to a school that offers calculus coursework. “High graduation rate” indicates average distance to a school that is in the highest quartile among city schools in terms of high school graduation rate. New Orleans data are based on an imputation of race and ethnicity based on student’s home location. See appendix C for more details.

Our estimates indicate that most ninth-grade students are, on average, about a 10-minute drive from their nearest high-quality school along these measures. Although black students tend to travel farther to school than white students in every city in our analysis, we do not see a similar universal pattern when looking at distance to a high-quality school.

When we count the average number of options available to ninth-grade students within a 10-minute drive, we see large variations by city and some variations by race (appendix table A.4). For example, students in New Orleans have an average of 4 high schools within 10 minutes' drive, students in Washington, DC, and Denver have an average of 6, and those in Detroit and New York City have an average of 12. Black and Hispanic high school students tend to have more nearby school choices, on average, than their white counterparts. For example, black and Hispanic students in Washington, DC, have an average of 8 high schools within 10 minutes' drive in traffic (compared with 5 for white students). In New York City, black students have an average of 14 choices and Hispanic students have an average of 13, relative to 6 for white students.

## Geographic and Choice Contexts Matter

### Choosing to Drive or Take Transit

How far students travel to school reflects both the options that are available to a family and the choices the families make. Most students in our study live less than 15 minutes from their school if they were to drive. We showed, however, that households in neighborhoods with a higher proportion of families in poverty were less likely to own cars.

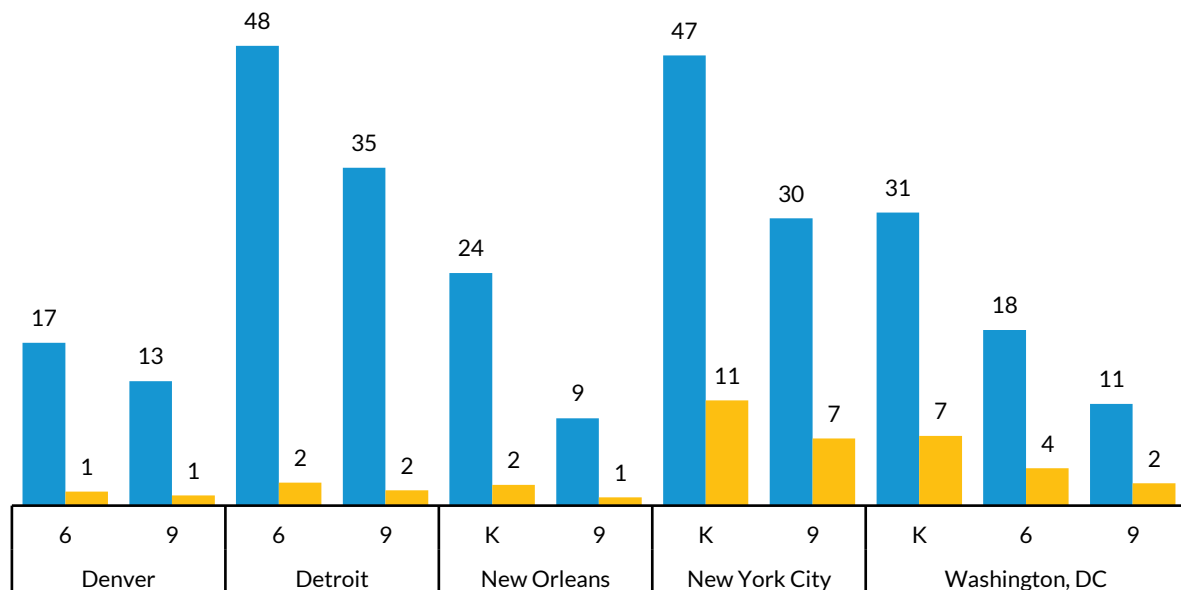
When we look at access to schools within a 15-minute radius, we find that a 15-minute drive garners far more choice than a 15-minute transit ride. In nearly every grade, students have access to 10 or more schools when traveling by car for 15 minutes or less, but typically have access to fewer than 10 schools when traveling for the same amount of time on public transit (figure 13). For example, the average kindergartener in Washington, DC, lives within a 15-minute drive of 31 elementary schools but can only get to 7 schools in that time on public transit.



FIGURE 13

**Number of Schools Available, by Mode of Travel**

Number of schools within 15 minutes ■ Driving with traffic ■ Public transit



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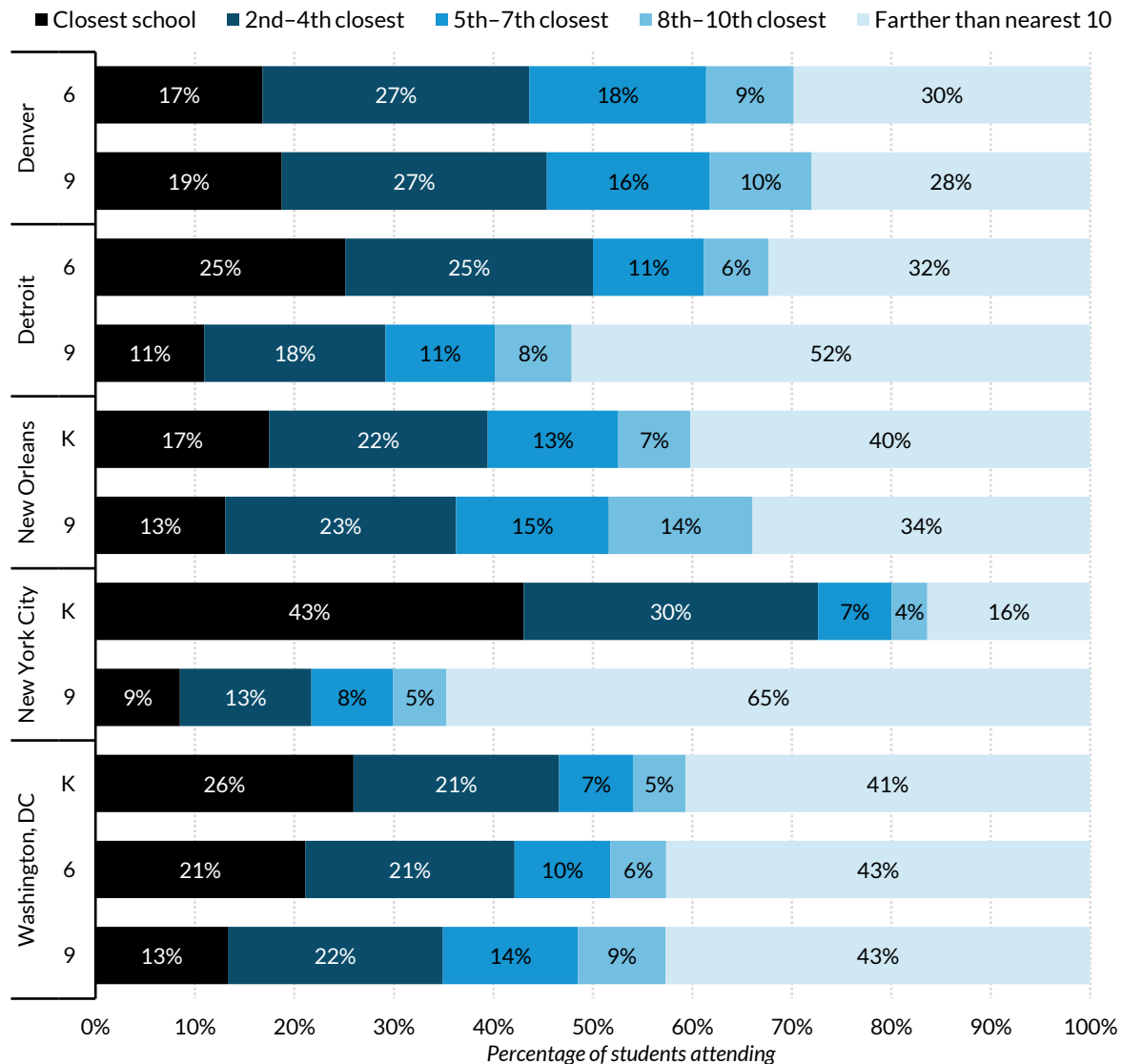
**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, the Washington, DC, Public Charter School Board

These differences in school choice by mode could have implications for equity. If students do not have access to yellow bus service or a family member who can drive them to school, their school choices could be much more restricted. Although students from low-income families tend to have more schools located near their homes, it is unlikely that proximity of schools could completely close the gap in choice for students who do not have reliable access to a car.

**Students Often Bypass Their Nearest School**

Another way to assess student travel to school is to look at whether students are attending their nearest school (as measured by driving time) or whether they are traveling to more-distant schools. In figure 14, we show the share of students who attend their nearest school, who “pass” by one other option, two other options, and so on.

FIGURE 14

**Share of Students Attending Nearest School***As measured by driving time in traffic*

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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, and the Washington, DC, Public Charter School Board.

The results of this analysis show large differences in the likelihood of attending a nearby school by city and grade. Forty-three percent of kindergarteners in New York City attend their nearest elementary school, but just 17 percent of those in New Orleans and 26 percent of those in Washington, DC, do.

In high school, this pattern is reversed; just 35 percent of students in New York City attend one of their 10-nearest school options. A much larger share of high school students in our other cities (from 48 percent in Detroit to 72 percent in Denver) attend one of their 10-nearest schools. Very few high school students attend their nearest high school in any city. Denver has the highest proportion of students attending their nearest school (19 percent), and New York City has the lowest proportion (9 percent).

Though the number of school options within a 15-minute public transit ride is low across our cities, the majority of students in our cities, particularly high school students, attend a school that is not their closest school. In many cases, students travel farther than their 10-nearest school options.

Given that household car ownership is correlated with family poverty in our cities, we also looked at the number of options that are close to students from low-income backgrounds. Similar to our estimates from census data, we find that students from low-income families tend to have the same number, or slightly more, nearby options than students from nonpoor backgrounds. However, we do not see a distinct pattern in selection of nearby schools by income status across our cities (appendix tables A.2–A.4).

## Limitations

Our analysis is subject to some limitations. First, we only examine one year of data for typical entry grades in elementary, middle, and high school. As a result, our analysis may miss changing patterns that could result from students switching schools over the course of a year or as they continue into other grades. For example, students may initially attend a school of choice and then return to their neighborhood school. Further, our data only capture students who are attending public schools in the city. Students who attend private schools, or schools outside the city’s district boundaries, are excluded from the data, so our report does not reflect the travel patterns of or options available to these students.

Second, we do not directly observe the mode of transportation students select. We know roughly how long it would take them to travel to school by car or public transit, but we do not know the mode they use in practice. For cities that offer school buses, we do not know how long these trips take because of the intermediate stops made between the student’s home and school.

Third, we must also consider that students are subject to some level of travel time uncertainty because of heavy traffic, weather, or other factors. If a route is unreliable, our travel time estimates

serve as a lower bound. Because students are expected to arrive at school on time (e.g., the first bell of homeroom), families may also shift toward earlier departures to decrease the probability of arriving late (Noland and Small 1995).

These limitations mean that our analysis is not a precise description of how long it takes students to get to school in each city, but a broad overview of where students attend school relative to where they live and how long it would take them to travel via different modes.

## Conclusions

This study is the first to focus on the issue of transportation from home to school across multiple cities offering substantial school choice. Our analysis identifies similarities in student travel patterns across all five cities, even as their underlying school choice structures, transportation systems, and student population densities differ. This descriptive analysis opens several avenues for future research.

Although we find that student travel times are relatively reasonable on average (lower than 20 minutes driving time in traffic), some students travel long distances to attend public school in their city. It is critical to understand why students travel this far, and if they are selecting schools that provide academic advantages or services above what they could access closer to home. It is unclear how long commutes could potentially affect student outcomes in a given city with school choice. Travel to a high-quality option could yield substantial benefits for the student, but the student could also be at risk for increased lateness or absences because of her commute. If a student feels disconnected from her school community because of distance (e.g., unable to attend after-school activities), she could suffer academically and nonacademically.

An additional subject for further investigation is the set of transportation modes that students are using to get to and from school. Because of data limitations, we do not know whether the students in our sample actually use the transportation options available to them or whether they rely on other methods, such as walking, biking, or being driven by a parent. Understanding how students use different modes to get to school (and how often they rely on a secondary transportation mode, such as using a taxi or ride-share service with their parents if they miss their bus) would illuminate issues of safety and reliability in student transportation. In particular, the issue of transportation mode may be important for students who live relatively close to school, and who may therefore benefit from having a safe walking or bicycling route to school.

Finally, this report reveals some of the hidden trade-offs inherent in embracing school choice in a city. Just as there are inequalities and differences in students' academic performance across these cities, we see parallel inequalities and differences in the distances that students travel and in the availability of nearby school options. Experiments in targeted policy interventions, such as implementing transportation vouchers for low-income parents of very young students, using yellow buses on circulating routes (similar to Denver's Success Express), or changing the way that school siting decisions are made, might yield pragmatic solutions that further level the playing field for a city's most disadvantaged students.

# Appendix A. Data Tables and Charts

TABLE A.1A

## Estimates of Student Location Near Schools Using Public Data

As measured by estimates from Census and the American Community Survey (ACS), for five study cities

	Kindergarten						
	Overall	White	Black	Hisp	Asian	NonPov	Pov
Share of children with at least one school in their neighborhood (census tract)							
Denver	59%	58%	56%	60%	56%	61%	56%
Detroit	37%	51%	34%	53%	53%	36%	40%
New Orleans	21%	27%	19%	26%	41%	24%	18%
New York City	34%	31%	36%	36%	28%	33%	38%
Washington, DC	48%	44%	50%	49%	38%	51%	55%
Average crow-flies miles to nearest school							
Denver	0.4	0.5	0.4	0.4	0.5	0.4	0.4
Detroit	0.4	0.3	0.4	0.3	0.3	0.4	0.4
New Orleans	0.7	0.6	0.7	0.6	0.6	0.7	0.7
New York City	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Washington, DC	0.3	0.4	0.3	0.2	0.3	0.3	0.2
Number of schools within one mile (crow flies)							
Denver	3.4	2.8	3.4	3.8	2.9	3.2	3.8
Detroit	3.4	4.2	3.1	4.6	6.6	3.4	3.4
New Orleans	2.1	2.5	2.0	2.2	1.3	1.9	2.1
New York City	13.9	10.6	16.2	16.1	10.4	12.6	16.6
Washington, DC	8.1	5.2	8.5	10.7	7.4	7.8	8.5

**Sources:** Urban Institute analysis of data from 2011–15 ACS, 2010 Census, and 2013–14 Department of Education Common Core of Data.

**Note:** Hisp = Hispanic; Pov = students in poverty; NonPov = students not in poverty.

TABLE A.1B

	Sixth Grade						
	Overall	White	Black	Hisp	Asian	NonPov	Pov
Share of children with at least one school in their neighborhood (census tract)							
Denver	33%	35%	35%	32%	36%	38%	26%
Detroit	33%	42%	31%	43%	61%	33%	35%
New Orleans	22%	25%	21%	25%	34%	25%	19%
New York City	22%	19%	25%	24%	17%	21%	25%
Washington, DC	28%	12%	30%	32%	21%	29%	33%
Average crow-flies miles to nearest school							
Denver	0.7	0.7	0.6	0.7	0.7	0.7	0.7
Detroit	0.5	0.4	0.5	0.4	0.3	0.5	0.4

Sixth Grade							
	Overall	White	Black	Hisp	Asian	NonPov	Pov
New Orleans	0.6	0.7	0.6	0.6	0.6	0.6	0.6
New York City	0.3	0.4	0.3	0.3	0.4	0.4	0.3
Washington, DC	0.5	0.9	0.4	0.4	0.6	0.5	0.4
<b>Number of schools within one mile (crow flies)</b>							
Denver	1.9	1.5	2.1	2.0	1.9	1.8	2.1
Detroit	3.0	3.5	2.9	3.6	7.1	3.0	3.2
New Orleans	1.9	2.1	1.9	2.1	1.2	1.9	1.9
New York City	10.4	6.4	13.2	12.7	6.1	9.2	13.1
Washington, DC	4.4	1.9	4.7	6.5	3.7	4.3	4.2

**Sources:** Urban Institute analysis of data from 2011–15 ACS, 2010 Census, and 2013–14 Department of Education Common Core of Data.

**Note:** Hisp = Hispanic; Pov = students in poverty; NonPov = students not in poverty.

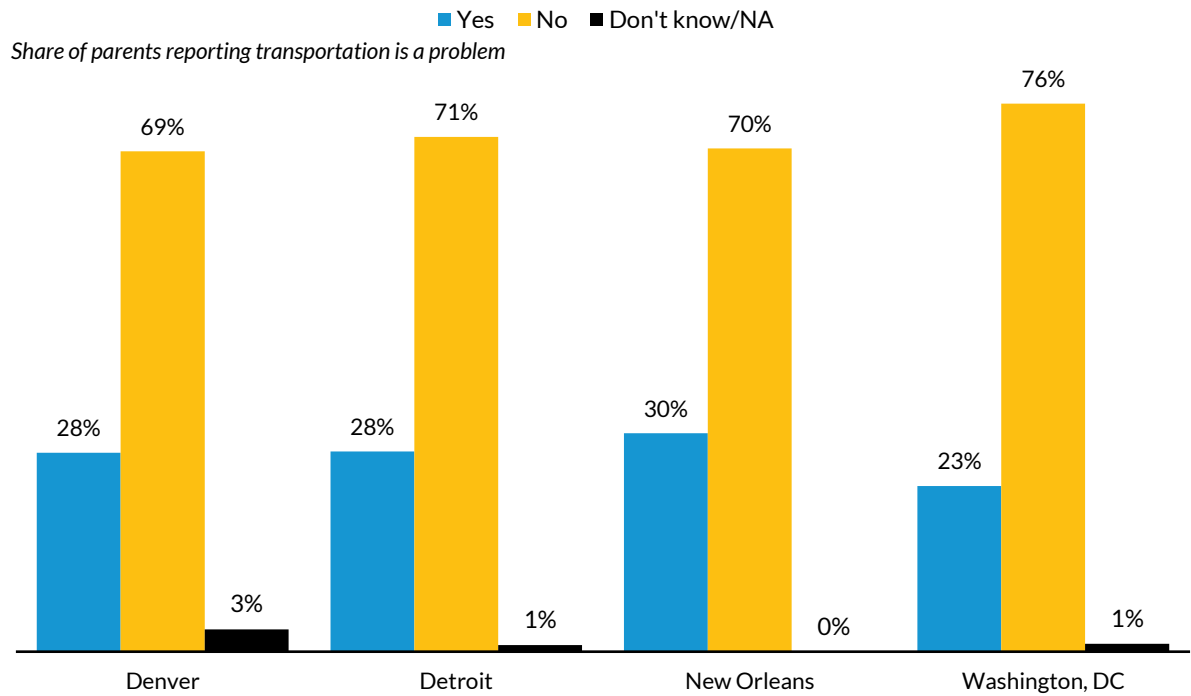
TABLE A.1C

Ninth Grade							
	Overall	White	Black	Hisp	Asian	NonPov	Pov
<b>Share of children with at least one school in their neighborhood (census tract)</b>							
Denver	22%	16%	26%	24%	22%	23%	23%
Detroit	14%	23%	13%	29%	4%	15%	15%
New Orleans	10%	12%	9%	10%	16%	11%	10%
New York City	13%	9%	16%	15%	10%	13%	14%
Washington, DC	23%	10%	25%	21%	16%	20%	24%
<b>Average crow-flies miles to nearest school</b>							
Denver	0.9	1.1	0.8	0.9	1.0	1.0	0.9
Detroit	0.8	0.6	0.8	0.5	0.5	0.7	0.7
New Orleans	1.0	1.1	0.9	1.0	0.8	1.0	0.9
New York City	0.5	0.6	0.4	0.4	0.5	0.5	0.4
Washington, DC	0.6	1.0	0.5	0.5	0.7	0.6	0.5
<b>Number of schools within one mile (crow flies)</b>							
Denver	1.6	1.0	1.8	1.8	1.4	1.4	1.9
Detroit	1.7	2.1	1.5	3.0	2.6	1.7	1.9
New Orleans	1.0	1.2	1.0	1.1	0.8	1.0	1.0
New York City	9.0	5.2	10.8	11.2	5.6	8.1	11.2
Washington, DC	3.2	1.2	3.3	5.0	3.0	3.0	3.2

**Sources:** Urban Institute analysis of data from 2011–15 ACS, 2010 Census, and 2013–14 Department of Education Common Core of Data.

**Note:** Hisp = Hispanic; Pov = students in poverty; NonPov = students not in poverty.

FIGURE A.1

**Difficulty Getting to Transportation to School***For parents in four of our five study cities*

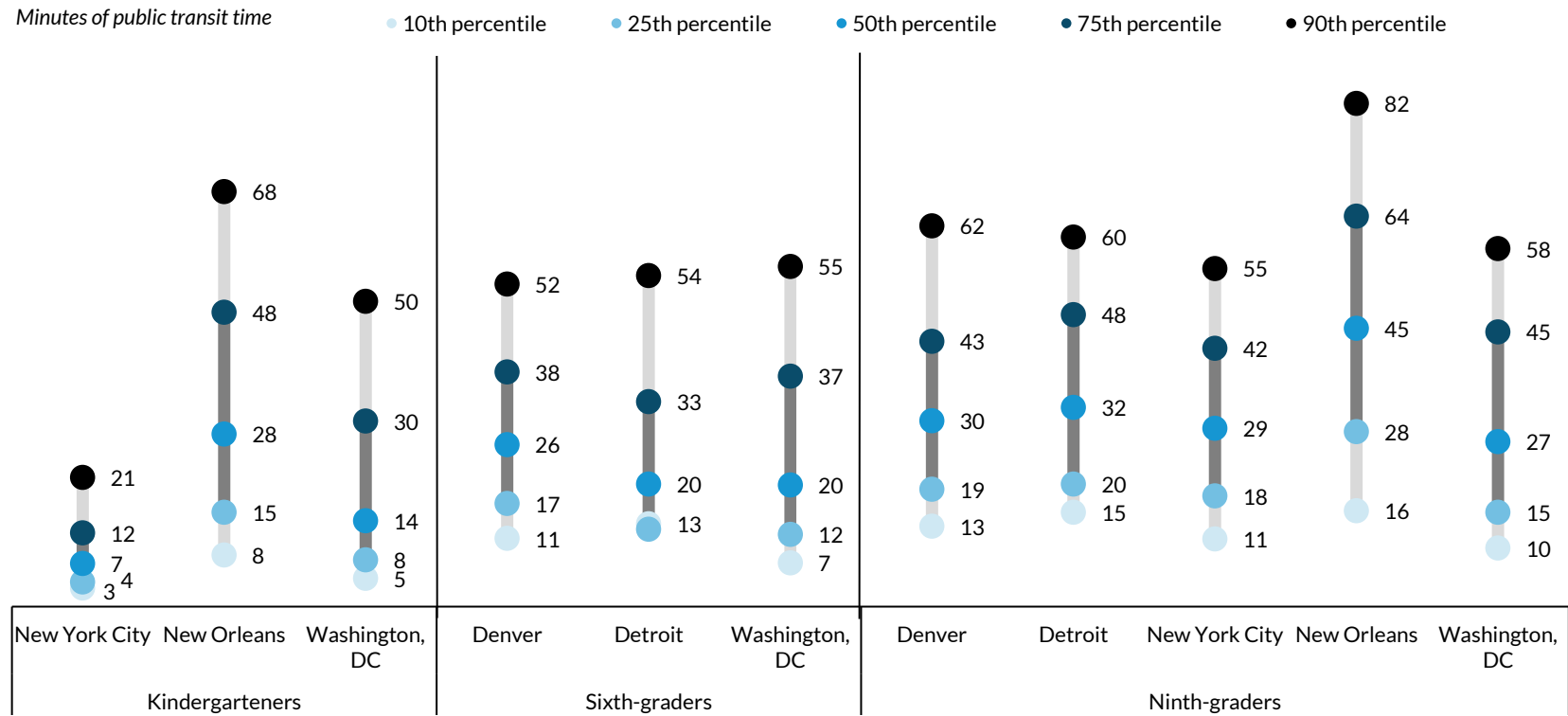
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Source: Center on Reinventing Public Education.



FIGURE A.2

## Distribution of Estimated Travel Time to School



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**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, and the Washington, DC, Public Charter School Board.

TABLE A.2

**Descriptive Data for Kindergarteners***For three of our five study cities*

	Overall	White	Black	Hisp	Asian	NonLow	LowInc	TPS	Charter
<b>Sample size</b>									
New Orleans	2,592	161	2409	†	†	139	1538	103	2489
New York City	70,708	11,811	17,446	28,501	11,276	19,359	51,349	62,653	8,055
Washington, DC	7,478	1,548	5,194	363	121	1,069	6,409	4,750	2,728
<b>Average driving duration (minutes, in traffic)</b>									
New Orleans	9.9	8.9	9.9	†	†	11.2	9.1	9.0	9.4
New York City	5.0	4.7	5.9	4.5	4.2	5.3	4.7	4.2	10.0
Washington, DC	10.1	6.7	11.1	11.2	7.1	7.9	10.4	8.1	13.4
<b>Share of students attending nearest school</b>									
New Orleans	17%	22%	17%	†	†	11%	16%	19%	17%
New York City	43%	52%	33%	42%	54%	46%	42%	48%	7%
Washington, DC	26%	43%	21%	6%	45%	54%	21%	36%	8%
<b>Average number of schools within 10 minutes of driving in traffic</b>									
New Orleans	9	10	9	†	†	8	10	10	9
New York City	11	13	25	22	15	16	22		
Washington, DC	11	17	19	24	14	13	20	18	20

**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, and the Washington, DC, Public Charter School Board.

**Notes:** Hisp=Hispanic; LowInc = students from low-income families; NonLow = students not from low-income families. Low-income status is defined differently for different cities based on available data. New Orleans data come from an imputation of race and ethnicity based on student's home location. See appendix C for more details.

† = Sample does not meet reporting standards.

TABLE A.3

**Descriptive Data for Sixth-Grade Students***For three of our five study cities*

	Overall	White	Black	Hisp	Asian	NonLow	LowInc	TPS	Charter
<b>Sample size</b>									
Denver	4,462	1,001	577	2,564	†	1,161	3,301	2,616	1,846
Detroit	7,252	237	6,111	763	84	812	6,440	4,360	2,892
Washington, DC	4,658	641	3,506	309	80	619	4,039	2,830	1,828
<b>Average driving duration (minutes, in traffic)</b>									
Denver	9	10.1	10.8	8.7	†	10	9.1	9.8	8.6
Detroit	7	5	7.6	6.9	6	8.7	7.3	6.4	9.0
Washington, DC	13	11.2	13.2	10.3	11.6	14.1	12.5	11.5	14.6
<b>Share of students attending nearest school</b>									
Denver	17%	16%	12%	18%	†	17%	17%	20%	13%
Detroit	25%	43%	25%	16%	57%	20%	26%	29%	19%

	Overall	White	Black	Hisp	Asian	NonLow	LowInc	TPS	Charter
Washington, DC	21%	36%	19%	13%	30%	34%	19%	28%	10%
<b>Average number of schools within 10 minutes of driving in traffic</b>									
Denver	8	7	8	7	†	7	8	7	8
Detroit	17	13	18	13	14	17	17	17	17
Washington, DC	9	10	11	17	9	9	11	10	12

**Sources:** Analysis of student-level data from Denver Public Schools, the Michigan Department of Education, the Center for Educational Performance and Information, the Louisiana Recovery School District, the New York City Department of Education, and the District of Columbia Public Schools, and the Washington, DC, Public Charter School Board.

**Notes:** Hisp = Hispanic; LowInc = students from low-income families; NonLow = students not from low-income families. Low-income status is defined differently for different cities based on available data. See appendix C for more details.

† = Sample does not meet reporting standards.

TABLE A.4

### Descriptive Data for Ninth-Grade Students

For our five study cities

	Overall	White	Black	Hisp	Asian	NonLow	LowInc	TPS	Charter
<b>Sample size</b>									
Denver	3,103	568	416	1,903	†	712	2,391	2,383	720
Detroit	7,000	261	5,969	628	111	1,158	5,842	4,962	2,038
New Orleans	2,130	111	1,994	†	†	90	1,175	†	†
New York City	75,320	9,050	22,480	31,568	11,076	17,711	57,609	71,269	4,051
Washington, DC	5,994	728	4,807	234	71	856	5,138	4,298	1,696
<b>Average driving duration (minutes, in traffic)</b>									
Denver	12.0	12.2	17.1	10.6	†	13.4	11.6	12.9	8.9
Detroit	11.0	7.9	11.6	8.4	11.6	12.1	11.0	11.4	10.7
New Orleans	13.2	15.6	13.0	†	†	15.8	12.4	†	†
New York City	18.0	15.9	19.6	17.2	18.2	18.6	17.7	18.0	16.6
Washington, DC	16.0	14.1	16.2	11.1	14.0	19.8	15.0	15.9	15.3
<b>Share of students attending nearest school</b>									
Denver	19%	27%	10%	19%	†	17%	24%	18%	21%
Detroit	11%	32%	9%	17%	18%	8%	11%	9%	16%
New Orleans	13%	4%	14%	†	†	12%	13%	†	†
New York City	9%	19%	5%	7%	12%	11%	8%	9%	6%
Washington, DC	11%	18%	9%	17%	25%	11%	11%	10%	11%
<b>Average number of schools within 10 minutes of driving in traffic</b>									
Denver	6	5	5	6	†	5	6	6	6
Detroit	12	10	11	14	7	11	11	11	11
New Orleans	4	3	4	†	†	3	4	†	†
New York City	12	6	14	13	7	3	4		
Washington, DC	6	5	8	8	6	6	8	8	8

**Source:** Urban Institute analysis of student-level data.

**Note:** Hisp = Hispanic; LowInc = Students from low-income families; NonLow = Students not from low-income families. Low-income status is defined differently for different cities based on available data. New Orleans data come from an imputation of race and ethnicity based on student's home location. See appendix C for more details.

† = Sample does not meet reporting standards.

## Appendix B. City Maps

FIGURE B.1

Denver's Average Driving Times for Ninth-Grade Students

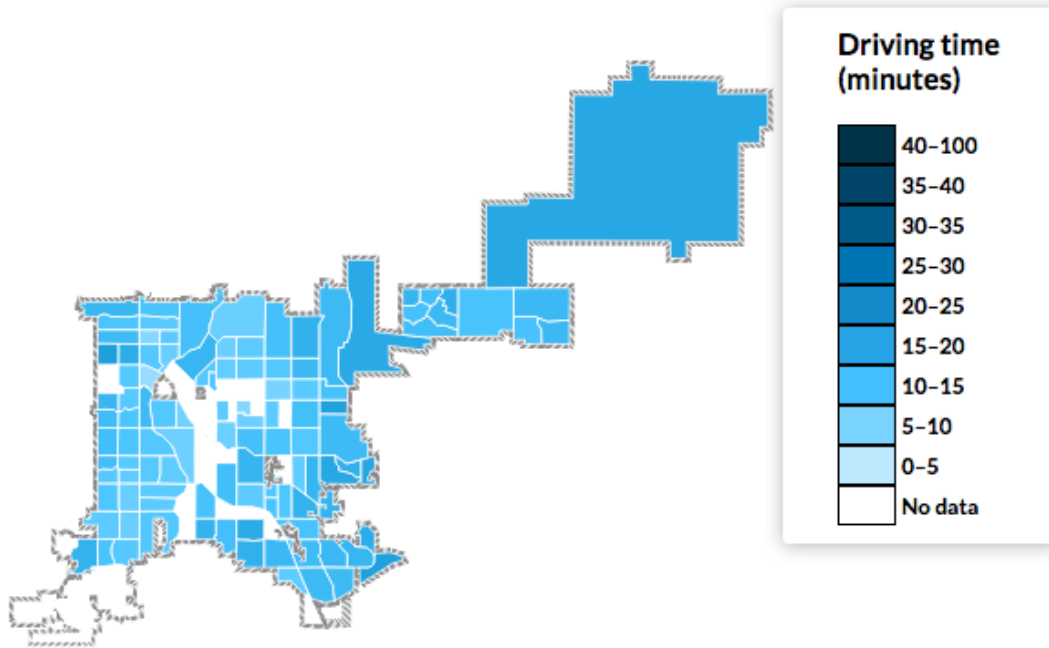


FIGURE B.2

Detroit's Average Driving Times for Ninth-Grade Students

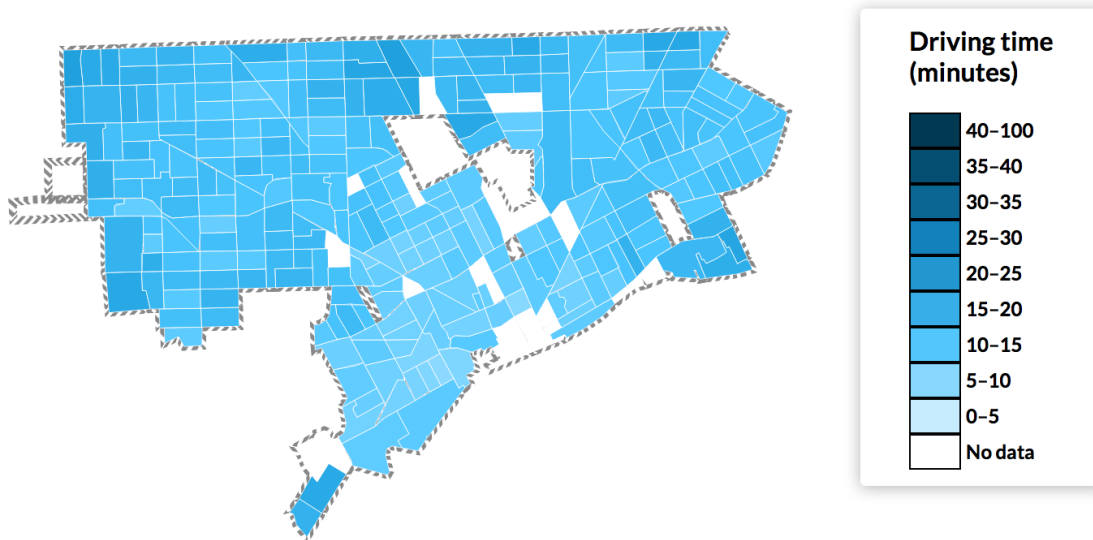


FIGURE B.3

New Orleans's Average Driving Times for Ninth-Grade Students

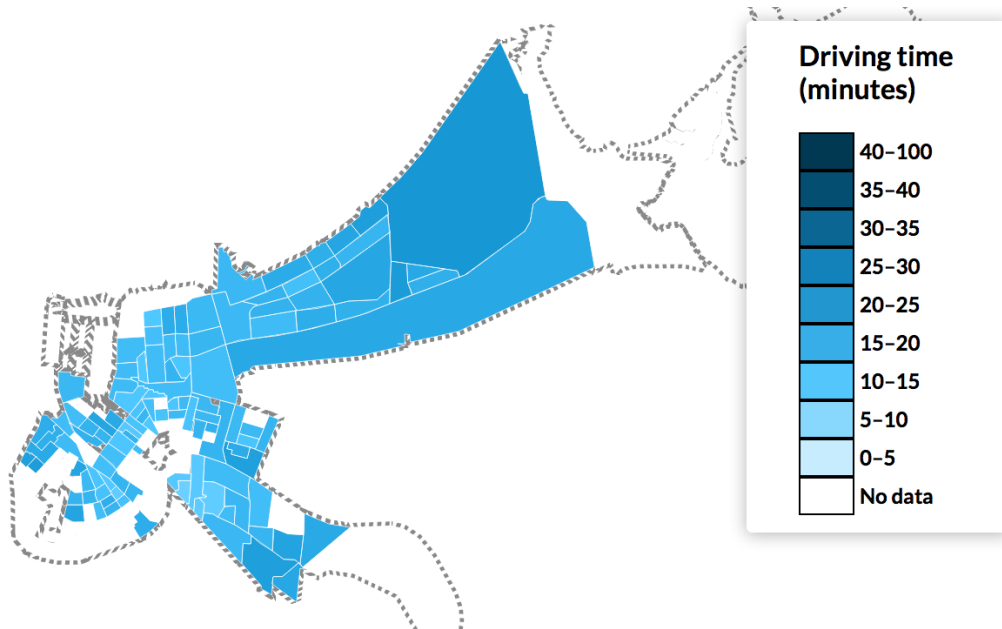


FIGURE B.4

New York City's Average Driving Times for Ninth-Grade Students

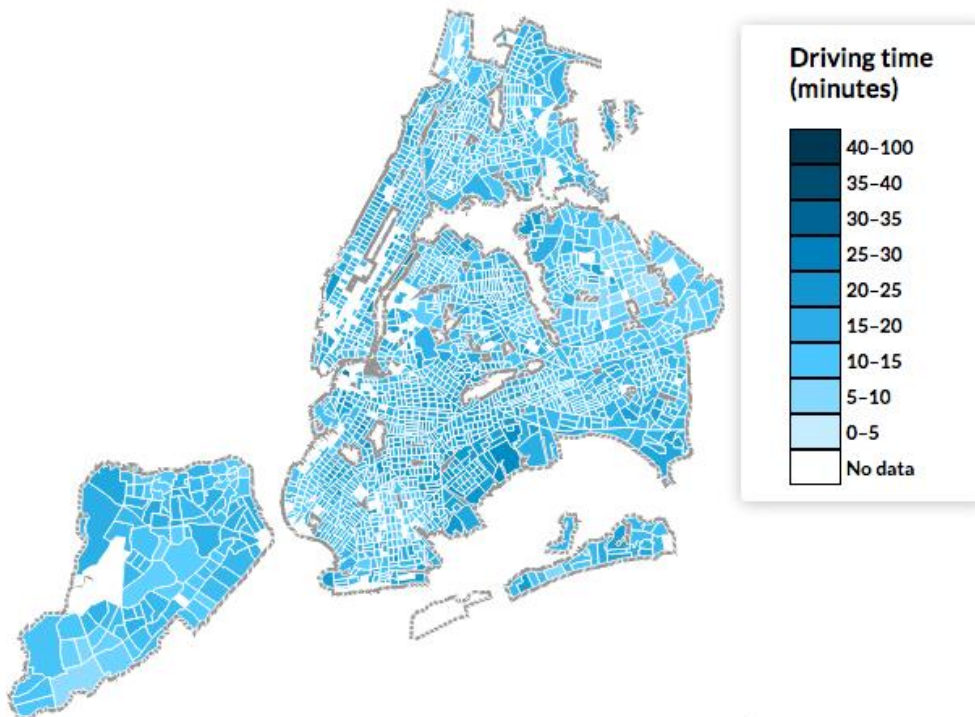
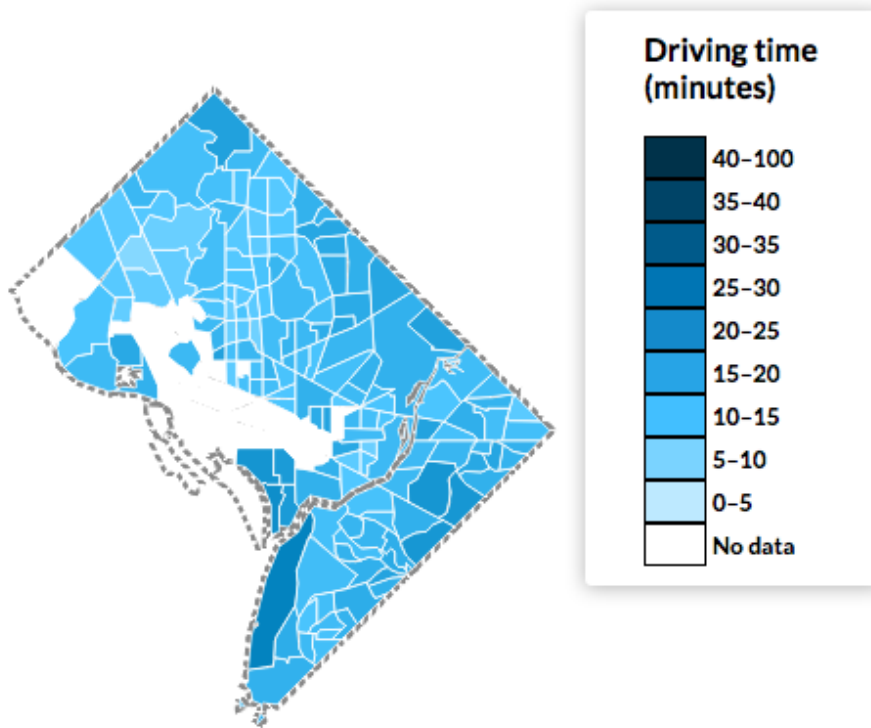


FIGURE B.5

Washington, DC's, Average Driving Transportation Times for Ninth-Grade Students



# Appendix C. City Methodologies

## Denver

We link administrative data from Denver Public Schools (DPS) with information about the region's public transit system. The data from DPS include a record for every student whose parent submitted a school choice application in the spring of 2014 for entrance into the sixth or ninth grade and whose application contains a valid (nonmissing) home address. These data include information about students' race and ethnicity, family income (i.e., free or reduced-price lunch status), special education and English language learner status, and gender, as well as the school they currently attend and the schools ranked by their family on their school choice applications.

School-level data come from a variety of sources: (1) geographic and programmatic (e.g., whether a school is a charter school) information comes from the US Department of Education's Common Core of data; (2) four-year graduation rates for the 2013–14 school year from the CO Department of Education. In total, our data consisted of residential and demographic information for roughly 8,000 students. We geocoded students' residential addresses to 2010 Census blocks. We matched these students to every public school in the district that was open in the 2014–15 school year, contained the student's next grade level, and made no obvious restrictions to their student body (for example, boys were not matched to an all-girls school). Our final dataset contained about 460,000 student-school records.

## Detroit

Our sample of sixth and ninth-grade students is from the 2013–14 school years and is sourced from the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI). We restrict the sample to students who live within the boundary of Detroit Public Schools (DPS) and attended a traditional public school or a charter school within the district boundaries of DPS. If student appears multiple times in the dataset in one year because of multiple home addresses or schools attended, we use first observation in the dataset. We did not have information on which school the student attended first.

For distances within a 2-mile radius (as the “crow flies”), drive time was calculated from the center of each students’ home census block to the center of each school census block. For distances further than 2 miles, distance was calculated from the center of each students’ home census tract to the center school census tract.

## Disclaimer

This research result used data collected and maintained by MDE and/or CEPI. Results, information and opinions solely represent the analysis, information, and opinions of the author(s) and are not endorsed by, or reflect the views or positions of, grantors, MDE and CEPI or any employee thereof.

## New Orleans

Data for student-level New Orleans analyses come from the Recovery School District (RSD) and Louisiana Department of Education (LDOE). We report data for kindergarteners and ninth-grade students, the transition grades for most New Orleans schools, who applied for schools through the city’s unified enrollment system, the OneApp, for the 2013–14 school year. Students are assumed to have enrolled at the school they were assigned to in the final round of OneApp assignment.

State administrators report that 79 percent of New Orleans public schools were available in the OneApp for the 2013–14 year (EnrollNOLA 2016). All OneApp schools in 2013–14 offered open enrollment to students across the city, with no selective admissions. Notably, several of the city’s highest-performing, highest-demand public schools (both with and without admissions requirements) were not available in the OneApp at that time. Private schools that participated in the state voucher program, the Louisiana Scholarship Program (LSP), also appeared in the OneApp. The students who applied for private schools through the OneApp are included in these analyses (e.g., in identifying where students live in the city). The private schools are not included in these analyses (e.g., in identifying where schools operate in the city). The OneApp was the primary access point for public schools, so the OneApp data used for this report contain observations for the vast majority of students who enrolled in public schools. Students who enrolled in an LSP-participating private school without receiving a voucher themselves might not have participated in the OneApp and therefore might not appear in these data.



Our OneApp data do not include information about students' race, ethnicity, or family income. For the subgroup analyses in this report, the New Orleans data are disaggregated based on the characteristics of the census block groups in which students live. Census block group information comes from the five-year estimates of the 2011–15 American Community Survey (ACS). For race and ethnicity, we disaggregate by whether the plurality of a census block's population is black (non-Hispanic/Latino), white (non-Hispanic/Latino), Asian (non-Hispanic/Latino), or Hispanic/Latino. For family income, we calculated the percentage of each census block group's population that had received benefits from the Supplemental Nutrition Assistance Program (SNAP, also known as food stamps) in the past 12 months. We then divided all Louisiana census block groups into quartiles. We disaggregate results by these quartiles based on where students lived. For some students, characteristics of their block group (e.g., the plurality race and ethnicity) likely does not match the student's characteristics (e.g., the student race and ethnicity).

In the analyses that disaggregate by charter and traditional school, we classify Orleans Parish School Board (OPSB) direct-run schools ( $n = 6$ ) and RSD direct-run schools ( $n = 2$ ) as traditional. OPSB direct-run schools were managed by the local school board. RSD schools were managed, temporarily, by the RSD (a state agency). Both OPSB and RSD direct-run schools were schools of choice (i.e., they did not have neighborhood attendance zones or selective admission) but generally had less school-level autonomy than the city's charter schools.

## New York City

This analysis draws on several administrative data sources from the NYC Department of Education (NYCDOE): (1) residential census blocks, demographics, and programmatic information for kindergarten and ninth-grade students enrolled in NYC public schools; and (2) addresses, census blocks, descriptive characteristics, and performance measures for all NYC public schools. All data are from the 2013–14 school year.

Residential census blocks were identified using Geosupport Desktop Edition software from the NYC Department of City Planning. This software is the official geocoder of the city government and is generally better at parsing unusual NYC addresses than other available packages. Students in these analyses include charter school students but exclude students enrolled in alternative schools or schools that exclusively serve students with disabilities (District 79 and 75 schools, respectively). We use ArcGIS and census block boundary files to assign geocoded addresses to 2010 Census block IDs. The

162,625 unique students across both grades were located in 23,804 unique census blocks (19,845 for kindergarten and 19,863 for ninth grade, not mutually exclusive).

Enrollment data from the NYCDOE Demographic Snapshot are used to identify schools offering either kindergarten or ninth grade. Schools in these analyses again exclude alternative and special education schools. School addresses from March 2014 are obtained from the NYCDOE Location Code Generation Management System (LCGMS). Using an online geocoding tool, we obtain spatial coordinates (latitude and longitude) and 2010 Census block IDs for the 1,406 unique schools serving kindergarten or ninth grade. These schools are located in 1,056 unique census blocks (821 for kindergarten and 306 for ninth grade, not mutually exclusive).

Calculating travel time between all unique home and school block combinations would be computationally intensive and expensive. (There are roughly 25 million unique block pairs for the two grades combined.) To reduce the scope of this analysis, we first eliminate kindergarten block pairs in different boroughs. This decision is justified given that most kindergarten students (97.8 percent) in NYC attend their residentially zoned school in the same borough. Eliminating pairs in different boroughs significantly reduces the total number of block pairs from 25.1 to 9.7 million. We do not make this restriction for ninth-graders since many attend a school outside of their borough of residence.

To reduce the number of combinations further, we calculate the straight-line distance between centroids of each student and school block. If the straight-line distance is more than 5 miles (for kindergarten pairs) or more than 10 miles (for ninth-grade pairs), the block pair is eliminated, under the assumption that students in these grades would not travel that far to school. (The 95th percentile of straight-line distance between home and current school for ninth-graders is 9 miles. For kindergarten, it is 2.2 miles. Thus, trips this far are very rare in the data.) This further reduced the total number of block pairs from 9.7 to 5.7 million.

For the remaining block pairs, we calculate travel time between student and school using block centroids when the straight-line distance was less than 1 mile. When the straight-line distance is 1 mile or more, we calculate travel time between student and school blocks using tract centroids. Because tracts encompass a larger land area than blocks, this markedly reduces the number of required calculations. For a random sample of 500 block pairs, we compare the travel time calculated using block and tract centroids. For driving time, the correlation was 0.987. For public transit time, the correlation was 0.981.

## Washington, DC

Data for student-level Washington, DC, analyses come from the District of Columbia Public Schools (DCPS) and from the District of Columbia Public Charter School Board (PCSB). We report data for all kindergarteners, sixth-graders, and ninth-graders who were enrolled in either traditional or charter schools in DC in the 2013–14 school year.

In cases where students are enrolled in more than one school over the course of the school year, we record the first enrollment, by entry date, as the enrollment for which we calculate travel distance and times. We exclude students who are recorded as attending schools outside the district or who report non-DC addresses. A very small number of students (fewer than 10) were recorded as enrolled in a school that does not offer the grade that they are enrolled in; these students were also excluded from the analysis.

A student's low-income status is recorded as receiving free or reduced-price lunch in the 2013–2014 enrollment year. A student is recorded as a charter school student if their first recorded enrollment is a charter school.

# Notes

1. Digest of Education Statistics 2015, table 206.40.
2. Max Larkin, “After BPS Reschedules School Start Times by Computer, Parents Push Back,” *WBUR* December 10, 2017, <http://www.wbur.org/edify/2017/12/09/bps-reschedules-start-times-parents-push-back>.
3. Although not a focus of our study (we only have access to data on enrollment in public schools), two of our cities also have publicly funded private-school choice. Since 2004, low-income students living in Washington, DC, have been able to access private schools through vouchers provided by the federally funded DC Opportunity Scholarship Program. Through state programs, low-income New Orleans students may have access to private schools through vouchers provided through the Louisiana Scholarship program (created in 2008) and via donated scholarships through the Louisiana Tuition Donation Rebate Program (starting in 2012). In addition, all families in Louisiana are able to claim tax deductions for private school expenses under the Elementary and Secondary School Tuition Deduction program (enacted in 2008).
4. In Detroit and New York City, distant schools were measured using tract-to-tract centroids, to reduce the number of calculations required. See appendix for more details on each city.
5. High school resources are as reported from the US Department of Education’s Office for Civil Rights Data Collection from 2013–14.

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## Inaugural road closures: What's closed when?

**Dave Dildine** | ddildine@wtop.com

January 18, 2017, 5:56 AM

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WASHINGTON — The road closures for the inaugural events are expected to have a major impact on travel throughout the District.

Unlike the lead-up to President Barack Obama's inaugurations, drivers will not have a weekend to acclimate to the closures for President-elect Donald Trump. Instead, roadblocks will go into place on downtown streets in the middle of a busy workweek.

[See the full list of road closures and parking restrictions.](#)

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Travel will become increasingly difficult on Thursday as road closures are put into place throughout the day. Long delays are possible on routes near and along the Potomac River with many routes around the Lincoln Memorial off-limits. The master transportation plan compiled by the Presidential Inaugural Subcommittees lists more than 200 road, ramp and bridge closures scheduled to take effect on between Wednesday and Friday. The timing for parking restrictions and road closures is summarized below:

- **Wednesday 12 p.m.** — Some parking restrictions take effect downtown.
- **Thursday 3 a.m.** — Closures begin along Pennsylvania Avenue parade route.
- **Thursday 4 a.m.** — Closures begin at Memorial Bridge.
- **Thursday 7 a.m.** — All parking restrictions (ticketing, towing) take effect downtown.
- **Thursday 10 a.m.** — Constitution Avenue closes east of Roosevelt Bridge.
- **Thursday 2 p.m.** — Closures begin around Union Station.
- **Friday 3 a.m.** — Road closures, travel restrictions begin throughout downtown areas.
- **Friday 6 a.m.** — 3rd Street Tunnel closes.
- **Friday 10 a.m.** — Closures near Convention Center begin.
- **Friday 6 p.m.** — Downtown tunnel, bridge closures clear.
- **Friday 11 p.m.** — Convention Center closures clear.
- **Saturday 1 a.m.** — Travel restrictions (residents, business only) are lifted.
- **Saturday 7:30 a.m.** — National Cathedral closures begin.
- **Saturday 12 p.m.** — National Cathedral closures clear.
- **Monday 1 a.m.** — All downtown closures, restrictions clear.

The U.S. Office of Personnel Management expects significant traffic delays in the District, and is asking agencies to exercise their workplace flexibility options to allow federal employees to telecommute on Wednesday and Thursday. Friday, Inauguration Day, will be a holiday for all federal employees who work within the Inauguration Day area.

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### D.C. Inauguration Road Closures

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Thursday morning. Except for Washington Avenue near the Rayburn Building, there are no major road closures scheduled on Wednesday.

Towed vehicles will be taken to either Capitol Hill Montessori at Logan (215 G Street NE) or McKinley Technology High School (151 T Street NE). Dial 311 for more information. However, enforcement of expired meters and residential parking restrictions will be suspended on Friday and resume Saturday.

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Beginning at 3 a.m. on Thursday, road closures will be rolled out in stages beginning along Pennsylvania Avenue west of the Capitol. Police plan to keep the north/south routes across Pennsylvania Avenue open for as long as possible. Travel downtown will become increasingly difficult throughout the day. As the day wears on, police will continue to block streets through Federal Triangle, Judiciary Square and across the National Mall.

After 4 a.m. Thursday, a separate round of closures will be implemented near the Lincoln Memorial for a welcome celebration and concert. Two busy commuting routes, Constitution Avenue and Independence Avenue, will be closed between the Lincoln Memorial and Washington Monument by mid-morning. Independence Avenue and a portion of the Rock Creek Parkway between the Tidal Basin and the Kennedy Center will be closed after 5 a.m. Inbound traffic on Interstate 66 from

x

Also on Thursday morning, driving and parking restrictions will be put into effect for locations as far away as K Street and Washington Circle, as many as five blocks removed from the web of closures downtown. Only residents or local business traffic will be permitted to flow into this restricted zone. National Guard personnel will assist with verifying traffic entering these areas.

By 2 p.m. on Thursday, Massachusetts Avenue and Columbus Circle are scheduled to be closed in front of Union Station for an inaugural event. H Street NE and First Street NE near the bus depot and parking garages are scheduled to remain open but periodic stoppages of traffic are expected until 11 p.m.

Police will continue building out the closures along the parade route and along the Mall through the evening and overnight hours. Travel will become increasingly difficult on Thursday as more blockades are established near the Capitol and across the Mall.

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## Friday closures

By early Friday morning, nearly all of the closures will be in effect. The 3rd Street Tunnel is scheduled to close at 6 a.m. on Friday. This is the only event that closes all four expressways in the District, including the 3rd Street and E Street tunnels.

x

For the inaugural balls, closures will be in place around the Washington Convention Center from 10 a.m. to 11 p.m. Massachusetts Avenue and New York Avenue will both be off-limits near Mount Vernon Square.

After crowds disperse following the parade, the closures of the expressways and some downtown arteries are expected to be lifted. This should happen around 6 p.m. The travel restrictions are scheduled to be lifted by 1 a.m. on Saturday morning. Some road closures near the White House, Federal Triangle and the Capitol will remain in effect through the rest of the weekend.

Interstate 395 across the 14th Street Bridge and Southwest Freeway will remain open throughout the week, but traffic will likely be heavy, with the exits to 14th Street SW and the 12th Street Expressway blocked by Thursday night.

The Key and Chain bridges will remain open, but traffic will likely be heavier than usual on Wednesday and Thursday.

Rock Creek Parkway will open north of Virginia Avenue. Drivers will be able to use the parkway to access the Roosevelt Bridge. Two-way traffic is scheduled to run on the parkway all day long on Thursday and Friday.

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## HOV Restrictions

In Virginia, high-occupancy vehicle (HOV) restrictions will be lifted on Interstate 66 on Friday. Tolls will remain in effect on the 95 Express Lanes.

On Friday morning, northbound drivers in the 95 Express Lanes will not be able to continue onto the Interstate 395 HOV Lanes; the HOV lanes will be closed most of the day.

The 95 Express Lanes are expected to open to southbound traffic by about noon. Drivers will be able to access the express lanes south of the Beltway.

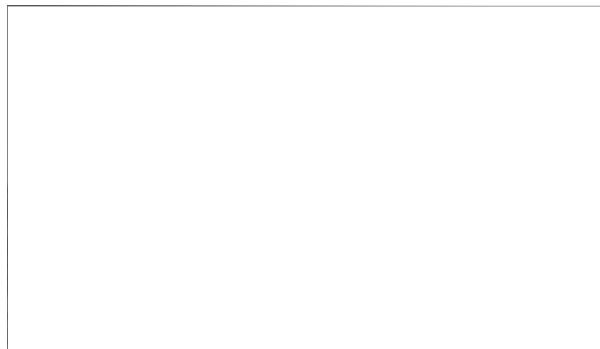
The I-395 HOV Lanes will open to southbound traffic when the inaugural parade concludes.

## Saturday closures

Washington National Cathedral will hold its traditional inaugural prayer service on Saturday morning. Wisconsin Avenue will be blocked in front of the National Cathedral and Massachusetts Avenue is scheduled closed between Wisconsin Avenue and Garfield Street through noontime. Garfield Street, 34th Street and Woodley Road are expected to remain open.

Downtown drivers will likely be confronted with broader travel challenges as the Women's March on Washington takes place.

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Organizers have said they expect up to 200,000 people to congregate near the U.S. Capitol around 10 a.m. D.C. Police say that 3rd Street will be closed as the march heads west along the National Mall. Independence Avenue will be blocked between Capitol Hill and 6th Street SW.

After around noon, police plan to implement rolling closures along the march route. During this time, the closure of Independence Avenue will be extended west to 14th Street. The participants are expected to march along 14th Street, onto Constitution Avenue and westward along Constitution Avenue. Constitution Avenue is expected to be closed between 14th Street and 17th Street by 1:00 p.m.



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#### Dave Dildine

A native to the Washington area, Dave Dildine is no stranger to the region's complex traffic and weather patterns. Dave joined WTOP in 2010 when the station launched its very own in-house traffic service. You can hear him "on the 8s and when it breaks" from 2 p.m. to 7 p.m. on weekdays.

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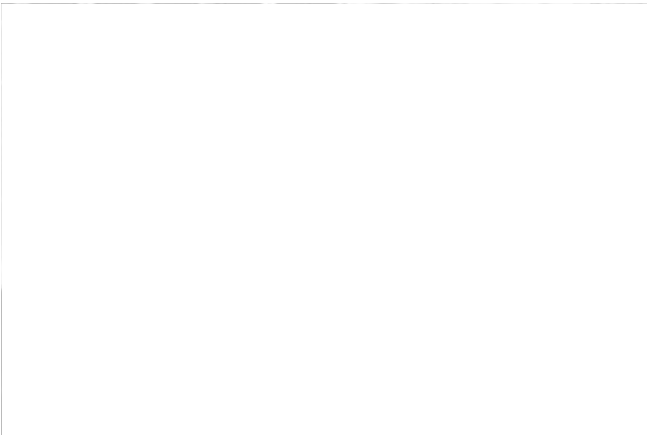
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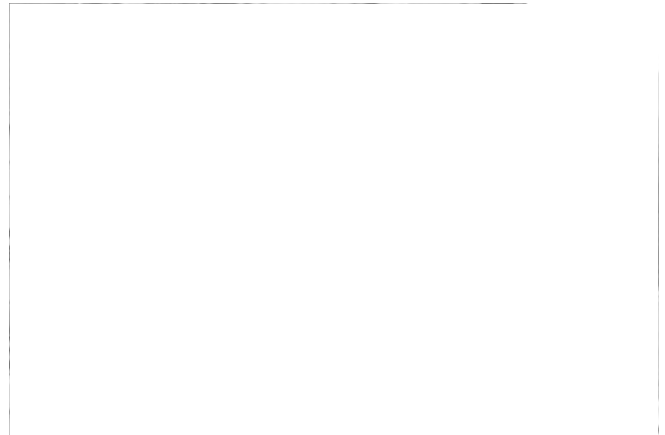
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**National Park Service**

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# Washington, DC, Fourth of July Celebration

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## Closures

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### Road Closures

The following roads will be closed and off limits to vehicles:

**Starting at 12 a.m. (midnight) on June 24 and until July 8**

- Ohio Drive SW between West Basin Drive SW and Inlet Bridge

**Starting at 12 a.m. (midnight) July 3**

- Ohio Drive SW between 23rd Street SW and West Basin Drive SW

**Starting at 6 a.m. on July 4 and until approximately 12 a.m. (midnight) on July 5**

- Arlington Memorial Bridge and Arlington Memorial Circle, to and including Lincoln Memorial Circle
- Rock Creek Parkway south of Virginia Avenue NW to Lincoln Memorial Circle, including all approaches and ramps
- Parkway Drive from Rock Creek Parkway to Lincoln Memorial Circle
- Henry Bacon Drive NW from Constitution Avenue to Lincoln Memorial Circle, NW
- Daniel Chester French Drive SW from Independence Ave SW to Lincoln Memorial Circle
- Lincoln Memorial Circle and all approaches and ramps into and out of Lincoln Memorial Circle, including Henry Bacon Drive NW, Daniel Chester French Drive SW, 23rd Street NW and 23rd Street SW
- Ramp from Theodore Roosevelt Memorial Bridge to Constitution Avenue NW and Independence Avenue SW and Ohio Drive SW; all inbound traffic from the bridge will be directed to the E Street Expressway
- Constitution Avenue NW from 23rd Street NW to 15th St NW

- 23rd St SW from Independence Ave SW to Lincoln Memorial Cir and Constitution Ave to Lincoln Memorial Circle
- 17th St NW from Constitution Ave NW to Independence Ave SW
- Homefront Drive SW
- 15th Street NW from Constitution Ave NW to Independence Ave SW
- Raoul Wallenberg Place SW to Maine Avenue SW
- Independence Avenue SW from 14th Street SW to 23rd Street SW, including merge with Rock Creek Parkway
- Ohio Dr SW from 23rd St SW to Inlet Bridge
- Madison Drive NW from 15th Street NW to 3rd Street NW
- Jefferson Drive SW from 15th Street SW to 3rd Street SW
- East Basin Drive SW east of the Thomas Jefferson Memorial to Ohio Drive SW
- West Basin Drive SW from Ohio Drive SW to Independence Avenue, SW
- Ramp from southbound and northbound George Washington Memorial Parkway (GWMP) to Memorial Avenue /Circle
- Ramp from northbound Va. Route 110 to Memorial Avenue/Circle
- Ramp from Va. Route 27 to Memorial Avenue/Circle
- The right lane of northbound George Washington Memorial Parkway from the 14th Street Bridge to Theodore Roosevelt Island
- Access to East Potomac Park from I-395 will be by National Park Service permit only after 4 p.m.

## Closed from 3 p.m. on July 4 until approximately 12 a.m. (midnight) on July 5

- Eastbound U.S. Route 50 ramps to the George Washington Memorial Parkway and roads in the immediate area of U.S. Marine Corps War Memorial;
- Southbound GWMP ramp to 14th Street Bridge (8 p.m. – 9:45 p.m. as necessary)
- Northbound GWMP ramp to 14th Street Bridge (8 p.m. – 9:45 p.m. as necessary)

## Site Closures

- The World War II Memorial will close at 4:00 p.m. on July 4. Cleanup of the memorial will begin immediately following the fireworks show and the site will open as soon as the cleanup is complete.
- Paddle boats at the Tidal Basin will not operate.
- Big Bus Tours will not operate on the Mall on July 4.
- The D.C. Circulator's National Mall route will not operate on July 4.

- East Potomac Golf Course will be open regular operating hours on July 4 (6:30 a.m. - 9 p.m.).
- East Potomac Tennis Center will close at 3 p.m. on July 4
- Water taxi service to the National Mall will not operate on July 4.



## Special Events

Join the festivities in Washington, DC, including the Independence Day Parade, Fireworks Display, and the Salute to America.



## Plan Your Visit

Find information to plan your trip around town on July 4, including directions, closures, security, and safety tips.



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## History of Independence Day

Take a moment to reflect on why millions of Americans gather for celebrations across the country on July 4th every year.

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## ANTI-ABORTION

# March for Life Returns to DC: What to Know, Street Closures

Here's what to know about the March for Life 2022 in Washington, D.C., including road closures and the schedule

Published January 21, 2022 • Updated on January 21, 2022 at 12:26 pm



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The biggest anti-abortion rights rally is set to return to D.C. on Friday, with about 50,000 people expected to attend. News4's Justin Finch reports.

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Thousands of people will converge on Washington, D.C., in freezing cold weather Friday for the annual March For Life, the biggest anti-abortion rights rally in the country.

Organizers estimate 50,000 people could attend the 49th annual march, which was created in opposition to the Supreme Court's Roe vs. Wade decision that held there's a constitutional right to abortion. Many hope this march would be the last because the Supreme Court is considering a challenge to Roe.

Last year, the march was scaled back due to COVID-19.

Here's full coverage of the March for Life 2022 march.

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**JAN 21**

Nation's Largest Anti-Abortion Protest Could Be Last Under Roe V. Wade



**JAN 20**

Supreme Court Deals a Setback to Abortion Providers' Bid to Quickly Block Texas Law

## March for Life 2022 Schedule

The March for Life events kick off with a concert at 11 a.m., followed by a rally at noon. The march is set to step off at 1 p.m.

There's also a gala dinner planned for Friday evening.

## March for Life 2022 Route

The march is set to begin from the rally on the National Mall between 12th and 14th Streets, organizers say. Demonstrators are set to walk up Constitution Avenue and to the U.S. Supreme Court building.

## Road Closures Map for March for Life



Road closures and parking restrictions for the March for Life on Jan. 21, 2022.

Road closures are centered around the National Mall and began at 6 a.m.

Here's what D.C. police say about road closures:

The following streets will be posted as Emergency No Parking from 6 a.m. to 4 p.m. and will be closed to vehicular traffic from approximately 10 a.m. to 4 p.m.

- Constitution Avenue from 14th Street, NW to 2nd Street, NE
- Pennsylvania Avenue from 7th Street, NW to 3rd Street, NW
- 12th Street from Pennsylvania Avenue, NW to Madison Drive, NW
- 12th Street Tunnel
- 10th Street from Pennsylvania Avenue, NW to Constitution Avenue, NW
- 9th Street from Pennsylvania Avenue, NW to Constitution Avenue, NW
- 9th Street Tunnel
- 7th Street from Pennsylvania Avenue, NW to Independence Avenue, SW
- 6th Street from Pennsylvania Avenue, NW to Constitution Avenue, NW

- 4th Street from Pennsylvania Avenue, NW to Independence Avenue, SW
- 3rd Street from C Street, NW to Independence Avenue, SW

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# **EXHIBIT EE**

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## Washington Metropolitan Area Transit Authority

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### Metro News Release

For immediate release: October 27, 2008

#### **Metro Transit Police to begin bag inspection program**

##### **Police to increase visibility to enhance security and heighten awareness**

The Metro Transit Police Department (MTPD) will begin a bag inspection program and look into passengers' bags prior to them entering the Metro system in an ongoing effort to protect Metro riders, employees and facilities. Officers will be inspecting bags for explosive devices.

 [Bag search \(/about\\_metro/news/pressroom/attachments/bag\\_search.jpg\)](/about_metro/news/pressroom/attachments/bag_search.jpg)

"The Security Inspection Program aims to deter terrorist attacks and increase the overall safety of the Metro system," said [Metro Transit Police Chief Michael Taborn \(/about\\_metro/news/pressroom/attachments/bag\\_inspect\\_comments\\_taborn.pdf\)](#). "Inspections could take place at any Metrorail station or Metrobus stop. They will be random, unannounced and focused on explosive detection."

The Metro Transit Police anticipate conducting random bag searches under the Security Inspection Program when circumstances warrant heightened vigilance. Police will take steps to ensure that there will be no discernible pattern to these inspections. At such time, a team of specially trained MTPD officers will begin looking into passenger bags, including briefcases, backpacks, boxes, gym bags, suitcases and purses. Inspection points will be set up at Metro facilities and passengers will go through inspections before entering a rail station or boarding a bus.

"Security is a top priority at Metro. We're committed to enhancing the safety of our riders and employees and security inspections are



an important part of that effort,” said Metro General Manager John Catoe ([/about\\_metro/news/pressroom/attachments/bag\\_inspect\\_comments\\_catoe.pdf](/about_metro/news/pressroom/attachments/bag_inspect_comments_catoe.pdf)). “It’s important to know that we have received no threat to the Metro system, but we have the responsibility to do everything we can to keep it safe.”

Beginning Monday, Oct. 27, large signs will be posted at Metrorail station entrances informing riders about the potential of inspections. The red and white signs ([/about\\_metro/news/pressroom/attachments/bag\\_check\\_signs.gif](/about_metro/news/pressroom/attachments/bag_check_signs.gif)) clearly state: Backpacks, carry-on items and other containers are subject to inspection.

“While the inspections themselves will not necessarily take place today, Metro Transit Police have been trained and are ready to start immediately, if needed,” Taborn said.

When MTPD begins screening passengers’ belongings, the inspection locations will not be announced ahead of time. They could take place at any Metro facility at any time. All passengers’ carry-on items will be subject to inspection. However, just prior to beginning the inspection process at a specific location Metro Transit Police will post signs alerting riders about the security initiative.

At the inspection site, teams of five to eight Metro Transit Police officers and a trained explosive-detection dog will conduct the screenings. Riders who are randomly selected will be taken off to the side and will be asked to open their carry-on items. In a matter of seconds, officers will visually inspect the contents for explosive devices. Individuals who refuse to have their bag or bags inspected will not be allowed to enter the Metro system with those carry-on items. They will be free to leave the system with their items.

“We ask our riders to cooperate with the officers who are conducting the inspections to minimize any inconvenience,” Taborn said. “We also want to remind the public that security in mass transit depends on a concerted effort by police, transit employees and passengers.”

Metro riders are reminded to report any suspicious activity to Metro Transit Police by calling 202-962-2121.

Additionally, with the impending election and presidential inauguration just a few months away, Metro Transit Police will be heightening security efforts throughout the Metrorail and Metrobus system. Metro riders should not be surprised to see more uniformed police officers, some carrying additional weaponry, and explosive-detection dogs in rail stations, and on buses and trains. During these highly-visible patrols of rail stations and bus routes, trains and buses may pause for a few seconds as police visually inspect the vehicles for suspicious activities, behaviors and packages.

“If the initiative we are announcing today does nothing more than remind us all that there are people in the world who have vowed to do us harm, and that vigilance is the key to defeating them, then this program will have succeeded. I think it will do more,” Taborn said.

Prior to launching the Security Inspection Program, Metro Transit Police met with officials at the Transportation Security Administration and transit agencies in New York, Boston and New Jersey where police regularly conduct inspections of passengers’ belongings. Legal authority to inspect packages brought into the Metro system has been established by the court system on similar types of inspections in mass transit properties, airports, military facilities and courthouses.

Additional information about the Security Inspection Program can be found in the Frequently asked questions (<http://www.wmata.com/faqs/preview.cfm?faqID=50>) section of Metro's Web site.

News release issued at 11:18 am, October 27, 2008.

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# **EXHIBIT FF**



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**COLUMBIA HEIGHTS, DEAR POPVILLE, WHAT THE HELEN OF TROY IS THIS**

## **“A few uniforms said anti-terrorism, others TSA.” Random Bag Checks Resumed at the Columbia Heights Metro Last Night**

**Prince Of Petworth** February 11, 2020 at 9:15am





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I got tons of messages yesterday starting around 5:30pm like this one:





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“I just saw 10+ uniformed police at Columbia Heights metro, complete with a table set up for bag searches and a scanning device of some sort. A few uniforms said anti-terrorism, others TSA. I heard them telling people they stopped that [checks were random](#). Do you have any context on this?”

Metro Transit Police have been doing [random searches](#) since at least 2008. We also spoke about [random inspections in 2010](#).

Explanation from 2010:

### Random Bag Inspections



VIEW COMMENTS





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**"Metro to implement  
five station name ...**

3 days ago • 28 comments

From WMATA: "Beginning  
Sept. 11, Metro will  
implement five station ...

**"A for effort..."**

3 days ago • 8 comments

"....but DC ticket writers ain't  
got time for that." Thanks to  
Matt for sending. And ...

**"The  
is no**

4 days

From I  
Omicron  
availat

## Recent Stories

### BLOOMINGDALE, DRIVING DANGEROUSLY

## Today in Driving Dangerously

**Prince Of Petworth** Today at 5:25pm





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2nd and Rhode Island Ave, NW Thanks to JK for sending around 5:15pm: “How does this even happen?” Answer:

[Read more →](#)

**BARS, BEER, BLOOMINGDALE, EVENTS**







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**Stone Sept. 20th.**

**Prince Of Petworth** Today at 4:05pm





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From Boundary Stone (116 Rhode Island Ave, NW): "The Battle of the Barrel-Aged Beer returns to the Stone on Tuesday, September 20th as prequel to DC Beer Week(end). We're pitting..."





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## CITY RIDE

# Sweet City Ride

**Prince Of Petworth** Today at 3:45pm







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Thanks to Amanda for sending this super sweet “’65 Impala in Mount Vernon”. Sweet City Ride is made possible by readers like you! Email your finds to [princeofpetworth@gmail.com](mailto:princeofpetworth@gmail.com)

[Support us!](#)[Read more →](#)

## DATING

# Missed Connection – Cheryl Lofton Tailor Shop

**Prince Of Petworth** Today at 3:15pm



photo by Tim Brown “Dear PoPville, Cheryl Lofton Tailor Shop, around 10:30 AM last Saturday. You were getting fitted for some nice slacks—and I mean FITTED. I was





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