Los Angeles County

Metropolitan Transportation Authority

Office of the Inspector General

Review of Metro Bus Pass-Ups

Report No. 25-AUD-07　　　　　　　　　**August 22, 2025**

Los Angeles County
Metropolitan Transportation Authority

Office of the Inspector General
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Metro

DATE: August 22, 2025

TO: Metro Board of Directors
              Metro Chief Executive Officer

FROM: Karen Gorman, Inspector General
              Office of the Inspector General

Karen Gorman
Inspector General

SUBJECT: Final Report – Review of Metro Bus Pass-Ups (Report No. 25-AUD-07)

As part of its continuous effort to help ensure that Metro provides first class transportation service to its customers in the most effective and efficient manner, the Office of the Inspector General (OIG) conducted a Review of Metro Bus Pass-Ups. The goals of this review are to provide the Metro Board and Metro Management with an independent analysis of bus pass-ups, determine to what extent bus pass-ups negatively impact Metro operations, and recommend how Metro can improve overall operations and bus operators' performance by reducing instances of bus pass-ups. The Lopez Group LLP was hired as the consultant to conduct this review on behalf of the OIG.

The objectives of this review were as follows:

1. Determine whether (a) Metro has policies and procedures to guide the bus pass-up process, and (b) the policies and procedures are in line with industry best practices.

2. Determine whether the bus operators who bypassed a customer were acting in accordance with Metro's policies and procedures. Identify root causes for bus pass-ups and make recommendations to correct and limit bus pass-ups.

3. Identify any correlation between the number of bus pass-ups and ridership statistics and if there are any trends between bus pass ups and bus operations, e.g. bus routes, operators, divisions, service areas etc.

Most importantly, identify anything Metro might do to eliminate or mitigate the root causes of pass ups for operators and passengers.

OVERALL REVIEW CONCLUSIONS AND RECOMMENDATIONS

The consultant organized their findings and conclusions in accordance with the three objectives identified by the OIG.

- The review found that there are no industry best practices for measuring bus pass ups. Most comparable agencies do not cover pass-ups in their manuals and only one agency could be found that actively tracks pass-ups. Metro does have a policy addressing pass-ups in general and standard operating procedures which address pass-ups involving wheelchairs or other mobility devices. However, changes to the policies and procedures are recommended to make them more specific and effective.

- Data from pass-up complaints received by Metro during fiscal year ending June 30, 2024, as well as information gathered from operators, was reviewed to see if Metro's policies were being followed. The consultant found that generally, the procedures in place for wheelchair pass-ups are more specific and more closely followed and enforced than those for general pass-ups. The policies and procedures for general pass-ups are more informal and rely heavily on the operator judgement in the field. Because of this, it is likely that general pass-ups are being underreported. This is an area where policies, procedures, and training can be established and provided to operators to provide more specificity and guidance that can assist operators and reduce bus pass-ups.

- The results of the review and analysis found various correlations related to bus pass-ups. For example, rates of pass-up complaints (pass-up complaints/100,000 riders) are higher among lines with longer headways, which tend to be lines with lower ridership. Lines with higher ridership and shorter headways have lower rates of pass-up complaints. There was a positive correlation between the number of pass-ups and cancelled trips. The top ten routes that had higher cancellations had an average wheelchair pass-ups rate of 3.94% compared to an average of 2.38% across all routes.

This report contains four major categories of recommendations, with sub recommendations under each category to address the findings and conclusions reached, and to help improve and enhance Metro's overall operations and customer service.

Metro Operations Comments to Recommendations

On July 8, 2025, we provided Metro Operations with a draft report. On August 12, Operations submitted their response stating that while they agreed with many of the report's findings and recommendations, they will need more time to conduct a thoughtful and detailed review. Operations advised that a more thorough response, outlining their approach to addressing the report's recommendations, will be provided within 60 to 90 days. To see Metro's response, click here.

We appreciate the assistance provided by Metro staff during this review.

If you have any questions, please contact me at GormanK@metro.net or Yvonne Zheng, Sr. Manager, Audit, at ZhengY@metro.net.

Enclosure: Final Report

Cc: Conan Cheung, Chief Operations Officer
     Edna Stanley, Deputy COO Transit Service Delivery
     Diane Corral-Lopez, EO Operations Administration

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Review of Metro Bus Pass-ups

Final Report

August 22, 2025

Prepared by: The Lopez Group, LLP

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List of Abbreviations

Abbreviation	Description
ABBG	American Bus Benchmarking Group
AC Transit	Alameda-Contra Costa Transit District
AccSrv	Accesibility Services
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ATMS	Advanced Transportation Management System
BOC	Bus Operations Control
BRT	Bus Rapid Transit
CCATS	Customer Comment Analysis and Tracking System
CFR	Code of Federal Regulations
CTA	Chicago Transit Authority
DART	Dallas Area Rapid Transit
DVR	Digital Video Recorder
GPS	Global Positioning System
ISUB	Incident Subcategory - Two letter code or codes designated by Customer Relations assigning complaint to a subcategory.
KPI	Key Performance Indicator
LAPD	Los Angeles Police Department
LF	Load Factor
LiDAR	Light Detection and Ranging
MBTA	Massachusetts Bay Transportation Authority
MTS	San Diego Metropolitan Transit System
MUNI	San Francisco Municipal Transportation Agency
NTD	National Transit Database
NYMTA	New York Metropolitan Transportation Authority
OCI	Operations Central Instruction
OIG	Office of Inspector General
OTP	On Time Performance
PU	Pass-up
RTD	Regional Transportation District (Denver)
SEPTA	Southeastern Pennsylvania Transportation Authority
SOP	Standard Operating Procedure
SOW	Statement of Work

Abbreviation	Description
TCRP	Transit Cooperative Research Program
VO	Vehicle Operator
WC	Wheelchair
WMATA	Washington Metropolitan Area Transit Authority

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1. Introduction and Background

In October 2024, LA Metro's Office of Inspector General (OIG) retained the services of The Lopez Group, LLP and its subcontractor, Calyptus Consulting Group, Inc., to conduct an independent analysis of passenger and wheelchair bus pass-ups. The Lopez Group was tasked with determining to what extent bus pass-ups negatively impact their operations and recommend how Metro can improve overall operations and bus operators' performance by reducing instances of bus pass-ups. Metro's OIG had three primary objectives:

    i.   Determine whether (1) Metro has policies and procedures to guide bus pass-up process, and whether (2) the policies and procedures are in line with industry best practices.

    ii.   Determine whether bus operators who bypassed a customer were acting according to Metro policies and procedures and identify root causes for bus pass-ups and make recommendations to correct and limit bus pass-ups.

    iii.   Identify any correlation between the number of bus pass-ups and ridership statistics and if there are any trends between bus pass-ups and bus operations, such as bus routes, operators, divisions, and service areas.

To achieve these objectives, the statement of work (SOW) issued by Metro's OIG required specific tasks which are described in the methodology section.

2. Executive Summary

Metro's mission is to provide a world-class transportation system that enhances the quality of life for all who live, work, and play within LA County. Metro recognizes the disruption and inconvenience created when a bus passenger is passed-up. As part of its ongoing efforts to improve its service to the public and in support of its mission, Metro's OIG commissioned this review of bus pass-ups.

This report examines whether Metro has policies and procedures in place for pass-ups and if those policies are in line with industry best practices; if Metro's policies and procedures are being followed; and what the root causes for pass-ups might be.

a. Industry Practices and Metro's Policies and Procedures

In the course of identifying and communicating with agencies of both comparable and similar size to Metro we could not identify industry best practices related to passenger pass-ups. Comparable agencies did not have policies and procedures related to pass-ups within their operator manuals and only one agency was identified that actively tracks pass-ups. Metro should be commended as one of the only major public transit agencies that has a general policy addressing (non-wheelchair) pass-ups and standard operating procedures that address pass-ups involving passengers with wheelchairs or other mobility devices specifically. Metro also has additional informal procedures that are used to manage general pass-ups. Finally, Metro collects data that is relevant to pass-ups but this data is not systematically used and analyzed to manage pass-ups. This report makes recommendations to formalize and document pass-up procedures. This report also makes recommendations on ways to utilize data currently collected by Metro to help manage pass-ups.

We also obtained performance benchmarking from comparable agencies to develop recommended Key Performance Indicators (KPIs) for Metro in the categories of timeliness, efficiency, and reliability related to pass-ups which include:

- Accessibility Compliance
- Bus Reliability
- Bus Crowding
- Service Operated
- Complaints

The benchmarking data obtained from other agencies is not specifically related to pass-up metrics and performance but can be utilized by Metro in identifying pass-up issues and potential changes or adjustments to reduce pass-ups.

b. Are Metro's Policies and Procedures Followed?

Data from pass-up complaints received by Metro during fiscal year ending June 30, 2024, as well as information gathered from Metro operators was reviewed to see if Metro's policies were being followed. We found that generally, the procedures in place for wheelchair pass-ups are more specific and more closely followed and enforced than those for general pass-ups. The policies and procedures for general (non-wheelchair) pass-ups are more informal and rely heavily on operator judgment in the field. Because of this, it is likely that general pass-ups are being underreported. This is an area where recommended changes to policies, procedures, and training can provide more specificity and guidance that can assist operators.

c. Pass-up Root Causes

Pass-up complaint data and ridership data were analyzed to determine root causes for pass-ups. A strong correlation was found between bus pass-ups and ridership. Lines with higher ridership tended to have higher numbers of pass-ups. Lines that have the highest average load factors experience more general passenger and wheelchair pass-ups. This correlation can also be seen in the fact that pass-ups complaints were much more likely on weekdays rather than weekends with the highest number of pass-up complaints occurring during the morning and afternoon rush hours. Other operational performance factors impacted pass-ups as well. Lines that include stops at schools (school trippers) show a positive correlation with higher numbers of pass-ups. Lines with longer headways, which is the average interval between buses running on the line, seemed to have higher rates of pass-ups/100,000 riders.

In addition to the causes suggested by the data, operators were interviewed and surveyed to obtain their opinions as to the causes of pass-ups. Their observations reinforced the linkage between ridership and pass-ups with overcrowded buses being noted as a key cause. Other causes identified by operators were related to passenger visibility and awareness. Operators suggested that lighting and physical obstructions obscured passengers from the operator's view and that pass-ups were compounded by passengers not being aware of the approaching bus and not indicating they needed the bus to stop. Passengers assume a bus will stop at a bus stop even if they don't see a passenger.

Pass-ups and their causes are multi-faceted and not attributable to any single factor. A complex combination of factors contributes to pass-ups. Issues related to general operations such as

loading, capacity, headways, and on-time performance are factors. Operator performance and training as well as physical characteristics (i.e. lighting and shade) and passenger behavior and expectations are also major factors in the number of bus pass-ups.

This report summarizes all key findings of the policy review, interviews, survey, data analysis, and benchmarking. The methodology section briefly explains how the work was conducted for this effort. The data analyzed is reflected under Key Results of Review for each of the following: a) results of procedure review, b) interviews, c) results of survey, d) results of data analysis, and e) results of benchmarks. This is followed by a section that summarizes the results and conclusions. Finally, the report concludes with a detailed listing of all recommendations. The recommendations are categorized in four general areas:

1. Policies and Procedures
   We recommend the updating and/or creation of additional policies and procedures to enable Metro to monitor pass-ups with consistent information.
2. Performance Metrics to be Tracked
   We recommend Metro consider utilizing proposed metrics to assist in the identification of causes of pass-ups and potential changes in operations to manage/reduce pass-ups.
3. Training
   We recommend Metro consider updating its training regimen for operators and supervisors on pass-ups with regular updates to training as needed.
4. Physical Characteristics of Bus Stops
   We recommend that Metro adopt a procedure to review the physical characteristics of bus stops where pass-ups occur due to passenger visibility or the passenger not being at the stop.

3. Methodology

Below is a detailed description of the methodology used in carrying out the SOW. This section is organized to correspond to the tasks listed in the SOW.

The Lopez Group held a kick-off meeting with staff from Metro's OIG to discuss the SOW and initial requirements for documents and access to staff for interviews. The period of July 1, 2023, to June 30, 2024 is the period agreed upon to review to take advantage of more recent data available from the last fiscal year. Unless otherwise noted, this is the period that was used for this review.

a. Task 1

i. *Request and review policies and procedures for bus pass-ups related to Metro operations and bus operator performance.*

Metro provided procedures related to wheelchair and full bus pass-ups, scheduling processes for pass-ups, data tracked by operations, and service standards. These were compared to best practices to identify themes.

ii. *Interview Metro officials and bus operators to gain an understanding of Metro bus pass-up procedures.*

A total of seven (7) operators and five (5) supervisors were interviewed. This report presents a summary of operator and supervisor responses related to (a) knowledge of existing procedures, training, and communications related to rider pass-ups and missed pick-ups, (b) assessment of trends and reasons for pass-ups, (c) resources for tracking and managing rider pass-ups, and (d) how operators and supervisors manage bus pass-ups in practice.

iii. *Search and identify best practices from 3-5 similar transportation agencies on how to handle bus operators pass-ups.*

Best practice information was collected relating to reliability, load factors, real time arrival and departure assistance, complaints, medium size agency metrics, National Transit Database (NTD) service effectiveness, and headways.

iv. *Compare Metro policies and procedures with industry best practices and make recommendations for policy change to reduce bus pass-up instances and improve efficiency and effectiveness of Metro bus operations.*

Generally, there are no industry best practices for measuring bus pass-ups. We performed an assessment of procedures from other Transit agencies and how these agencies track performance metrics was conducted. Recommendations for potential metrics were determined based on review of documents and discussions for headways, on-time performance, load factors, percentage service delivered, wheelchair pass-ups, and passenger pass-ups.

b. Task 2

i. *Obtain Metro bus pass-up data from 7/1/23 to 6/30/24*

Metro's OIG provided The Lopez Group with an Excel spreadsheet of data from Metro's Customer Comment Analysis & Tracking System (CCATS). This spreadsheet contained 5,541 records for the period under review. These records represented complaints that were received by telephone, email, and the Metro website through Passenger Relations Representatives and Customer Relations Officers. These complaints were specifically for pass-ups. The data was organized as follows:

- Record ID: Unique identifier for each complaint entered in system.
- Created Date: When complaint was entered in system.
- Cost Center: The Metro division where incident occurred.
- Line: The Metro Line number.
- Vehicle: The vehicle number.
- Operator: The operator badge number.
- Incident Date: When the incident occurred.
- Category: One of five categories assigned to the incident as follows:
    - 200 – Pass-up by in operation bus and the customer is not disabled
    - 500 – Accessible Service Pass-up (Ignored) - Operator does not stop bus to even attempt to accommodate patron; by-passes wheelchair patron waiting at stop.
    - 501 - Accessible Service Pass-Up (Advised) – Operator stops and advises the wheelchair patron that the lift has been determined to be inoperable and does not attempt to board patron.
    - 502 - Accessible Service Pass-Up (Denied) – Operator stops and boards other passengers first and then does not accommodate wheelchair patron, claiming overcrowded conditions.

- 503 - Accessible Equipment Problem – Operator stops to accommodate wheelchair patron, but in the attempt, the lift fails to operate resulting in a failure to board the patron.

- Liability: One of four designations are given to the complaint following the investigation.
  - Not Closed – Investigation still open.
  - Inconclusive – Not enough data or information to confirm the complaint.
  - Refuted Comment – Evidence does not support the complaint.
  - Valid – Pass-up occurred.
- Open Status: Whether the matter is closed or open.
- Priority: Priority status assigned by Metro. Usually priority is assigned as "medium" unless the complaint involves an ADA or Title VI issue which is assigned "high" priority.
- Status of Record:
  - Final – Record closed and complete.
  - Review by Contractor – Record closed and reviewed by contractor on lines not operated by Metro.
  - Other – Record open.
  - Issued – Record issued to Metro operations for investigation and still open.
- ISUB (Incident Subcategory): Two letter code or codes designated by Customer Relations assigning complaint to a subcategory. There are 79 subcategory codes.
- How Received: The method through which the complaint was received (e.g., phone, internet comment form, e-mail, or walk in).
- Customer Name
- Customer Comments: Text of the customers complaint.
- Finding: The result of the investigation, comments from operator and communication back to customer.

ii. *Obtain and analyze Metro bus routes and ridership data from 7/1/23 to 6/30/24*

Metro Operations provided The Lopez Group an Excel spreadsheet with a list of bus routes and ridership numbers for those routes for the period under review. The data was organized as follows:

- Day Type: Daily, Saturday or Sunday
- Line: The Line number.
- Riders: The average number of riders on that line for that day type.

- Passenger Miles: The average passenger trip length (Passenger Miles/Riders) multiplied by Total Riders.
- Day Count: Total number of Day Type during the data period.
- Total Riders: The number of Riders multiplied by Day Count.
- Total Passenger Miles: Passenger Miles multiplied by Day Count.
- Group: Whether the line is Directly Operated by Metro or is Purchased Transportation provided by another entity.

The data provided by Metro was for 117 lines including five rail lines, two bus rapid transit (BRT) lines, and 110 bus lines. For the 110 bus lines, 96 were directly operated by Metro and 14 were provided by contract or another entity. This data was combined with the pass-up data provided by OIG and is the basis for the analysis in subsequent sections.

iii.   *Identify the top 10 highest number of bus pass-up instances by bus operators, type of pass-up category, bus routes (geographic locations), time of day and day of the week, and determine the root causes*

Customer Relations CCATS data provided by the OIG and the ridership data provided by Operations for fiscal year 2024 were used to conduct an analysis of pass-ups. As requested in the Task, several factors were used as the basis of the analysis. The data from CCATS and ridership were also combined to help further the analysis.

The data and subsequent analysis were used in an effort to identify root causes. Some root causes for pass-ups are suggested by the data. One cause is due to passenger volume. As ridership increases on a line, the potential for pass-ups increases. There could be many factors that contribute to this correlation, such as bus capacity, more operators on lines with shorter headways increasing opportunities for operator error, and increased potential for passenger conflicts leading operators to pass-up passengers. Another cause is related to headways. Longer headways have the potential for greater inconvenience for passengers when a pass-up occurs and leads to greater rider dissatisfaction and increased complaints.

From examining the "Customer Comments" and "Findings" section of the CCATS data, additional root causes are suggested such as construction activity and bus line detours not clearly communicated or understood by passengers leading to pass-up complaints. Another cause is generally described as distractions at the bus stop. This may be due to bus shelters, advertisements or other infrastructure obscuring the passenger from the operator's view; confusion caused by multiple bus lines having co-located stops; and passengers distracted by

electronic devices and therefore not being aware of or signaling an approaching bus. Customers may also step back or aside from the bus stop to stand in the shade or more light.

iv. *Select sample bus operator logs to ensure that all bus pass-up data were accurately recorded and reported.*

For this task, a modification in the data collected was needed. The Operator Activity Logs that we requested are only stored for six months and therefore were not available for the July 1, 2023 to June 30, 2024 period. Instead, the period of July 1, 2024 – December 31, 2024 was selected and sampled for the purpose of this task. Metro Operations collects and records data transmitted by operators on each shift using the Advanced Transportation Management System (ATMS). Using the CCATS data for July 1, 2024 to December 31, 2024, 50 pass-up incidents were randomly selected from among all of the CCATS data.

The Operator Activity Logs (logs) for that operator on the day of the selected incident were requested. Operations provided the logs for 46 of the randomly selected driver shifts. The four logs that were not provided were for complaints against operators on lines not operated by Metro. Three of these lines were operated by MV Transit and one was operated by Southland Transit. Operations stated that they did not have logs for any lines not operated by Metro.

Of the 46 logs that were provided for lines operated by Metro, 41 had no data. Meaning that there were no recorded entries into the ATMS system for that operator on that particular shift. The remaining five logs did show some activity but none of them showed any activity related to the pass-up complaint.

In this sample, these logs could not provide any information that could be used by the reviewer or Metro to review or manage pass-up complaints. This may be indicative of pass-ups being underreported; of there being no clear guidance to operators on when to report pass-ups; or of inadvertent pass-ups occurring where the operator did not see or was otherwise unaware of the waiting passenger.

v. *Conduct interviews of the top 10 bus operators with the highest number of bus pass-up instances and determine whether the operators were acting according to Metro policies and procedures*

The CCATS data was reviewed and the ten operators with the highest number of pass-up complaints were selected to be interviewed. The interviews were conducted virtually using Microsoft Teams. The selected operators were interviewed individually and were provided with

a private space at their respective Metro division from which to participate in the interview. Each operator was asked the same questions as follows:

1. How do you define a pass-up? Are pass-ups documented/tracked? If so, how are they documented/Tracked?
2. What do you do when there is a pass-up?
3. What are the key procedures governing rider pass-ups/missed stops?
4. Are you trained on the procedures? If so, how? How is this specific training documented?
5. Are meetings held to discuss rider pass-ups/missed bus stops?
6. In your assessment, what are the primary reasons for missed pickups of passengers?
7. In your assessment, what are the trends?
8. Under what circumstances do passenger pass-ups happen?
9. Do pass-ups tend to occur more frequently at certain times of the day or night, in certain locations, or other circumstances you can name?
10. How are these circumstances managed when there is a pass-up?
    a. Unintentional pass/Patron not in clear view
    b. Passenger attempting to load the bus with unallowable items
    c. Lack of access due to construction or police activity
    d. Bus too late to stop/Bus early
    e. Bus out of service
    f. Discharge (drop off) only
    g. Mechanical Issues
    h. Overcrowded or full bus
    i. Operator refused service
    j. Safety issues
    k. Wheelchair size or use
    l. Human waste or other hazardous material
    m. Passenger poses threat

vi. *Survey 20% of the bus operators for whom a complaint was received to determine the key reasons of their bus pass-ups.*

The CCATS data was reviewed and it was determined that 2,539 operators had a pass-up complaint against them. To survey 20% would require responses from 508 operators. A random sample of 608 operators that had a pass-up were selected to receive the survey to provide some cushion. The survey was designed in Survey Monkey. The full survey is in **Appendix A** for review.

These survey questions were provided to both Metro Operations and OIG prior to being finalized. It was suggested a brief survey without too many open-ended questions was likely to get the best response. The approved questions were then incorporated into the final survey.

Metro Operations was also consulted on the best way to distribute the survey to the operators. It was suggested that a quick response (QR) code that could be scanned by operators with their personal devices would be the most convenient and was similar to methods used by Operations in the past.

Metro Operations was provided a QR code that linked to the survey. The survey QR code was distributed to the operators on February 3, 2025. During the month of February several reminders were sent to the Divisions to encourage operators to complete the survey. By the end of February responses had ceased to come in. On March 7, 2025, it was decided to close the survey to allow the results to be tabulated and to be included in this report. A total of 259 responses were received or 10.2% of the total population. The results of the survey will be detailed in a later section.

vii.   *Identify root causes for Metro bus pass-ups*

The CCATS data, ridership data, interviews with top ten operators with the highest number of pass-up complaints, and the results of the operator survey were used to find root causes for bus pass-ups. In conducting the analysis, some key trends became apparent.

- Ambiguous Situations – Metro policy on pass-ups (Section 7.10) gives operators wide latitude to exercise their judgment when deciding to pass-up any passenger. This leads to inconsistent application of the policy.
- Passenger volume – As ridership increases on a line the potential for pass-ups increases. There could be many factors that contribute to this correlation such as bus capacity, more operators on lines with shorter headways increasing opportunities for operator error, and increased potential for passenger conflicts leading operators to pass-up passengers.
- Headways – Longer headways have the potential for greater inconvenience for passengers when a pass-up occurs and leads to greater rider dissatisfaction and increased complaints.
- Construction Activity/Detour – Construction activity and bus line detours are not clearly communicated or understood by passengers, and sometimes operators, leading to pass-up complaints.
- Physical Distractions – Bus shelters, advertisements, vegetation, or other infrastructure that obscure the passenger from the operator's view. Confusion caused by multiple bus lines having co-located stops.
- Personal Distractions – Passengers distracted by personal electronic devices and not being aware of or signaling an approaching bus.

c. **Task 3**

i.   Based on the work performed in Tasks 1-2, determine any correlations and trends between bus pass-ups, ridership statistics, and bus operations, e.g., bus routes, operators, divisions, service areas, etc.

Data was collected per line route in the areas of ridership, school trippers, load factors, headways, cancellations, full bus pass-ups and wheelchair pass-ups. Using this information, correlations between pass-ups was determined.

ii.   Present suggested Key Performance Indicators (KPIs), trends, variances, and the result from the above analytics by showing visual figures, charts, and summary tables

Using benchmarked data and data collected from Metro bus operations, a set of key metrics and targeted performance are recommended. Current metrics used for Title VI Service standards and the level of wheelchair pass-ups were evaluated.

iii.   Benchmark 3-5- similar agencies and recommend a set of KPIs that will help Metro track, measure, and shape Metro progress in reducing instances of bus pass-ups

Contacts were made with peer agencies of Metro. Data on pass-ups was not available from Washington Metropolitan Area Transit Authority (WMATA) and Chicago Transit Authority (CTA) as this information is not collected. Transit-wide measures tracked by these organizations and NY MTA were used to align pass-ups with broader measures such as bus reliability and On-Time Performance (OTP.)

4. Key Results of Review

This section will discuss the key results of the review. This is provided in five major sections, **a** through **e** as follows:

a. Results of Procedure Review

i. *Summary of Current Procedures*

Comparative information will be included throughout where there is potential to improve Metro's current policy/procedure. The key document related to bus pass-ups is the Operators Rule Book. This rule book has one (1) procedure dealing with pass-ups as follows:

7.10 *Refusing Transportation/Passing Up Customers*

Every effort must be made to ensure that customers are not passed up. Operators are expected to exercise good judgment and common sense and must never intentionally refuse service, leave the bus in an unsafe area, or pass-up customers at any bus stop, unless specified below.

Operators are required to notify BOC for directions should a safety issue develop on the bus that would involve any denial of service to customers. Transportation may be refused for the following exceptions:

- ➤ *An individual or group who poses a threat to, or endangers the safety of the Operator, customers, and/or Metro equipment*
- ➤ *Riders who have human waste or other hazardous material visible on the customer's clothing or body*
- ➤ *Shopping carts such as the carts used at supermarkets*
- ➤ *Bags that do not fit through bus doors or block aisles*
- ➤ *Wheelchairs that are too large to fit onto the lift or ramp, or has bags or other items hanging from the wheelchair that would prevent the device from entering the bus*
- ➤ *Wheelchairs are used solely to transport personal belongings (the seat is covered with bags full of items)*
- ➤ *Safety issues that are not covered in this section*

Operators are required to report progress on their route and enter certain codes or buttons to reflect operating conditions using ATMS. Bus Operations Control (BOC) calls the operator based on the code used. A few of the codes that relate to pass-ups are noted below:

- o Wheelchair: Pass-up Due to Overload

- Wheelchair: Pass-up Due to Equipment Problem
- Wheelchair: On - Secured
- Wheelchair: Off
- Wheelchair: Patron #2 On
- Wheelchair: Patron #2 Off
- Wheelchair: Patron Stuck On Lift/Ramp
- Wheelchair: Patron Stuck On Bus
- Wheelchair: Lift/Ramp Will Not Stow
- Wheelchair: Lift/Ramp Will Not Deploy
- Administration: Pass-up/Overload
- Wheelchair: Gone On Arrival
- Wheelchair: On-Refused Securement
- Bike Pass-up / Full
- Wheelchair: Pass-up
- Wheelchair: On-Refused Seatbelt

The Metro 2022 Service Standards includes the following rules related to pass-ups:

Wheelchair Boardings and Pass-ups.

Ideally, in a floating 6-month period, regular operating bus service will average no more than 6% in pass-ups of customers using wheelchairs or other mobility devices. Should the average increase to over the 6% threshold, Service Planning will adjust service to better serve the ridership patterns of the route in such a way so as to minimize pass-ups.

5) **Rule 7.110 Wheelchair pass-ups**

If for any reason Operators are unable to board a customer using a wheelchair, they must inform the customer of the reason for the pass-up and notify BOC of the customer's location and their intended destination. Operator shall inform the customer in a wheelchair when the next bus is scheduled to arrive and notify BOC of the pass-up.

Procedures for Service Planning are not available, although, through interviews there were indications that an analysis was being completed.

The screenshot on the following page is included in the Operations Central Instruction (OCI) training program. ADA standards are also included in that training: Wheelchair pass-up procedure video available at the link

ADA Enhancement - Wheelchair Securement Procedure

Figure 1: Screenshot of OCI Training

ii. *Summary of Wheelchair and Full Bus Pass-Up Procedures*

The current process is for all wheelchair (WC) pass-ups to be reported to the BOC at the time of occurrence. Dispatch pulls the information on the next scheduled trip to service the stop. If the next scheduled trip is within the policy's stated threshold (within 30 minutes, etc.) and the next bus states that they have room for the WC passenger, the passenger will have to wait until that bus arrives. If the next scheduled trip is not within the 30 minute window per policy, and/or the next bus will not have room to accommodate this WC passenger, alternate transportation is dispatched (another vehicle sent to specifically accommodate the WC passenger). This is a federal ADA requirement. This process is documented but there may be need to change the procedure to ensure compliance based on our review. Specifically, the current procedure does not address removing vehicles with inoperative lifts from service by the third day or when a lift is reported inoperative.

How all pass-ups are documented

There is a comment section in CCATS that can be created for each individual incident. This comment section is completed by the Operations Center to close out each incident. This is not a documented procedure.

Definition of when bus determined to be "full"

For bus operators, the bus is full if all seats are filled and standees have filled the remainder of the passenger area up to but not over the standee line (yellow line). For data analysis, this depends on what type of route it is. Standard routes are considered full if they are at 130% or greater than the number of seats available on the bus. Freeway routes are considered full if all seats are occupied. This standard is reflected in Metro's service standards.

The Washington Metropolitan Area Transportation Authority (WMATA) has set the current definition for reference: Operators are instructed to always accommodate the passengers as much as possible. If the bus is crowded, Operators are instructed to ask the customers to move back, if no one moves back then Operators should contact Central Control Center to inform them that the bus is full. Customers on the bus are not permitted to stand in front of the standee line. This will obstruct the operator's vision or may interfere with the operator's freedom of movement. Customers who block exits or entrances must be asked courteously to move behind the standee line. The operator should first remind all passengers to move as far back in the bus as possible, so other passengers might fit.

Metrics used

On-time performance (OTP) is the most important metric used by most agencies to track bus reliability. Other metrics include complaints per 1,000 boardings, accidents, and mean time between road calls.

iii.   *Summary of Scheduling Processes for Pass-Ups*

Metro's load standard is 1.3. An individual trip has to average a load over that standard in at least a 4-week period before Metro considers permanently adding a trip or adjusting trips to avoid consistent crowding/pass-ups moving forward. The load factor and headway reports are used to determine whether changes will be made. Load factors are tracked and communicated within Metro.

Based on information from interviews, many pass-ups are individual causes such as a cancelled trip ahead, bus late out of yard, trainee operator running late, passenger or equipment caused delay leading to pass-ups on an individual day. It can even be caused by how diligently the operator works to have people move back further in the bus. These are not consistently occurring on the same trip day after day. These occurrences can take a lot of time to investigate each single instance.

Based on information from interviews, Metro works to avoid some of these causes by getting buses out of the yards on time, good bus maintenance, and managing operators with history of late running, some are random incidents beyond Metro's control in advance, such as passenger incidents. The justification to add trips permanently mostly does not exist based on these random events.

For each service change, Metro adjusts service to address any cases where the load standard is consistently exceeded for a trip or set of trips. The cases for consideration must have consistently been occurring from high demand and not just random based on one off special cause service disruptions.

Metro completes a complex analysis of load factors for service level adjustments as there are many factors and parameters in the analysis. There is no straightforward way to program the calculation for all routes or the whole system. Metro has an interactive report that allows the scheduling team to run the "Headway Sheet" (Figure 2) report to start their analysis.

Headway is calculated using the time between trips at the control timepoint on a route during the relevant period. The target vehicle load factor varies based on trip frequency and between the peak and off-peak periods. See an example of the report on the following page:

HeadwaySheetReport | Data updated 1/9/25 ⌄

Get insights 🔄 Subscribe to report ⋯

Headway Sheet
20 Min Periods

| | | From Date: | 1/6/2025 | To Date: | 01/10/25 | Allowed Load: | 52 |

Time Period ▲	Sampled trips	Scheduled Trips	Total Passgrs	Actual Load Factor	Scheduled Headway	Required Trip	Required Trip (rounded)		Change in Trips
12:40 am	1	1	5	12%	61	0.1	1	▲	0
04:00am	1	1	12	29%	46	0.2	1	△	0
05:00am	1	1	16	39%	46	0.3	1	△	0
05:20am	1	1	20	49%	23	0.4	1	△	0
05:40am	1	1	17	43%	20	0.3	1	△	0
06:00am	1	1	18	45%	22	0.3	1	△	0
06:20am	1	1	27	68%	22	0.5	1	△	0
06:40am	2	2	38	47%	18	0.7	1	🔴	-1
07:00am	1	1	23	58%	12	0.4	1	△	0
07:20am	2	2	66	83%	12	1.3	2	△	0
07:40am	1	1	27	68%	14	0.5	1	△	0
08:00am	2	2	46	58%	14	0.9	1	🔴	-1
08:20am	1	1	22	54%	15	0.4	1	△	0
08:40am	2	2	36	45%	16	0.7	1	🔴	-1
09:00am	1	1	15	38%	15	0.3	1	△	0
09:20am	1	1	14	34%	15	0.3	1	△	0
09:40am	2	2	24	30%	15	0.5	1	🔴	-1
10:00am	1	1	16	41%	15	0.3	1	△	0
10:20am	1	1	14	34%	15	0.3	1	△	0
Total	**64**	**64**	**1167**				**51**		**-13**

Booking ID
202412

Transit Date
1/1/2025   1/11/2025

Hourly

PDF

Day Type
Weekday

Line_Dir
10 - East

location
Melrose / Western

Trip Filter
Regular Service Only

Bus Seats
40

Standard Load Factor
1.30

Figure 2: Metro Sample Headway Sheet

Individual reports of pass-ups do not generate the addition of extra trips. Metro collects data to determine where ridership on a trip or set of trips are consistently exceeding an established load standard. There are many abnormal conditions (i.e., not consistent everyday issues) that generate pass-ups but do not support the permanent addition of extra trips.

iv. *Summary of Data Tracked by Operations*

A procedure that ties data to ongoing analysis of pass-ups is not available. However, the following reports are available and were reviewed:

➢ Administration: Pass-up/Overload by date. time, and route, direction and location: This report captures pass-ups due to full buses.

➢ Load Factors by date, route, direction, number of passengers: This report shows load factors and provides information when load factors are exceeded (1.3).

➢ Headway sheet: route, day, direction, load factor and analysis of need for more or fewer buses: This report indicates when there may be a need to add or reduce bus service on a line.

➢ Wheelchair pass-ups date, incident time, route, direction, division, and location with some explanation on overload and follower bus: This report captures wheelchair pass-ups.

- ➤ Annual pass-up % by line and total riders: This report indicates pass-up count and percentage by line.
- ➤ Annual record of all pass-ups by division, route, direction, location, time and type of pass-up: This is an annual report that shows pass-ups by category and by line.
- ➤ Incident comments with date, time, problem code and status: This report shows pass-up incidents and also indicates follow-up activity for WC pass-ups.
- ➤ New Headway Sheet, with allowed load factor and changes in trips by line, day, time period, direction and type of service: This shows what changes have been made by line based on semi-annual shakeup service changes.
- ➤ Monthly WC Pass-up date by line, number of WC pass-ups, number of WC boardings: This report shows monthly information on WC pass-ups by line.

v. _Title VI Plan Service Standards_

Metro's Title VI Program has this information related to Wheelchair Boardings and Pass-ups when discussing the evaluation of service standards. The Title VI Service Standards plan states:

Ideally, in a floating 6-month period, regular operating bus service will average no more than 6% in pass-ups of customers who use a wheelchair or other mobility devices. Should the average increase to over the 6% threshold, Service Planning will adjust service to better serve the ridership patterns of the route in such a way so as to minimize pass-ups.

Determining the 6% threshold for Wheelchair Trips

Senior Management determined that 6% was an appropriate threshold of all wheelchair trips in a six (6) month period. This threshold has been in place for six (6) years and will be reevaluated in 2025. This threshold is stated in the Title VI Plan but details of how the analysis occurs is not available. There is no documentation that this analysis is being specifically performed on a floating six (6) month basis. Title VI requirements are noted below for reference:

Title 49/Subtitle A/Part 37.163(f) Alternative accessible service-

Public entities must ensure that operators report immediately any in-service lift and ramp failures. The vehicle with the inoperable lift or ramp must be removed from service before the beginning of the next service day and the entity must repair the lift or ramp before the vehicle is returned to service. In the event that there is no spare vehicle available and the entity would be required to reduce service to repair the lift or ramp, it may keep the vehicle with the inoperable lift or ramp in service for no more than three days (if the entity serves an area of over 50,000 population) or five days (if the entity serves an area of 50,000 or less population). After these times have elapsed, the vehicle must go into the

shop, not to return to service until the lift is repaired. Even during the three or five-day period, if an accessible spare vehicle becomes available at any time, it must be used in place of the vehicle with the inoperative lift or an inaccessible spare that is being used in its place. In any case in which a vehicle is operating on a fixed route with an inoperative lift (including in-service failures), and the headway to the next accessible vehicle exceeds 30 minutes, the entity must promptly (i.e., within 30 minutes) provide alternative transportation to persons with disabilities who are unable to use the vehicle.

https://www.transit.dot.gov/regulations-and-guidance/civil-rights-ada/part-37-transportation-services-individuals-disabilities#sec.37.163

vi. *Sec. 37.163 Keeping vehicle lifts in operative condition: Public entities. Metro Procedures*

Metro's procedures for compliance are summarized below:

- The procedure Includes instructions on what to do if headway is less or more than 30 minutes.
- If the headway is less than 30 minutes, call the follower (a follower refers to bus that operates on the same route) to verify that the accessible equipment on that bus is operational, and that there is available space in the mobility device securement area.
- If the headway is 30 minutes or more, or if the customer cannot be accommodated by another bus within 30 minutes for any reason, additional steps are required.
- Operators are directed to deploy the ramp manually, so alternative transportation may not be needed.
- No information on removing a vehicle with an inoperative lift from service within the third day is included in the procedure.

vii. *Key Themes*

1. A threshold of 6% for wheelchair pass-ups appears too high. The systemwide average across all routes is 2.38% for the period July 2023-June 2024. Only 11 of the 88 routes had wheelchair pass-ups over 3% and no route had wheelchair pass-ups over 6%. Tracking routes with wheel-chair pass-ups over 2.38% will identify those routes with potential shake-up actions. **(Rec 1.a)**
2. Data should be mined further to develop relationships between types of pass-ups and operations **(Rec 1.b)**
3. There is a lack of consistency in definitions such as full bus (**Rec 1.c**)

4. Route/Line Capacity analysis process is not documented (**Rec 1.d**)
5. Few procedures are in place to handle scheduling and pass-up monitoring **(Rec 1.e)**
6. The ADA procedure for alternative accessible service is not fully compliant.
    a. The SOP does not explicitly state that ambulatory persons (such as those with invisible disabilities or visual impairments) must be permitted to use lifts or ramps upon request. This provision should be added to the procedure. Add a provision explicitly stating that ambulatory passengers with disabilities must be permitted to use the lift or ramp upon request, regardless of whether they use a mobility device. This aligns with 49 CFR 37.165(g)[1], which requires transit agencies to accommodate all persons with disabilities who request to use the lift or ramp. (**Rec 1.f.i**)
    b. Address Equipment Failures More Explicitly -It is recommended that Metro clearly state that vehicles with inoperative lifts must be taken out of service before the next service day unless no spare is available.   Metro should consider revising the Metro Bus Operations Control Standard Operating Procedures (SOP) 10.01– Accessible Service. 49 CFR 37.163[2]. (**Rec 1.f.ii**)
    c. Strengthening Documentation and Reporting. The Current SOP includes documentation forms for incidents but lacks specific procedures for reporting accessibility-related complaints and equipment failures. It is recommended that Metro implement a standardized process for recording, reviewing, and addressing accessibility-related complaints and equipment failures. 49 CFR 27.13(a.)[3] (**Rec 1.f.iii**)
7. Enhance Training for Operators- The current SOP outlines procedures but does not detail training requirements for operators regarding ADA compliance and assisting passengers with disabilities. It is recommended that Metro includes mandatory ADA compliance training for all operators, focusing on assisting passengers with various disabilities, proper use of accessibility equipment, and handling service animals. 49 CFR 37.173[4]. (**Rec 1.g**)
8. Service Animals- The current SOP states that Metro permits service animals but lacks detailed guidelines on handling situations where the service animal is out of control or poses a threat. (**Rec 1.h**)
    a. It is recommended that Metro defines clear procedures for operators to follow if a service animal is out of control or poses a direct threat to the health or safety of others. 49 CFR 37.167(d)[5] (**Rec 1.h.i**)

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[1] https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-G/section-37.165
[2] https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-G/section-37.163
[3] https://www.ecfr.gov/current/title-49/subtitle-A/part-27/subpart-A/section-27.13
[4] https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-G/section-37.173
[5] https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-G/section-37.167

9. Regular Maintenance Checks for Accessibility Equipment- The current SOP addresses procedures when equipment fails but does not emphasize preventive maintenance. It is recommended that Metro introduce regular maintenance checks for all accessibility equipment to ensure functionality. 49 CFR 37.161(a)[6] **(Rec 1.i)**

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[6] https://www.ecfr.gov/current/title-49/subtitle-A/part-37/subpart-G/section-37.161

b. **Results of Interviews**

i. *Results from interviews with Metro bus operators and supervisors on bus pass-up procedures and practices*

We conducted interviews of LA Metro operators and supervisors to understand the current procedures in place to manage and investigate pass-ups. A total of seven (7) operators and five (5) supervisors were interviewed. This report presents a summary of operator and supervisor responses related to:

A. Knowledge of existing procedures, training, and communications related to pass-ups and missed pick-ups
B. Assessment of trends and reasons for pass-ups
C. Resources for tracking and managing pass-ups
D. How operators and supervisors manage pass-ups in practice

Procedures, Training, Discussion Related to Pass-Ups

The interviewers asked both operators and supervisors about the governing procedures, training, and communication related to pass-ups. Specific practices, such as whether operators use a job sheet/run sheet and how pass-ups are documented were also addressed. Lastly, both groups were asked to consider whether revisions or additions are needed to the procedures and to provide any recommended improvements.

Key procedures governing pass-ups/missed stops

There was a wide variety of responses related to procedures governing pass-ups. Both groups indicated there should be notification to Bus Operations Control (BOC) of a pass-up, but this procedure is not documented. Only two (2) of the seven (7) operators pointed to the rule book, while over half (3/5) of the supervisors referenced this as a key resource governing pass-ups. Other responses are reflected below, a single respondent may have referenced multiple procedures:

Operator and Supervisor Responses Regarding Procedures Governing Rider Pass-Ups/Missed
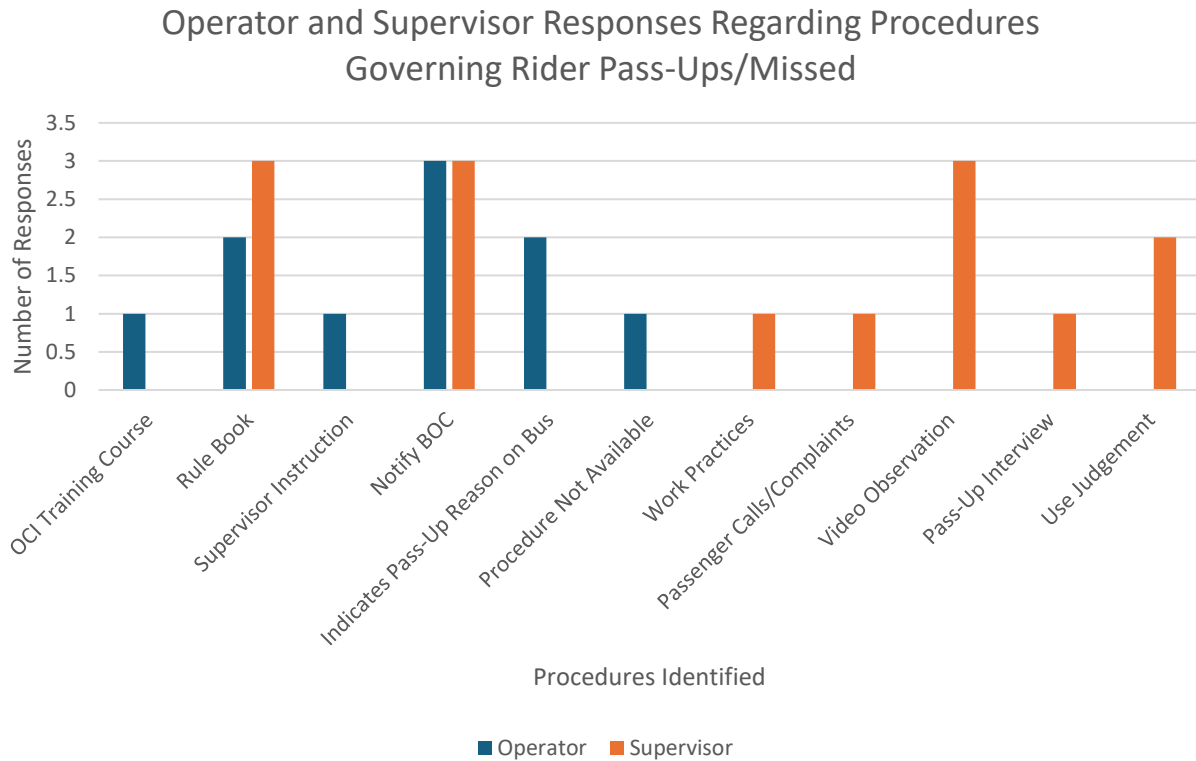
Figure 3: Operator and Supervisor Responses Regarding Procedures Governing Rider Pass-Ups/Missed

Availability of Procedures per Process. (*Supervisors Only)*

The table below indicates the responses from supervisors on the procedures available for specific operating processes related to pass-ups. In each of the areas, written procedures governing activities have not been developed.

Process	Procedures Identified by Supervisors or Procedures required (*# Supervisors out of 5 total*)
a. Bus operations related to bus pass-ups	• Rule Book (5)
b. Scheduling issues that relate to bus pass-ups	• Annual training (1) • No procedures (2) • How to handle School trippers (1)
c. Headways, route timing, and bus frequency on each route – what department develops these, that might relate to bus pass-ups? Does the department that	• Planning responsibility to complete (1) • Initial training (1) • No procedures (2) • Swiftly app adds information on need to adjust headways(1)

Process	Procedures Identified by Supervisors or Procedures required (# Supervisors out of 5 total)
develops the overall route and service schedules also complete the run cut?	
d. Trip routing and tracking	• Planning responsibility to complete(1) • Initial training (1) • No procedures (2) • Swiftly app adds information on adjust headways (1)
e. Operators entering service for shift start/Operators leaving service for shift end (phrase to explain what this has to do with bus pass-ups.	• 10-15 minutes included for turnarounds (1) • Discuss detours/problems with the bus (2) • End of day bus check completed (1) • Not an issue (1) • Important to review paddle (1) • More training on transition (1) • Supervisors communicate at shift change (1)
f. Supervisor monitoring/Operators ride-along/ Operators evaluations	• Ride along/field monitoring completed (3) • Not familiar (2)
g. Key communications	• Initial training (1) • No procedures (2) • Communications with vehicle operator (VO) or BOC (3)
h. Bus loading policy/Bus at full capacity	• 40-45 passengers is full capacity (1) • Pushes code and discusses next steps with dispatch (1) • Observe/report (1) • Judgement call (2)
i. Safety	• Specific form is used (1) • Specific button for accident, BOC will send supervisor (1) • Operator judgement (2) • BOC is notified, VO evaluates (1)
j. Wheelchair/mobility device size and securement	• Send van to pick up wheelchair passenger (1) • Preselected buttons available, dispatch provides instruction (3)
k. Need for breaks/How breaks are provided and where	• Specific button available, tell passengers and dispatch (3) • Tied to timepoints/mostly breaks are taken when at terminal (2)

Process	Procedures Identified by Supervisors or Procedures required (# Supervisors out of 5 total)
l. Bus behind schedule/When is another bus inserted in order to bring a route back on schedule	• Operations told how many minutes late (1) • Cannot leave until time points expire on routes (2) • Time points do not apply (1)
m. Weather concerns	• Judgement calls (4) • Rule book addresses flood areas (1)
n. Emergencies	• Contact bus operations, supervisor will go to location (2) • BOC/VO provide guidance (2) • Training addresses mechanical issues (1)

Table 1: Availability of Procedures

Training on procedures and how specific training is documented

Three (3) operators and two (2) supervisors indicated Operations Central Instruction (OCI) is a resource for providing operator training. Only supervisors suggested that the rule book and training (not specified) were avenues for training on this issue. One operations supervisor noted that the initial training includes rider pass-ups and teaches operators how to work with dispatch and what to do in-route. These classes are available at OCI. A second supervisor notes that once the OCI training is provided, line instructors accompany operators for a week to provide instructions while driving.

Three (3) of the seven (7) operators noted that there are no procedures and no training related to pass-ups. An additional three (3) noted that they just ask questions as they arise or rely on experience.

Operator/Supervisor Responses Regarding Training
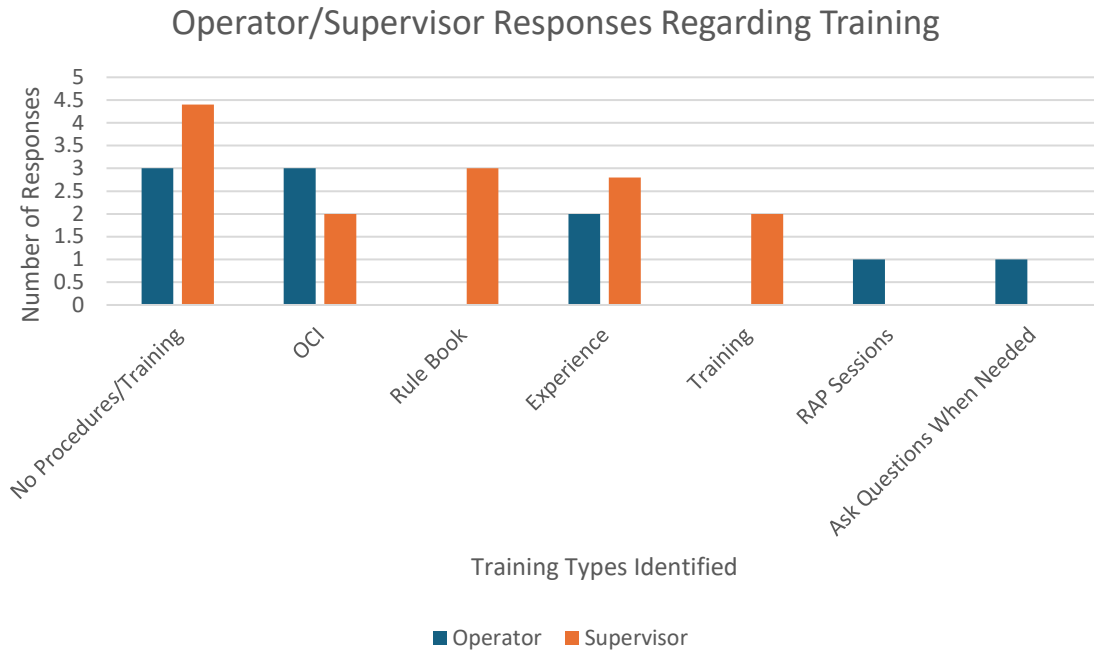
Figure 4: Responses Regarding Training

Meetings held to discuss rider pass-ups/missed bus stops

Although two (2) operators note that there are none (or no meetings in the past year and one half), five (5) of the seven (7) note that "RAP" sessions (informal meetings between supervisors and operators) inform them about the status and concerns of others. Three (3) supervisors also highlighted the "RAP" sessions with operators. Supervisors also noted there are monthly meetings to discuss complaints and one-on-one meetings as needed for investigations. Interviewees were not able to provide any specific data on pass-up reports shared at these meetings.

Operator/Supervisor Discussion of Meetings
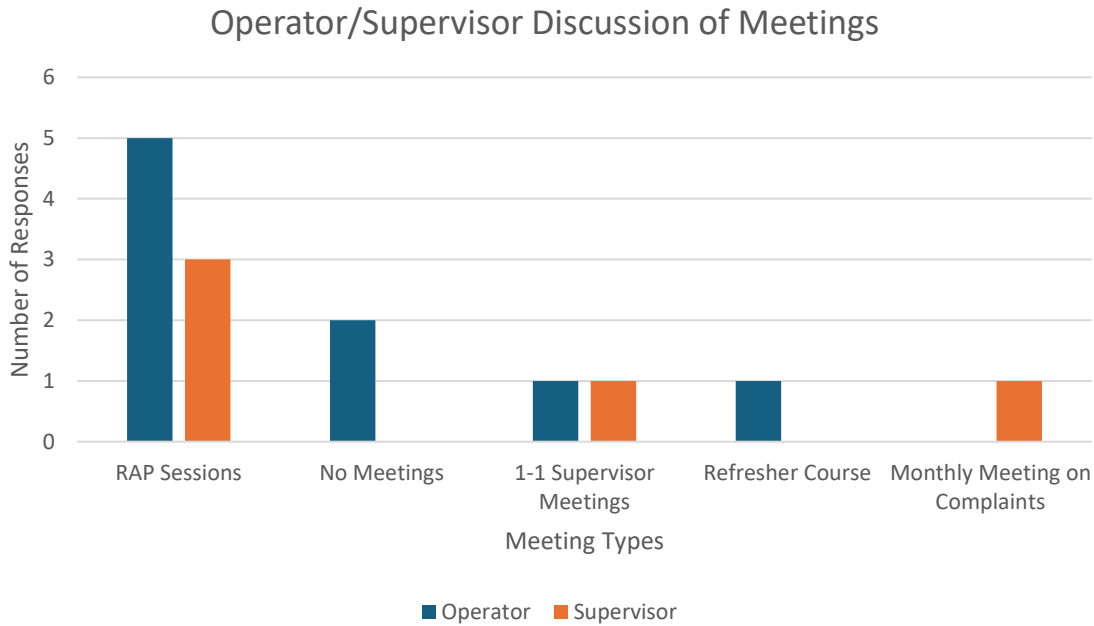
Figure 5: Discussion of Meetings

Discussions by management with operators when rider pass-ups occur/bus stops are missed

These responses differ slightly from those related to meetings regarding rider pass-ups. Only three (3) operators and one (1) supervisor refer to "RAP" sessions. Comments suggest these sessions may not consistently address rider pass-ups and do not lead to changes. Four (4) operators note that there are no discussions or no tangible/regular communications related to pass-ups. Supervisors note that these should be managed by supervisors/managers/ directors.

Communications from management/with operators when pass-ups happen

Most operators (5 of 7) note that there are no additional communications from management related to pass-ups. Reasons provided for communications related to pass-ups are specific to complaints, direct communication with BOC, or safety concerns as noted below.

Other Points of Communication Related to Pass-Ups
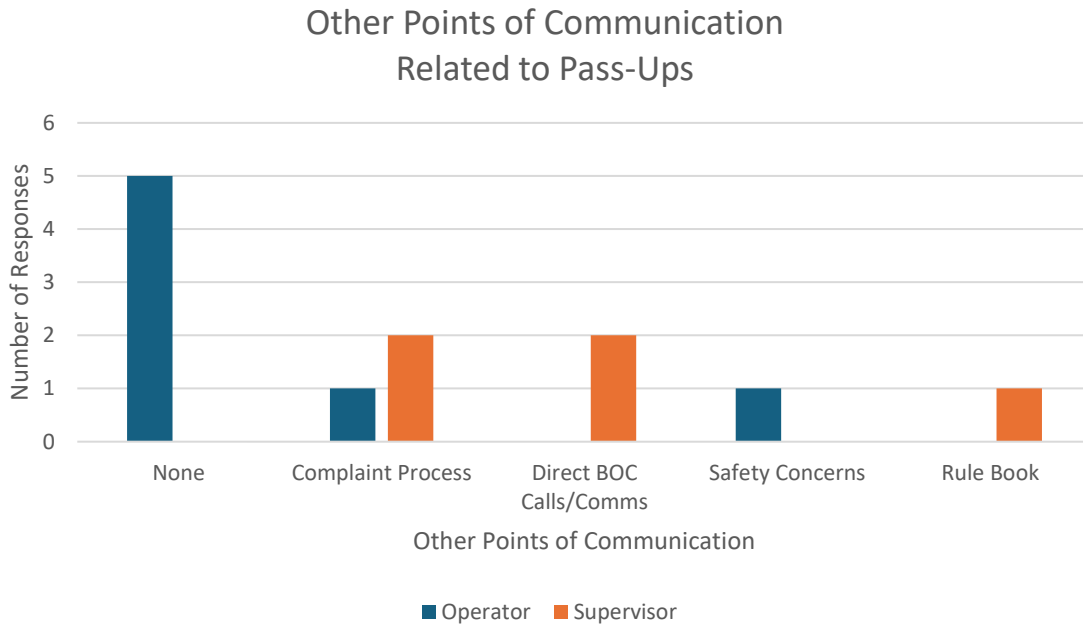
Figure 6: Points of Communication Related to Pass-Ups

Use of a job sheet/run sheet

All operators report that they rely on the paddle. Two (2) supervisors also reference the paddle as the key resource. The paddle provides information on the operator's routes and also time points. Operators cannot leave stops before the time point expires. Supervisors also highlight that operators sign-in and can access their schedule for the day, this is tied to the mobile app.

Discipline for unjustified bus pass-ups (*Supervisors Only*)

Supervisor responses reflect a progressive discipline process. Supervisors may contact the operator to discuss the pass-ups, there will be warnings and/or requirement to attend additional training. One (1) supervisor notes that the director or manager directs the supervisor to do special checks as needed.

The need for disciplinary action also depends on the severity or pattern evidenced by the operator or incident. Operators may be written up for the file; patterns of unjustified pass-ups could lead to discharge.

Need to revise the procedures for Operators or others, and the allowable reasons for rider pass-ups/missed pickups

Although not all interviewees noted a need for changes, both operators and supervisors provided suggestions for revisions to the procedures:

- New training including videos, effects of pass-ups on individuals, and impact on jobs (or more training generally)
- Quicker turnaround time for the review of videos and better footage
- Elaborate on and add more codes for pass-ups based on regulations
- Weekly meetings on pass-ups with video support
- Additional training on customer service and passenger relations
- Improve head signs or bus colors to indicate overload situations
- Use data to manage time points

Suggested improvements to procedures, monitoring, or processes related to pass-ups

Specific improvements highlighted by operators include:

- Provide additional direction to operators with unruly passengers; fare evasion
- Need more buses on the road
- Investigate whether the paddle can reflect rush hour schedule
- Tighten time points

Supervisor suggestions include:

- More sharing of pass-up information and follow-up training
- More staff to handle complaints
- Maintain communications with BOC and VO
- Improved customer service and passenger relations

Operator/Supervisor Assessment of Trends and Reasons for Pass-Ups

Interviewees were asked to define key terms and their assessment of reasons and trends leading to pass-ups and missed pickups.

How pass-up is defined, documented, and tracked

Five (5) of the seven (7) operators note that pass-up codes are included and tied to the ATMS program. Two (2) operators note that pass-ups occur when the bus is full. Two (2) supervisors use the CCATS system to manage pass-ups. An additional two (2) noted that they do not track complaints. One (1) supervisor defines pass-ups as being related to having too many customers on the bus or the operator not seeing the passenger.

Primary reasons for pass-ups of passengers

Over half (4 of 7) operators noted that missed pickups are due to the bus being at capacity, or standing room has reached the yellow line. The full bus may be too full due to student pickups during school hours or rush hour. On the other hand, supervisors highlight situations in which a

passenger is near a stop/walking towards a stop, or bus has already started moving as a passenger runs to the stop. A summary of the reasons for pass-ups are reflected below:

Assessment of Primary Reasons for Pass-ups
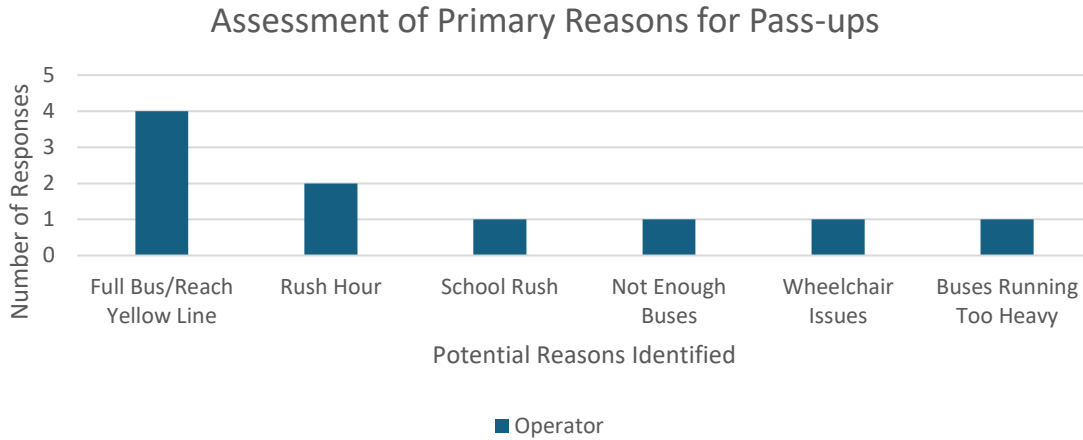
Figure 7: Assessment of Primary Reasons for Pass-Ups

Trends related to the number of pass-ups

The key trends identified by operators are school times and rush hours. One (1) operator also noted an increase in homeless and transient riders causes the operator to use judgement whether the passenger may be passed up due to one of the reasons included in the operator handbook. Supervisors provided specific additional trends including safety concerns, downtown at night, having less supervisors available at night, and Santa Monica routes.

Assessment of Trends
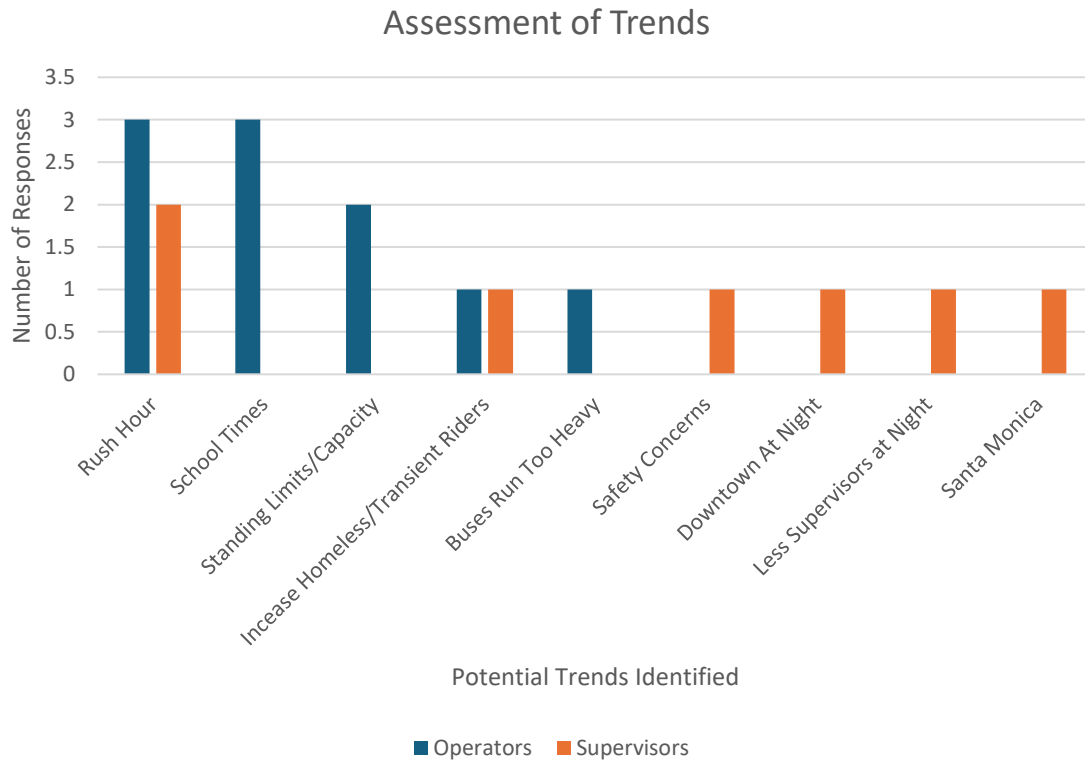
Figure 8: Assessment of Pass-Up Trends

Circumstances for pass-ups (*Operators Only*)

Five (5) of seven (7) operators note that pass-ups occur when the wheelchair area or bus is at capacity. One (1) operator highlighted rush hour, and another noted the need for additional buses to handle capacity in the case of full buses.

Specific problematic times for increased pass-ups include school pick-up/drop-off times (4), rush hour (4). Specific lines that were highlighted include: 40, 210, and 233.

Resources for Tracking/Managing Pass-Ups

Complaint tracking and related procedures (*Supervisors Only*)

Not all supervisors are involved in the complaint process. Divisions handle complaints and supervisors may be asked to do a three-day follow-up check to witness the situation using time and locations. Passengers contact Gateway to enter a complaint or can email/telephone customer service and the information is available in CCATS for review.

Camera availability and operation

There are cameras on the front door, on the curb, side to rear, and rear door. A form (OCPM10) is needed to obtain video footage when complaints are investigated. One (1) operator noted that a two-day wait is required after the request is made, another suggested the wait time is between three-days to two weeks.

Operators noted that the cameras may not always provide a clear angle of sight although they can see passengers running to catch the bus and when the doors are open.

Reports on pass-ups generated by operators or management

None of the operators were aware of reports generated or used by management related to pass-ups although one (1) respondent suggested these may be used in "RAP" sessions.

Four (4) supervisors similarly note that there are no standard reports although some data may be shared in meetings. Various systems provide different reports: Complaint information is available in CCATS, Swiftly system is used to find a route, ATMS contains route information, and the Video AXON program can also be used to provide camera footage.

Missed pickups on micro-transit vehicles

Neither operators nor supervisors were able to address this service.

Managing Pass-Ups

Operators were requested to respond to how they manage various scenarios that could lead to pass-ups. Supervisors were asked to weigh in on how operators should manage some of these scenarios. Supervisors were also asked to respond to procedures for intentional/unjustified pass-ups – most supervisors reported that there are no procedures, one (1) supervisor noted that they rely on the ATMS system to try catching operators arriving early or 'running sharp' when they leave early from the stop based on assigned timepoints for the route. The table below reflects responses to the various scenarios:

Pass-Up Scenarios	Operator Responses (*# Operators out of 7 total*)	Supervisor Responses (*# Supervisors out of 5 total*)
a. Unintentional pass/Patron not in clear view	• Supervisor discusses, especially with complaints; sees notification when reporting to work (2)	• Show video/counsel (3) • Safe 7 form is written up (1) • Write up if there is no good reason (1)
b. Passenger attempting to load the bus with unallowable items	• Case-by-case basis (1) • Does not allow (2) • Examples provided (3)	• If cart fits, tell rider to keep it out of aisle (1) • Show video/counsel (2)

Pass-Up Scenarios	Operator Responses (*# Operators out of 7 total*)	Supervisor Responses (*# Supervisors out of 5 total*)
	• BOC may not support (1)	• Call BOC (1) • Up to operator (1)
c. Passenger does not have fare	• Flexible 1) • No impact, has to provide ride (6)	
d. Lack of access due to construction or police activity	• Flexible (2) • Contact BOC (4) • Passengers will let them know (1) • Put detour on head sign (1)	• Detours allowed (1) • Put patron in safe location (2) • Aware of construction ahead of time/not police delays (1) • Operator judgement (1) • Supervisor issues detours and post signs at affected stops (1)
e. Bus too late to stop/Bus early	• Wait for time point if early (3) • Hard to react to running late (1) • Per paddle (1) • Schedule changes twice per moth/manage time points (2) • 1-2 wheelchairs will cause delays due to loading (1)	• Never early (5)
f. Bus out of service	• Monitored by GPS (2) • Automatically or manually change head sign to 'out of service' (2) • Passengers should recognize/straightforward (2) • Mechanical only (1)	
g. Discharge (drop off) only	• Call BOC to indicate overload (1) • Switch sign to discharge only (1) • Have to pick up passengers/notify of last stop (2) • May be used during rush hours (1) • Due to full bus (1) • None (2)	• Keep going on deadhead (1) • Probably due to mechanical issue (3) • Discharge only used for highway routes (1)
h. Mechanical Issues	• Place bus further down the line (1) • Does happen (2) • BOC knows/send maintenance (4) • Next bus picks up riders (2)	• App indicates lateness (1) • Await next bus (3) • Work with BOC (1)

Pass-Up Scenarios	Operator Responses (# *Operators out of 7 total*)	Supervisor Responses (# *Supervisors out of 5 total*)
i. Overcrowded or full bus	• Determined by yellow line (2) • Entrants via back door may not be counted (1) • Push pass-up button (1) • Notify BOC/discuss options with BOC (4)	• 40-45 passengers is threshold for being full(1) • Preselect button (3) • Operator judgement (1)
j. Operator refused service	• Only if blatant (2)	
k. Safety issues	• Report on Safe 7 form(1) • Call in to BOC (5) • Hold bus or call LAPD (1) • Manage unruly passengers (daily) (3)	
l. Wheelchair size or use	• Load factors (limited to 2) (1) • Not an issue (2) • 1 wheelchair can take up both spots/other challenges (2) • Notify BOC (2) • Find a way to get the wheelchair in (1)	
m. Passenger is a chronic complainer, distractor, or interrupter	• Report on Safe 7 form (1) • Call in after the fact (1) • Contact BOC (1) • Pass them up (1)	
n. Human waste or other hazardous material	• Contact BOC (4) • METRO wants operator to let them on the bus (1)	
o. Passenger poses threat	• Report on Safe 7 form for repeat problems (1) • Call BOC (6) • Hold bus or call LAPD (1)	

Table 2: Pass-Up Scenarios

Themes and Conclusions

1. Procedures to manage communications about pass-ups are not documented
2. Key definitions such as full buses are not communicated
3. Training on pass-ups are not completed except for wheelchair pass-ups

4. Data on pass-ups is not shared or evaluated
5. There are inconsistent corrective actions for pass-ups noted for operators and supervisors

ii. *Results from interviews with 10 bus operators with highest number of pass-ups*

This group of operators were asked a series of ten questions to gauge if there was a consistent understanding of Metro policy and procedures related to pass-ups.

How are pass-ups defined and tracked?

There were a variety of responses. Operators defined a pass-up as passing a stop when the passenger was not at the stop (5); passing a stop with passengers (4); having a full bus and passing a stop (1).

Many operators indicated that pass-ups are only tracked through complaints and not through the ATMS. Other responses include pass-ups were tracked by public complaint (4); reported via ATMS (2); not tracked at all (2); notes to self on paddle (1); only for wheelchair pass-up (1).

What do you do when there is a pass-up?

A variety of responses to this question with many caveats were given. When asked what they do when there is a pass-up, operators responded stop past the bus stop if safe to do so (4); press ATMS to report pass-up (2); do not do anything and continue route (2); report wheelchair pass-up to BOC (1); apologize (1).

What are procedures governing pass-ups?

Operators seemed very unclear about any set procedures other than trying to not pass-up passengers. Operators responded that they did not know what the procedures were (3); report via ATMS (2); report to BOC (2); do not pass-up passengers (2); report wheelchair pass-up to BOC (1).

Are you trained and how are you trained in pass-up procedures?

There was no clear uniform answer. Some operators referenced their onboarding when they were first hired and others referenced periodic training that varied from once a year to once every 5 years. There were a variety of answers from operators including annual training (2); counseling after a complaint (2); periodic training (2); OCI online training (1); computer time training (1); OCI onboarding (1); no training (1).

Are meetings held to discuss pass-ups?

Most operators mentioned informal "RAP" sessions occurring before shifts (6); fewer mentioned no meetings at all (3); and there was a single mention of one-on-one meeting following a complaint (1).

What are the primary reasons for pass-ups?

These answers were in line with the larger survey that was conducted (see results in next section) with 'overcrowding' and 'passengers not at the stop' topping the list. Some operators gave multiple answers to this question but the responses were; a threatening passenger (4); full bus (3); passenger not at stop (3); distracted passenger (3); overcrowded bus near school (1).

What are pass-up trends?

Answers to this question had a focus in threats or disrespect to the operators. Operators were concerned with homeless and/or mentally ill passengers creating a threatening environment and passengers disrespecting operator by not being ready to board. Operators were asked to identify any trends that they have noticed over time and they responded with; more threatening passengers (5); passenger not at stop (2); increased traffic delays (1); distracted passengers (1); crowded buses at train stations (1); no answer (1).

Under what circumstances do pass-ups happen?

As with the previous question; erratic or difficult passengers and passengers not ready to board topped the list. Operators were asked under what circumstances pass-ups happen and mentioned; passenger not at the stop/ready to board (5); erratic or difficult passenger (2); delays for construction leads to overcrowding (1); dark bus stop (1); homeless fires at bus stop (1); people standing in street making it unsafe to stop (1).

Do pass-ups happen more frequently at certain times?

Darkness reducing visibility was mentioned as a cause for pass-ups as well as crowding at rush hours. Operators mentioned several periods when pass-ups tend to happen such as; before sunrise (3); anytime (3); rush hour (2); when school lets out 3:30 (1); when connections are scheduled too close together (1); when too many buses stop at same location at same time (1); anytime during darkness (1).

How are certain circumstances managed?

We gave the operators a list of several circumstances that could cause a pass-up and asked them to share how they managed the situation. Generally, there were a wider variety of responses to each circumstance that required more discretion from the Operator.

Circumstance	How handled
a. Unintentional pass/Patron not in clear view	• Do not stop (3) • Stop far side or past stop if safe to do so (7)
b. Passenger attempting to load the bus with unallowable items	• Deny boarding (10) • Report to BOC (8)
c. Lack of access due to construction or police activity	• Do not stop (2) • Report to BOC (8) • Stop as close to stop as is safe (4) • Follow instructions from BOC (5)
d. Bus too late to stop/Bus early	• Stop if late (4) • Wait for time point if early (4) • Pass stop and report to BOC (1)
e. Bus out of service	• Change head sign to Out of Service (8) • Report to BOC (4)
f. Discharge (drop off) only	• Report to BOC (2) • Has not happened (4) • Inform passengers (1) • Report full bus on ATMS (1) • Change head sign (2) • Pass stop (3) • Stop far side (2)
g. Mechanical issues	• Report to BOC (9) • Change head sign (4) • Follow BOC instruction (5)
h. Overcrowded or full bus	• Report to BOC via ATMS (9) • Pass stop (4) • Stop far side (2) • Follow BOC instructions (1) • Report to BOC (1) • Make note on paddle (1) • Make hand signal to passed up passengers indicating full load (1)
i. Operator refused service	• Report to BOC and state reason (8) • Report to BOC if ADA only (1) • Follow BOC instructions (1)
j. Safety issues	• Report to BOC (8) • Pass stop (4) • Has not happened (1)
k. Wheelchair size or use	• Board passenger if there is room (5) • Report to BOC if you have to refuse service (6) • Allow only if passenger sits in wheelchair (1) • If cannot accommodate report to BOC via "priority" ATMS (1)

Circumstance	How handled
	• Pass stop if homeless not ADA (1)
l. Human waste or other hazardous material	• Has not happened (1) • Refuse service and report to BOC (9) • Report to BOC and follow their direction (1)
m. Passenger poses threat	• Report to BOC (2) • Pass stop (3) • Refuse service and report to BOC (7) • Report to BOC and follow their direction (1)

Table 3: Handling Various Pass-Up Circumstances

Themes and Conclusions

1. Operators are clear on what to do with full bus and ADA pass-ups (when obvious with wheelchair).

2. Operators exercise a lot of discretion especially when confronting passengers that appear to be homeless or mentally ill. In these cases, operators will pass-up these passengers if they perceive a threat to themselves or other passengers.

3. Many operators put some of the responsibility on passengers who are distracted by phones or headphones and therefore not noticing the bus and not trying to alert the operator that they want to board.

4. Visibility was a concern raised by operators. There are conditions on some lines where the lack of lighting near some stops makes it difficult for operators to see waiting passengers. In other cases, overgrown shrubs and foliage make it hard to see waiting passengers. Finally, some bus shelters and advertisements at stops can obscure passengers leading to pass-ups.

5. Some benches are not right next to stops and passengers sitting do not make a move to get to stop.

6. Several operators mentioned one on one meetings with supervisors to discuss a pass-up complaint. This allows the operator to give their side of the issue and it also gives management a chance to reinforce Metro policy and procedure.

7. Several operators mentioned informal "RAP sessions" that take place at the division where pass-ups are mentioned. However, "RAP" sessions are not available to all drivers because of shifts and supervisor availability.

8. Some operators see "RAP" sessions as time to be told stats and not on what to do or how to address issues leading to pass-ups.

9. How and when operators report pass-ups vary greatly. As a result, pass-ups are most likely underreported.

c. Results from Survey of Operators

CCATS data for the period July 1, 2023 to June 30, 2024 was reviewed and it was determined that 2,539 operators had a pass-up complaint against them. A random sample of 608 operators that had a pass-up were selected to receive the survey and a total of 259 responses were received or 10.2% of the total. (The complete survey instrument and responses are in Appendix A.)

Operators were asked to list circumstances under which pass-ups happen; rank the top three (3) reasons why pass-ups happen; and list the time of day or night that pass-ups are more likely to occur.

The top responses for circumstances when a pass-up could happen were:

- Overcrowded or full bus - 79.54%
- Passenger not at stop – 78.38%
- Passenger not in clear view – 72.97%

The top responses for the top three (3) reasons why pass-ups happen were:

- Passenger not at the stop – 60.62%
- Overcrowded or full bus - 56.37%
- Passenger not in clear view - 51.74%

The top responses for what time of the day or night pass-ups were likely to occur were:

- 4:00 p.m. to 6:00 p.m. – 42.86%
- Evening after 6:00 p.m. – 40.54%
- 6:00 a.m. to 8:00 a.m. – 35.14%

i. *Themes and Conclusions*

1. Overcrowded or full buses is a top reason for pass-ups.
2. Passenger not at stop is ranked very high as a reason for pass-ups. This situation was described during interviews with operators as when a passenger is not at the stop and ready to board. The passenger may be down the block or across the street but they are not at the stop and operators either do not see them or cannot wait for them to reach the stop.
3. Passenger not in clear view was the other third response. This was described in interviews as passengers being obstructed by foliage, shrubs, signs, advertisements, bus shelters or other infrastructure. Linked with this response is passengers that are not indicating that

they are waiting for the bus and making it even more difficult for the operator to see the waiting passenger.

4. Safety concerns were the highest ranked "other category" mentioned by operators. These typically involve passengers being aggressive to or disrespectful of the operator or other passengers.

5. Waiting and boarding or alighting issues were highly ranked by operators in "other categories". These can be broadly categorized as similar to the "Passenger not in clear view" with passengers not indicating they wish to board, not standing at the stop, being inattentive to the approaching bus or not standing in clear view where the operator can see them.

6. Morning and evening rush hours were ranked as times with more pass-ups and this is consistent with the pass-up complaint data from CCATS.

7. Operators responding to the survey were more likely to mention the hours before 6:00 a.m. and after 6:00 p.m. as a frequent time for pass-ups. This is consistent with operator concerns about visibility and darkness but is not consistent with the actual pass-up data in CCATS. The cause of this disconnect is unclear. It may be partially due to the operator's perceptions that there should be more pass-ups because of darkness making it more difficult to clearly see bus stops and underreported by customers and operators.

d. Results from Data Analysis

i. *Identify correlations between pass-ups, ridership, and operations characteristics.*

Operators

Analysis was conducted on the CCATS data to identify the ten highest number of pass-up instances by operator. During fiscal year 2024, a total of 2,539 operators received a pass-up complaint. The average number of complaints for each operator that received a complaint was 1.96. The top ten operators with the highest number of complaints ranged from a high of 18 to a low of 9. They received a total of 120 complaints and the average number of complaints for the top ten was 12.

Top 10 Operators w/ Pass-Up Complaints
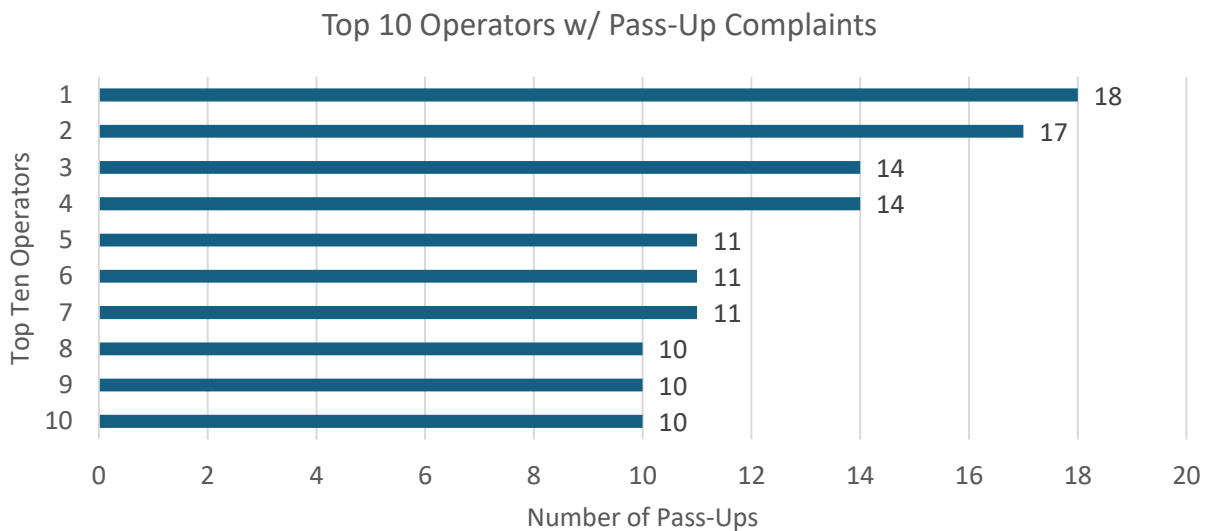
Figure 9: Operators with Pass-Up Complaints

The 120 complaints received by these operators took place on 25 different bus routes within 7 different divisions.

Top 10 Operators Highest Number of Complaints by Route
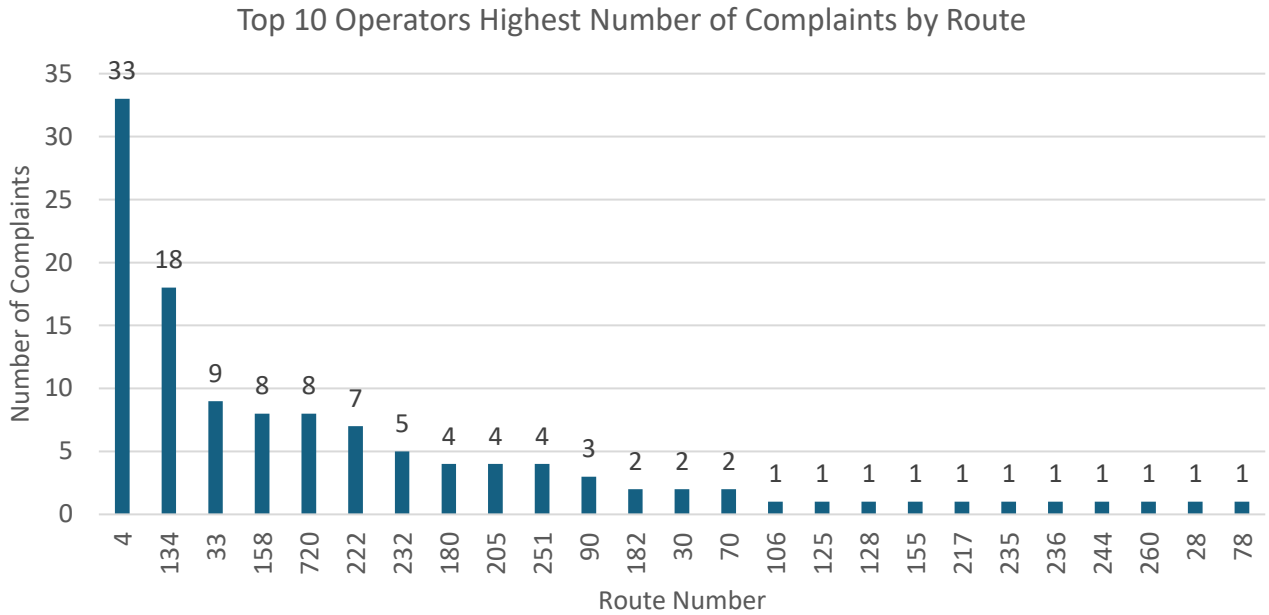
Figure 10: Top 10 Operators Highest Number of Complaints by Route

Top 10 Operators Highest Number of Complaints by Division
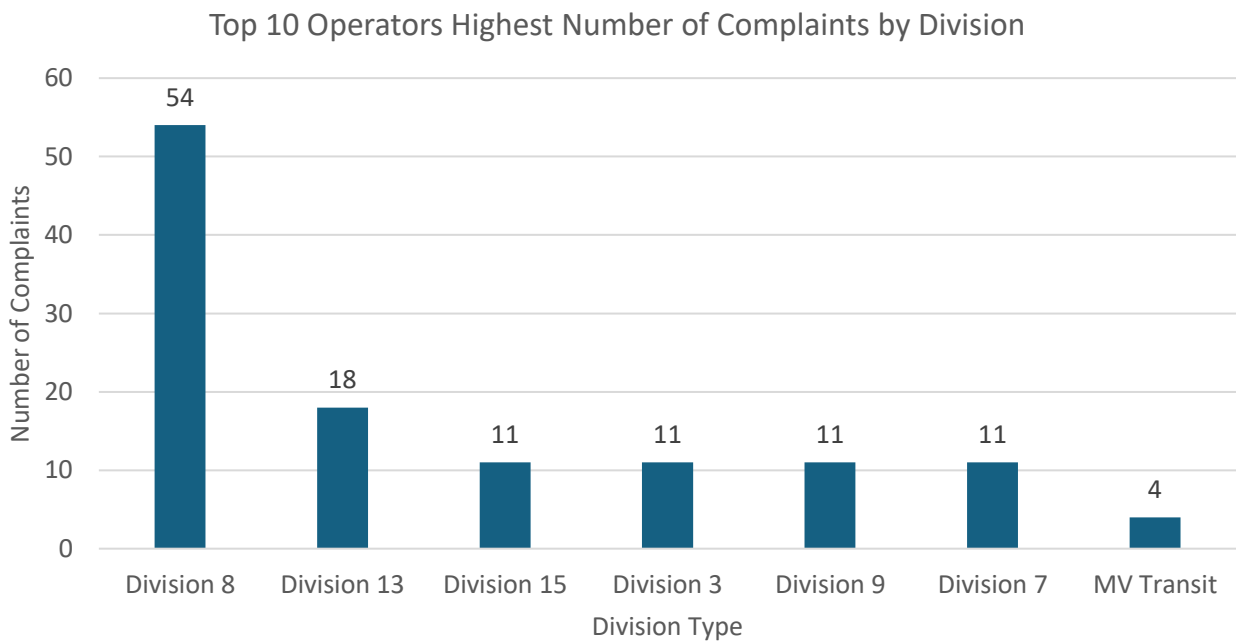
Figure 11: Top 10 Operators Highest Number of Complaints by Division

Pass-up Category

The CCATS data had 5,541 records of bus pass-ups. Of these records, 5,528 (99.77%) were closed and 13 (0.23%) were open. 94% of the complaints received were for pass-ups not involving an accessibility issue (see below, Categories 500-503).

Category	Number of Cases	Percentage
Category 200 Pass-up	5,186	94%
Category 500 AccSrv - Pass-up	281	5%
Category 501 AccSrv - Pass-up (Advised)	31	1%
Category 502 AccSrv - Pass-up (Denied)	39	1%
Category 503 AccSrv - Pass-up (Denied)	4	0%
Total:	**5,541**	**100%**

Table 4: Complaints by Category

The CCATS data was further broken into subcategories to categorize the pass-up complaint. Subcategories are assigned based on the circumstances of the complaint conveyed to Customer Relations. The subcategories are more specific descriptions of the type of pass-up to give greater context when analyzing the data. When looking at these subcategories, 51.25% are due to what the passenger filing the complaint characterizes as the operator not stopping at the stop even though they are aware of the passenger waiting (orange columns in chart below).

Top 10 Pass-Ups by Complaint Subcategory Code
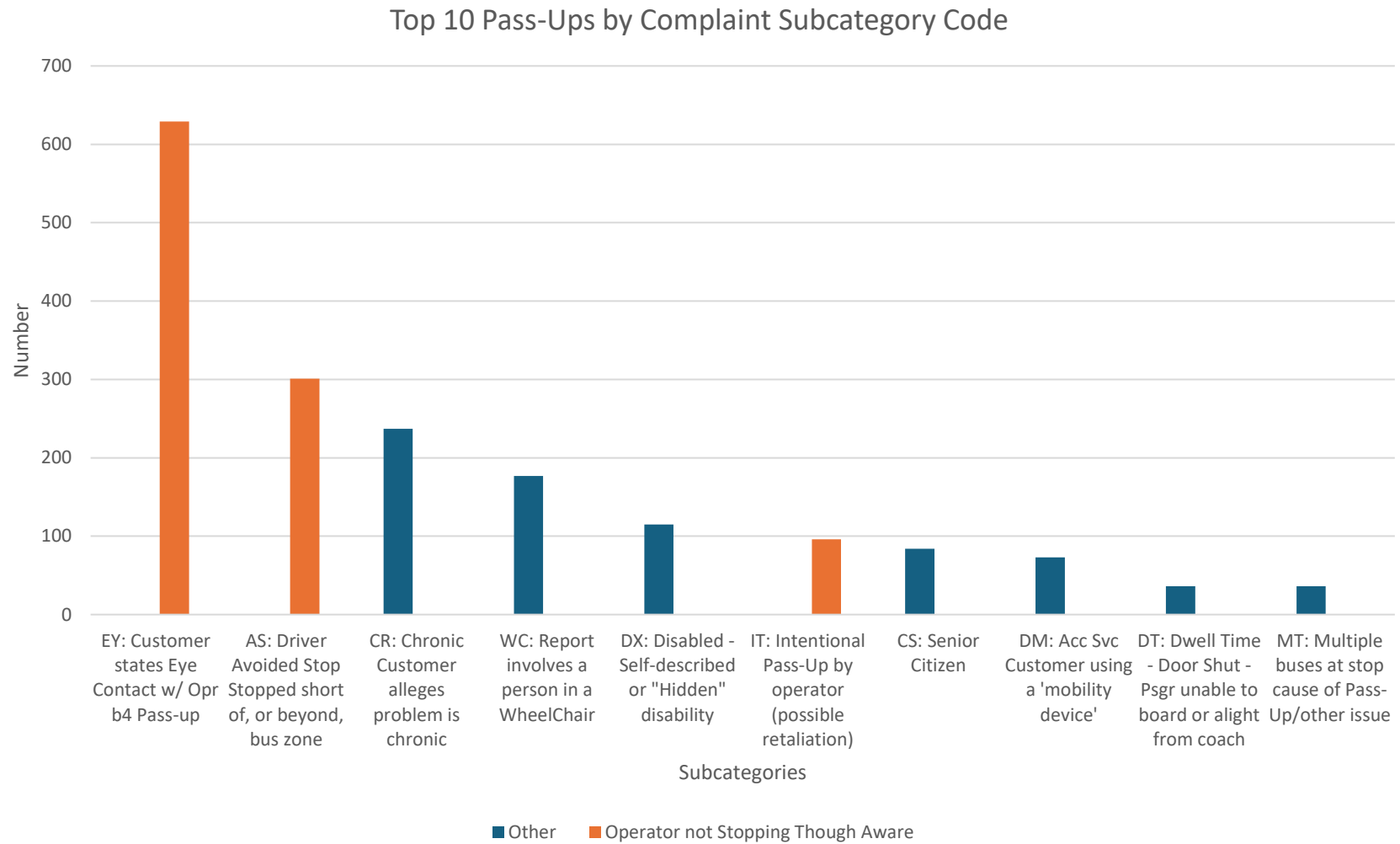
Figure 12: Top 10 Pass-Ups by Complaint Subcategory

These subcategories represent how the pass-ups were characterized by the passenger reporting the pass-up. A fuller picture can be determined by examining the "Liability" and the "Findings" data in the CCATS report.

The "Liability" data assigns a category to the result of the investigation. The following are the categories and their percentage of the total.
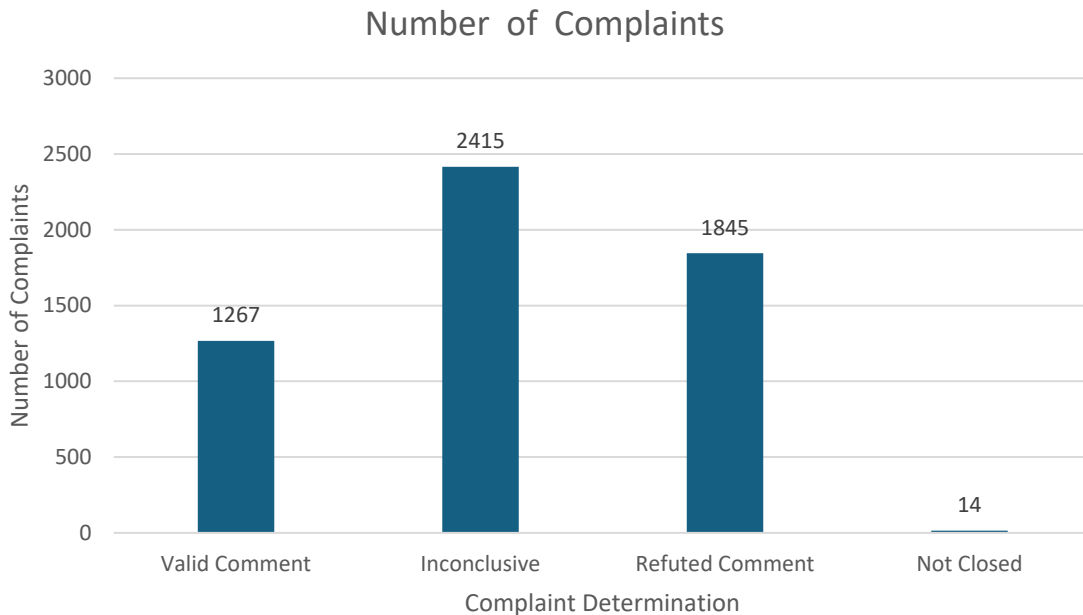
Figure 13: Number of Complaints

To give context to these numbers and better understand pass-ups, a review of the "Findings" data is needed. A detailed review of the "Findings" data for the 120 recorded pass-up complaints entered against the top ten operators was done to help provide that context.

In the 120 records examined, there were 28 "Valid" complaints. These were found valid after the review of the evidence, usually digital video recorder (DVR) footage, which showed that the passengers were passed up. The reasons stated in the findings were:

- Operator passed stop (no explanation) - 12
- Construction activity or other obstructions of the stop caused the pass-up – 6
- Operator cited a conflict with passenger in the past as reason for passing up - 5
- Designated detour on the route caused the pass-up - 2
- Bus overloaded reason for pass-up - 2
- Passenger was obscured or blocked by poles or signs – 1

There were 18 "Refuted" complaints in the records examined. These were found not to be intentional pass-ups by the operator. The reasons stated in the findings were:

- Coach stopped and boarded passengers. – 5
- No one was seen at the stop – 4
- Passengers not visible due to signs, bus shelter structure – 2
- Passenger provided incorrect information (complaint information did not match bus, route or operator) – 1
- Passenger at wrong stop where multiple stops are co-located (e.g., Big Blue Bus) – 1
- Bus was late and passenger left before it arrived – 1
- Passenger was picked up but still complained about past events – 1
- Homeless person sleeping on bus bench and passenger not near stop – 1
- Passenger caused a disturbance and operator had to call BOC for assistance – 1
- Waiting passengers made no attempt to indicate they needed bus to stop – 1

The largest category was "Inconclusive."   There were 74 "Inconclusive" records in the 120 reviewed in detail. Most of the inconclusive findings fell into two major categories.

- The first category is complaints for which there was no evidence to review (e.g., no DVR footage or other bus data) and the operator stated that they had no knowledge of passing up any passengers.
- The second category is complaints for which DVR footage has been requested but has not actually been reviewed and the operator stated that they had no knowledge of passing up any passengers. While many of these records indicate that DVR footage has been requested and will be reviewed at some point, the record is classified as closed and inconclusive. In many cases the phrase, "Will re-open if additional information is presented" is used but no follow-up appears in the record.

There were no records in the fourth liability category "Not Closed".

Location

The data for all 5,541 complaints in the CCATS data was analyzed to determine which lines and which divisions had the highest number of complaints. Below is a chart showing the top ten lines for pass-up complaints. This is followed by a chart showing the top ten divisions for pass-up complaints.

Top 10 Routes Highest Number of Complaints
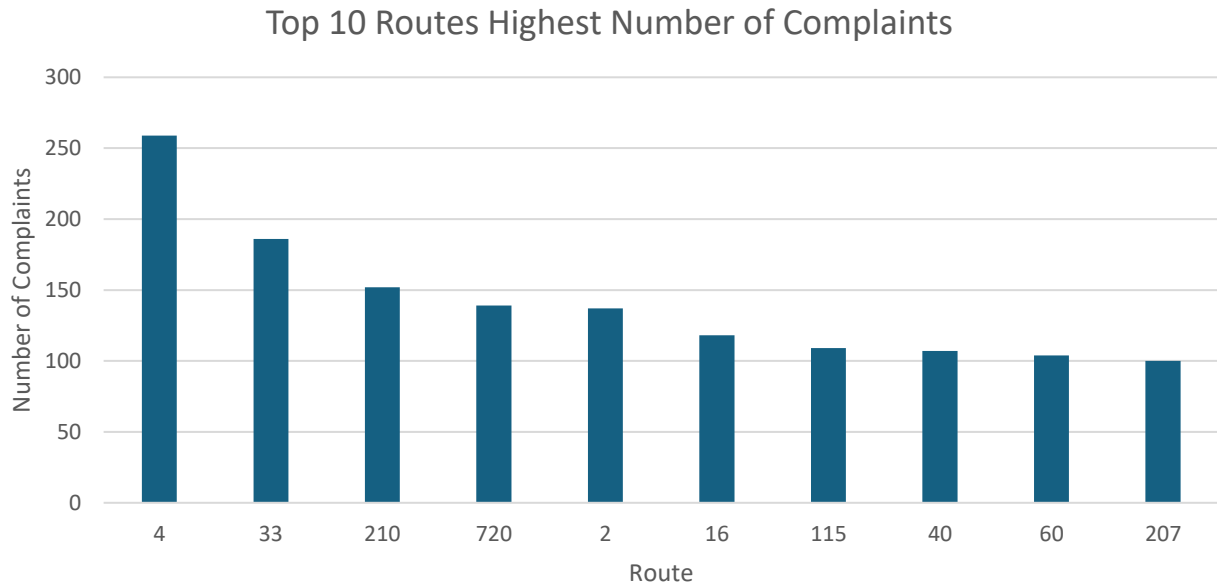
Figure 14: Top 10 Routes Highest Number of Complaints

Top 10 Divisions Highest Number of Complaints
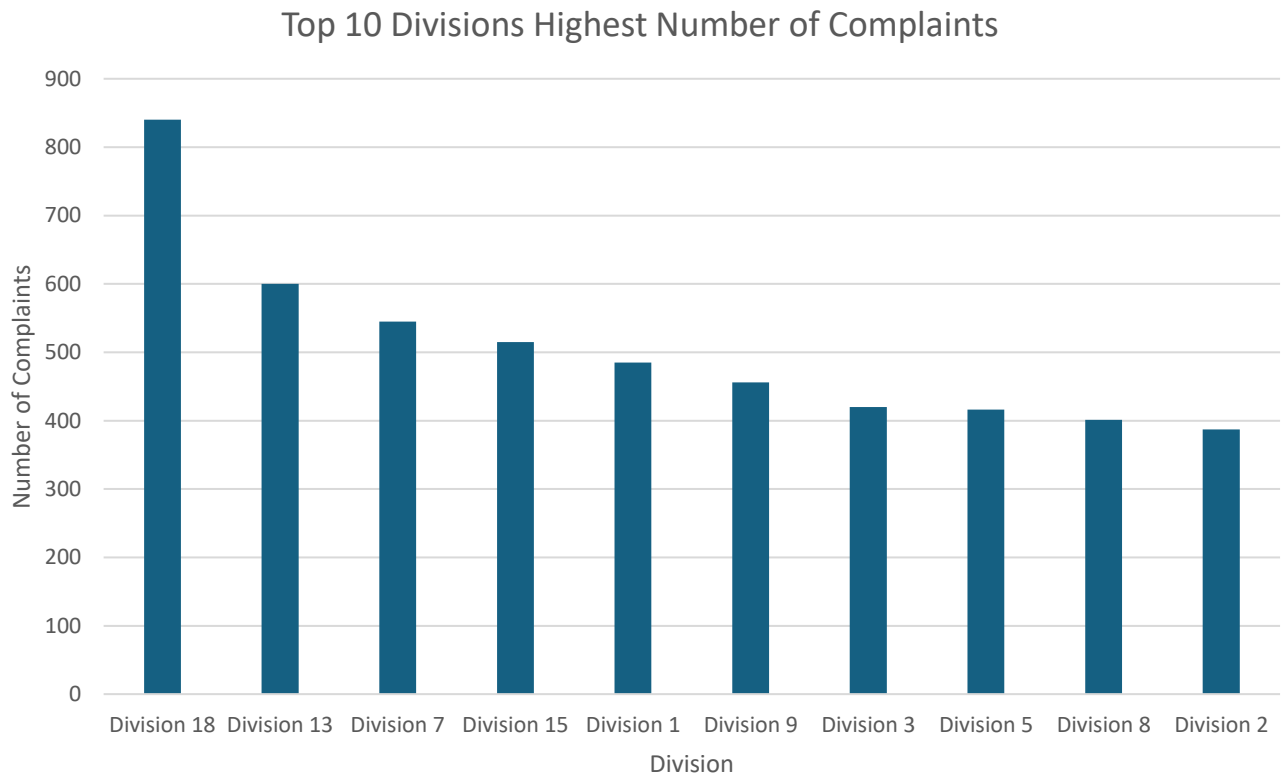
Figure 15: Top 10 Divisions Highest Number of Complaints

There are some parallels between the complaint statistics for the top ten operators and the statistics for all complaints. Line 4 (Downtown LA – Santa Monica via Santa Monica Blvd.) received the most complaints for both the top ten operators and for all operators. Line 33 (Downtown LA – Santa Monica via Venice Blvd.) and Line 720 (Santa Monica – Downtown LA via Wilshire Blvd.) also appear as common lines between the top ten operators and the statistics for all operators.

This may be because these lines are some of the busiest in terms of ridership. The three lines listed above are all ranked in the top ten busiest lines for ridership. There is a strong correlation between the total ridership on a bus line and pass-ups. This is not surprising. Generally, as the number of riders increases the opportunity for a pass-up increases. We used the Pearsons Correlation Coefficient[7] for each of these data sets. The result of this type of statistical analysis will return a number from -1.00 to +1.00 which generally means that the closer to +1.00 the coefficient is the stronger the correlation. A coefficient of +1.00 means that there is a one-to-one correlation between the variable and anything over +0.70 indicates a strong correlation. Total ridership for each line was compared to the number of pass-ups recorded in the CCATS data and found a high statistical correlation between total riders on the line and bus pass-up complaints. The Correlation Coefficient was +0.79.
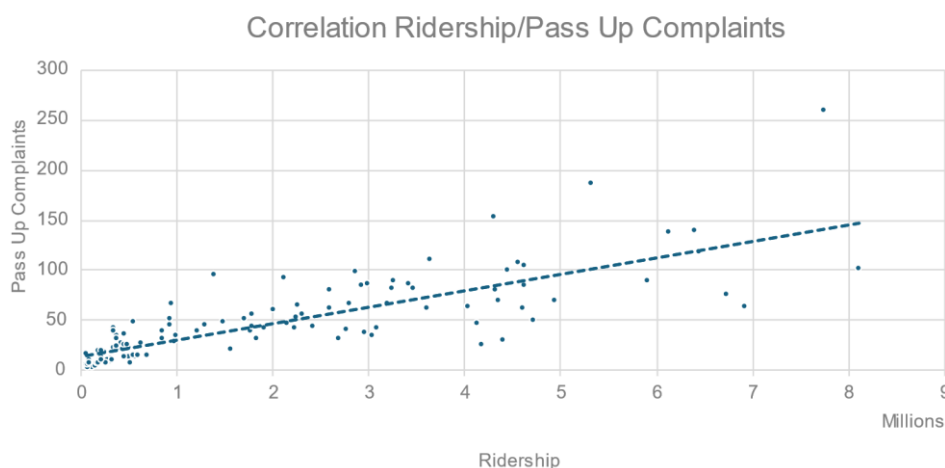
Figure 16: Correlation Ridership/Pass-Up Complaints

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[7] The **Pearson correlation coefficient (r)** is the most common way of measuring a linear correlation. It is a number between –1 and +1 that measures the strength and direction of the relationship between two variables. A value of +1 is the result of a perfect positive relationship between two or more variables. Positive correlations indicate that both variables move in the same direction. Conversely, a value of -1 represents a perfect negative relationship. Negative correlations indicate that as one variable increases, the other decreases; they are inversely related. A zero indicates no correlation.

In addition to looking at just the absolute numbers of pass-ups per line and division, we also calculated the rate of pass-ups per 100,000 riders. This will help to identify if there are any lines that are experiencing rates of pass-up complaints more than would be expected compared to the rest of the system.

The average number of pass-up complaints per 100,000 riders on every bus line systemwide is 3.8. Any line that has a pass-up rate significantly above the systemwide average may have issues requiring more attention.

We first applied the pass-up complaint rate calculation to the top ten lines by ridership and found that these lines all have pass-up rates below the systemwide average. When we applied the pass-up rate calculation to all lines, the following lines were identified as having the highest pass-up complaints per 100,000 riders.
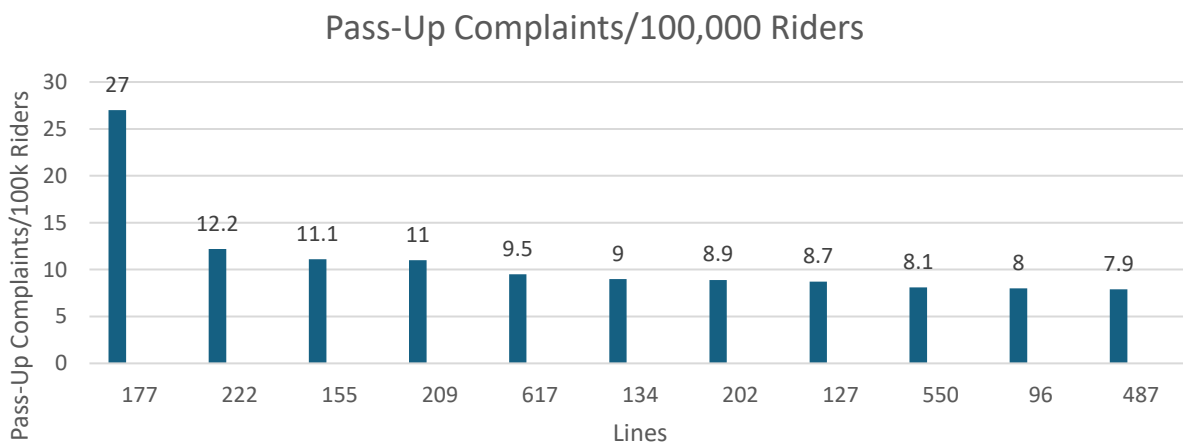
Figure 17: Pass-Up Complaints/100,000 Riders

There is no overlap between these lines and the lines with the highest ridership or with the lines with the highest number of pass-up complaints in absolute numbers.

One outlier is found immediately, Line 177. This line which connects Caltech, Northwest Pasadena and the Jet Propulsion Laboratory (JPL) via Fair Oaks Ave, Mountain St. and the 210 freeway was operated by Trans Dev for Metro until December 2024. This line is now operated by Pasadena Transit and is part of their system. The data did not suggest why this line had such a high rate of pass-up complaints. It did have the lowest number of riders (55,578) and therefore a relatively small number of complaints (15) results in a high complaint to ridership rate.

When comparing the top ten lines which had the highest number of pass-up complaints per 100,000 riders with the top ten lines in terms of ridership, one of the main differences other than

overall ridership was headway. All of the top lines with the highest complaints/ 100,000 riders had headways ranging from 30 to 60 minutes while the lines with the highest ridership had headways ranging from 5 to 15 minutes. In those cases where the headways are longer, the consequence for a passenger being passed up are greater because they wait longer for the next bus. The increased consequences and inconvenience to the passenger could lead to increased complaints. While the lines with the highest ridership have more pass-up complaints in total numbers, the rate of pass-up complaints is significantly less than the systemwide average because the consequence and inconvenience experienced by the passenger are less due to the increased frequency of service.

TOP TEN LINES BY COMPLAINTS/100,000 RIDERS

Line	Ridership	Pass-up Complaints	Pass-up Complaints/100,000 Riders	Headway (mins.)
177	55,578	15	27.0	30
222	344,828	42	12.2	30
155	341,483	38	11.1	60
209	91,014	10	11.0	60
617	190,130	18	9.5	50
134	378,976	34	9.0	35
202	55,921	5	8.9	60
127	549,485	48	8.7	30
550	86,084	7	8.1	30
96	224,203	18	8.0	45
487	378,144	30	7.9	40

TOP TEN LINES BY RIDERSHIP

Line	Ridership	Pass-up Complaints	Pass-up Complaints/100,000 Riders	Headway (mins.)
207	8,110,164	100	1.2	15
4	7,750,385	259	3.3	15
204	6,932,264	62	0.9	10
18	6,728,711	74	1.1	10
16	6,448,752	118	1.8	10
720	6,410,073	139	2.2	5
2	6,126,619	137	2.2	8
51	5,910,598	89	1.5	5
33	5,320,770	186	3.5	8
70	4,938,567	69	1.4	8

Table 5: Top 10 Lines by Complaints/100,000 Riders

Time of Day and Day of Week

The CCATS data was also examined to find patterns when pass-up complaints occur by day of the week and time of day. Most pass-up complaints are occurring mid-week. Almost equal amounts occur Tuesday – Friday with slightly fewer on Monday. There are significantly fewer pass-up complaints on the weekends.

Pass-up complaints are generally low in the early morning and evening hours. They generally ramp up during the day with three daily peaks: morning commute (8:00 a.m. – 10:00 a.m.); midday lunch (12:00 p.m. – 2:00 p.m.); and the heaviest period being the afternoon commute (3:00 p.m. – 5:00 p.m.). This is consistent with the correlation to total ridership.
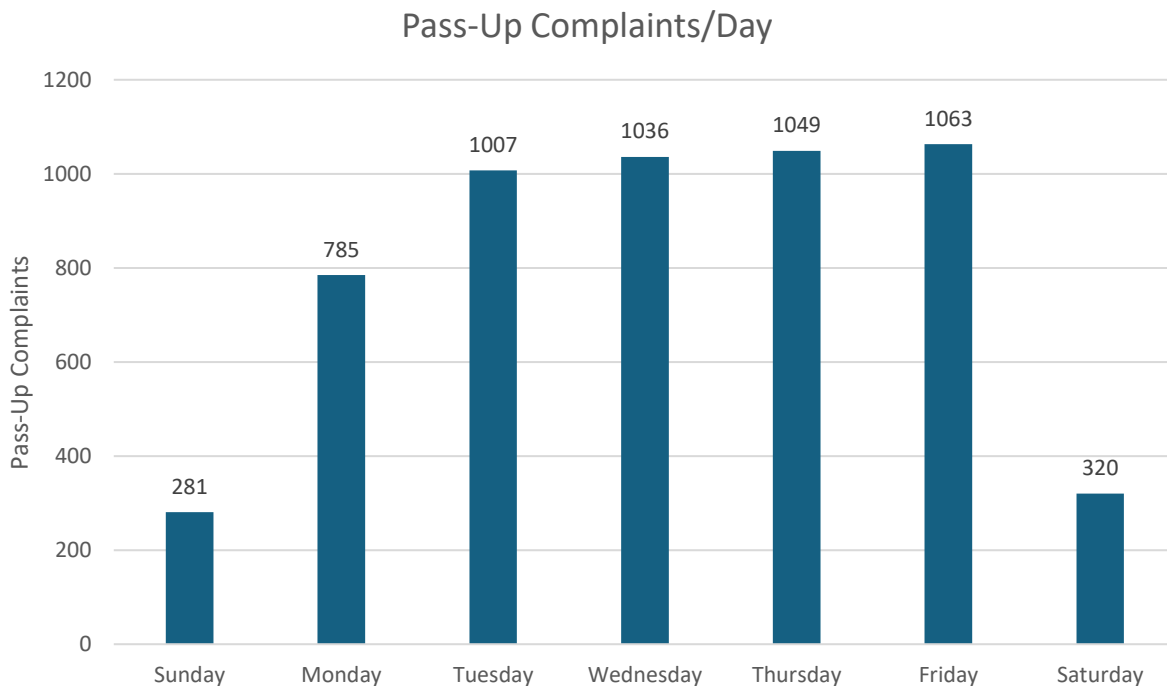
Figure 18: Pass-Up Complaints/Day

Pass-up Complaints/Time of Day
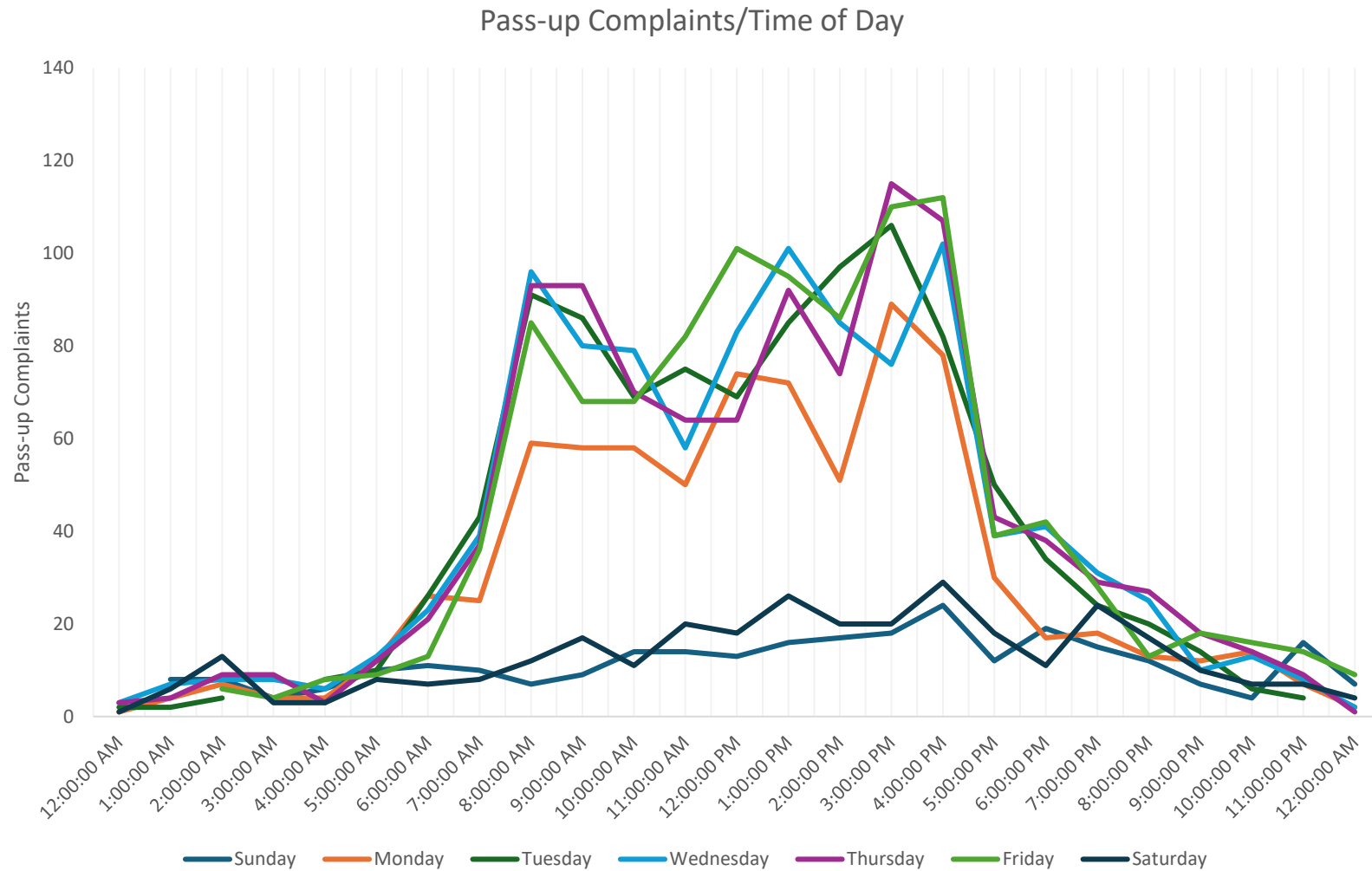
Figure 19: Pass-Up Complaints/Time of Day

Route Load Factors Analysis

A set of data was developed for the period July 2023-June 2024 that included information related to ridership, cancelled trips, load factors, overall pass-ups and wheelchair pass-ups to provide a summary of performance by line/route. The summary of average load factors per route is available in **Appendix B** with top 10 routes listed below:

Routes	Total Riders	Overall Pass-ups	Percent	W/C Pass-ups	Cancelled Trips	School Routes	Average Load Factors
002	6,126,619	3,366	0.05%	3.70%	1.3%	yes	0.622199571
004	7,750,385	3,432	0.04%	2.53%	2.2%		0.582910714
010	2,245,768	1,044	0.05%	1.05%	0.9%	yes	0.619711027
014	3,619,400	2,088	0.06%	2.07%	1.1%		0.687375
016	6,448,752	7,958	0.12%	2.57%	1.1%		0.666328947
018	6,728,711	6,888	0.10%	5.25%	3.3%		0.718783242
020	2,871,028	1,345	0.05%	2.76%	2.1%	Yes	0.594079487
028	3,197,177	1,807	0.06%	2.36%	1.3%	Yes	0.626990762
030	2,961,899	1,072	0.04%	2.17%	1.2%		0.562127563
033	5,320,770	6,078	0.11%	2.57%	2.3%		0.598157088

Table 6: Top 10 Average Load-Factors/Route

LA Metro provided load factor data for two periods – July 2023-November 2023 and January 2024-June 2024 reflecting two (2) period before and after the December 2023 service change. The data does not provide specific trip date or month. The data includes the route number, start hour, trip number, total maximum load, average seats, total seats, load factor, and trips. This data summarizes load factors per route for each of the two (2) periods. The summary uses the trip numbers to compare the 2023 to the 2024 period.

Route Load Factor Averages

The table in **Appendix C** reflects the average load factors per LA Metro route alongside the average load factors from July-November 2023 and January-June 2024 for comparison. The last column on the right reflects the change to load factors before and after the December 2023 service change. The load factors decreased after the service change for 34 routes including 3 of the top 10 routes with the highest load factor but increased 7 of the top 10. The 10 routes with the highest load factors are listed below with the full listing in **Appendix C.**

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
108	0.772987342	0.770162437	0.77579798	0.005636
460	0.760946667	0.774767123	0.747844156	-0.02692
18	0.718783242	0.708426523	0.729485185	0.021059
45	0.71814899	0.722964286	0.71343	-0.00953
105	0.70813555	0.702061224	0.714241026	0.01218
51	0.701219224	0.695158784	0.707259259	0.0121
115	0.696611486	0.690544218	0.702597315	0.012053
152	0.692785953	0.679176871	0.705947368	0.02677
81	0.690851711	0.692473282	0.689242424	-0.00323
14	0.687375	0.684076923	0.690673077	0.006596

Table 7: Top 10 Routes by Load Factor

Themes and Conclusions

The following key correlations were found using the results of the research and analysis:

1) Pass-up complaint categories: The majority of pass-up complaints (51.25%) can be placed in a subcategory that the passenger filing the complaint characterizes as the operator not stopping at the stop even though they are aware of the passenger waiting. Pass-ups related to wheelchair access and other disability issues made up only 20.78%.

2) Location: There is a strong correlation between total ridership number and numbers of pass-up complaints.

   a. The Santa Monica lines (4, 33, and 720) received some of the highest numbers of complaints.

   b. Rates of pass-up complaints (pass-up complaint/100,000 riders) are higher among lines with longer headways, which tend to be lines with lower ridership. Lines with higher ridership and shorter headways have lower rates of pass-up complaints. This may be because the consequence to the rider missing a bus on a route with longer headways is a greater inconvenience and thus more likely to generate a complaint than on a route with a shorter headway and less inconvenience to the rider.

3) Time of day and day of week: Pass-up complaints are much higher Tuesday-Friday and slightly lower on Monday. Pass-up complaints follow a daily pattern with peaks during morning and afternoon rush hours and a smaller peak at midday lunch.

4) High load factors: Routes that have the highest average load factors will experience more passenger pass-ups and wheelchair pass-ups in absolute numbers.

   a. Wheelchair Pass-ups: The 11 routes that had the wheelchair pass-ups over 3% had an average load factor of .65 compared to the average system-wide factor of .53.

   b. Full vehicle Pass-ups: The 10 routes that had overall pass-ups greater than .08%, the average % for all routes, had an overall pass-up rate of .11% and had an average load factor of .68 compared to an average of .53.

5) Cancelled trips: There was a positive correlation between the number of pass-ups and cancelled trips. The top ten routes had an average 3.94% of wheelchair pass-ups compared to an average of 2.38% system-wide. These same routes had an average trip cancel rate of 2.8% compared to a system-wide average of 1.7%.

6) Headways on certain routes in school schedules show stops where the buses are too full

to pick up passengers and require another bus: We evaluated whether these transit circumstances affect full bus and wheelchair pass-ups.

    a. School Trippers: We identified the Metro lines/routes designated as school trippers. This information was aligned with the data on pass-ups, ridership, load factors, and cancelled trips. We determined that there was a positive correlation between school trippers and pass-ups.

        a) 50% of lines/routes having the top ten load factors were school trippers

        b) 40% of the lines/routes having the highest top ten overall pass-ups were school trippers

        c) 40% of the lines/routes having the highest top ten wheelchair pass-ups were school trippers

7) Rush hours fill buses quickly: Leap Frogging and Balancing Service. Operators skip stops to even out service when buses get bunched up and have higher dwell times.

8) Operators only stop once, closes door and departs a stop: It is unclear whether there is a correlation since this information is not tracked but could be traced to videos relating to complaints.

9) Sign Malfunction: vehicle "not in service" not designated or the "head sign" shows the incorrect route or destination; does not use or update "discharge only." It is unclear whether there is a correlation since this information is not tracked.

10) Operator Common Sense and Good Judgement: Operator chooses not to stop due to safety concerns. Based on interviews and coverage in training, this has a positive correlation but cannot be assigned a numerical value.

ii. *Identify any trends uncovered in analysis of data*

Our examination of ridership and CCATS data identified three root causes for pass-ups.

- One cause is due to passenger volume.
  - Full buses due to high ridership lead to pass-ups.
  - More operators on lines with shorter headways increase opportunities for operator error.
  - Higher ridership increases potential for passenger conflicts leading operators to pass-up passengers.
  - Full buses due to high ridership also contribute to wheelchair spots being unavailable leading to pass-ups.

- Another cause of bus pass-ups is related to headways. Longer headways have the potential for greater passenger inconvenience, greater rider dissatisfaction and increased complaints.
- School trippers are a unique contributor to bus capacity in specific locations and more bus pass-ups.

From examining the "Customer Comments" and "Findings" section of the CCATS data the following additional root causes are suggested.

- Construction activity and bus line detours are not clearly communicated or understood by passengers leading to pass-up complaints.
- Another cause is generally described as distractions at the bus stop.
  - Passengers obscured from sight due to bus shelters, advertisements or other infrastructure.
  - Passengers away from bus stop seeking shade or light.
  - Confusion caused by multiple bus lines having co-located stops.
  - Passengers distracted by electronic device usage may not be aware of an approaching bus or signal their intent to board.
- Operators inconsistently applying their discretion on when to pass-up a passenger.

e. Results from Benchmarks

Benchmarking was conducted on 6 transit agencies across the United States and Canada; including NY MTA, WMATA, CTA, MUNI, AC Transit and Winnipeg Transit in Canada. Benchmarking detailed results are available in **Appendix E**. During this effort, the following topics were explored:

- Best Practices
- Key Benchmarks from Peer Agencies
- Technology Options for Consideration

i. Best Practices

In an effort to identify best practices on how pass-ups are managed in the transit industry, an assessment of procedures from other Transit agencies and how these agencies track performance metrics was conducted. Benchmarking efforts were conducted via interviews and a review of published information by peer agencies. The following practices were researched:

- Bus System Rule Books
- Bus Transit Service Reliability

- Load Factors
- Real Time Arrival & Departure Assistance
- Compliant Process
- Service Effectiveness

ii. *Bus System Rule Books*

Bus System Rule Books are utilized to define the rules of conduct for operators in various transit agencies in the United States. Some transit agencies have elected to publish fines associated with the rules of conduct within the Rule Book for transparency purposes.

Bus Transit Service Reliability

The Transit Cooperative Research Program (TCRP) released a Service Reliability Guidebook that defines three (3) key characteristics of reliability of a bus rapid transit system. Transit systems are measured on capacity, reliability, and other quality features. These characteristics include 1) Short and consistent wait times; 2) Consistent on-time arrivals and 3) Consistent travel times.

Load factors

The American Public Transportation Association (APTA) authored a report on service policies and standards, including information on peak period load standards. Load factors ranged from 1.2 to 1.59 based on the agency assessments of risk related to crowded buses. Other than using the seated capacity on a bus, information on the various methods on how these load factors were set is not available. The Peak Period Load Standards table can be found in Table 7 and documents the Peak and Off-Peak standards.

Real Time Arrival & Departure Assistance

A study on real time bus arrival information was completed with NY MTA, Tampa, and Atlanta. This study aimed to understand if real-time information increases transit ridership, a critical question asked by decision-makers facing pressure to increase ridership under tight budget constraints. This study presents a meta-analysis of the impacts of real-time information on transit ridership in three U.S. cities.

Complaints

One public transit agency in Oakland, California, AC Transit, identified nine (9) key reasons for complaints which are documented in Table 8: AC Transit Complaint Categories. Passenger pass-up is identified as the fourth highest reason for complaints overall with other factors including hazardous operation, driver conduct, no shows, late bus, cancellations, early departure from stop, fare disputes and refusal to be allowed to board.

Service Effectiveness

Service effectiveness can be measured using load factors, which are the average number of passengers on board a transit vehicle. Transit vehicles that are fuller will have higher load factors, whereas transit vehicles with more empty seats will have lower load factors.

iii. *Key Benchmarks from Peer Agencies*

All 6 transit agencies utilize various key performance indicators to determine service reliability and effectiveness. All transit agencies benchmarked utilize On-Time Performance (OTP) as one of their performance metrics for their transit service. Most of these agencies use additional broad metrics to measure success that include :

➢ Tracking the percentage of service delivered, identifying the percentage of scheduled bus hours and/or trips that took place.
➢ Tracking the reliability of their bus service; however, this is calculated slightly differently across agencies.
➢ Tracking the miles between reported bus service disruptions due to equipment/maintenance needed.
➢ Tracking the Bus Wait Times as part of their service reliability metrics.
➢ Tracking the real-time arrival information availability, along with real-time arrival prediction accuracy. This data is provided to riders, and if it is inaccurate, may lead to pass-ups as the rider would be planning on another timeslot for the bus to arrive.

iv. *Technology Options for Consideration*

Four technology options were identified during this benchmarking effort that helps ridership and possibly reduce bus pass-ups by addressing ADA needs in the areas of sight and hearing disability. These systems include BlindSquare, Aira, NaviLens, and GoodMaps. All four systems provide visual and hearing assistance to the rider by way of accessing an app or utilizing smart glasses for navigational assistance. Access to enhanced technology features to assist riders by addressing ADA needs is a best practice that is gaining traction in the transit industry.

v. List of KPIs suggested from benchmark review.

A key performance indicator (KPI) is a metric that measures the performance of a business, team, individual, or project. KPIs are key measures for assessing if Metro is meeting goals or target objectives.

KPIs need to be measurable so that they can be monitored over time. In addition, KPIs should have distinct goals as well as a clear source of data that can be relied upon for important decisions. This data needs to be reviewed often so that Metro can continuously track KPIs to evaluate progress to achieving goals. Based on the benchmarking completed, and the proposed metrics, the following KPIs are recommended in the categories of timeliness, efficiency, and reliability related to pass-ups:

KPI	Definition	Measurement Approach	Standard Formula
Accessibility Compliance	The degree to which services are accessible to individuals with disabilities,	Review of Wheelchair Pass-up Percentage	Number of pass-ups by line/number of wheelchair passengers
Bus Reliability	The degree that passengers are able to board at each stop	Review Pass-up percentage	Number of passengers passed up at stops/number of passengers are able to board a bus by line
Bus Crowding	The degree of bus loads above seated capacity	Review Bus loads over 1.3	Average number of passengers on bus/number of passengers able to be seated
Service Operated	Degree that published trips are operated	Review % operated trips by line	The total percentage of actual Service Operated trips measured against the Planned Trips
Complaints	Degree that complaints are related to bus service	Review number of customer complaints about bus service (for example, related to on-time performance; operator courtesy, etc.) per 100,000 bus passenger boardings	Number of complaints/100,000 riders

Table 8: KPI Metrics

The Lopez Group, LLP
SMART SOLUTIONS BUSINESS ADVISORS

1. Headways

The interval of time between two (2) vehicles running in the same direction on the same route, usually expressed in minutes. Frequency is the inverse of headway: a headway of 10 minutes is equivalent to a frequency of one (1) bus every 10 minutes or six (6) buses per hour.

Importance to Pass-Ups

The number of vehicles on a route impacts load factors, and the availability of passenger space and wheelchair (WC) slots.

LA Metro

Metro tracks headways by line and route every day. See below for an example of the information.

Figure 20: Metro Headway Sheet

Headway Sheet
20 Min Periods

From Date: 1/6/2025   To Date: 01/10/25   Allowed Load: 52

booking_id: 202412

TRANSIT_DATE: 1/1/2025 — 1/11/2025

Day Type: Weekday

Line_Dir: 10 – East

location: Melrose / Western

Trip Filter: Regular Service Only

Bus Seats: 40

Standard Load Factor: 1.30

Time Period	Sampled trips	Scheduled Trips	Total Passgrs	Actual Load Factor	Scheduled Headway	Required Trip	Required Trip (rounded)	Change in Trips
12:40 am	1	1	5	12%	61	0.1	1 ▲	0
04:00am	1	1	12	29%	46	0.2	1 ▲	0
05:00am	1	1	16	39%	46	0.3	1 ▲	0
05:20am	1	1	20	49%	23	0.4	1 ▲	0
05:40am	1	1	17	43%	20	0.3	1 ▲	0
06:00am	1	1	18	45%	22	0.3	1 ▲	0
06:20am	1	1	27	68%	22	0.5	1 ▲	0
06:40am	2	2	38	47%	18	0.7	1 ●	-1
07:00am	1	1	23	58%	12	0.4	1 ▲	0
07:20am	2	2	66	83%	12	1.3	2 ▲	0
07:40am	1	1	27	68%	14	0.5	1 ▲	0
08:00am	2	2	46	58%	14	0.9	1 ●	-1
08:20am	1	1	22	54%	15	0.4	1 ▲	0
08:40am	2	2	36	45%	16	0.7	1 ●	-1
09:00am	1	1	15	38%	15	0.3	1 ▲	0
09:20am	1	1	14	34%	15	0.3	1 ▲	0
09:40am	2	2	24	30%	15	0.5	1 ●	-1
10:00am	1	1	16	41%	15	0.3	1 ▲	0
10:20am	1	1	14	34%	15	0.3	1 ▲	0
10:40am	2	2	29	36%	15	0.6	1 ●	-1
11:00am	1	1	19	46%	15	0.4	1 ▲	0
11:20am	1	1	14	34%	15	0.3	1 ▲	0
11:40am	2	2	39	49%	15	0.8	1 ●	-1
12:00pm	1	1	18	46%	15	0.4	1 ▲	0
12:20pm	1	1	13	32%	15	0.2	1 ▲	0
12:40pm	2	2	31	38%	15	0.6	1 ●	-1
01:00pm	1	1	23	59%	15	0.5	1 ▲	0
01:20pm	1	1	17	44%	15	0.3	1 ▲	0
01:40pm	2	2	41	51%	14	0.8	1 ●	-1
02:00pm	1	1	28	71%	15	0.5	1 ▲	0
02:20pm	1	1	15	37%	14	0.3	1 ▲	0
02:40pm	2	2	42	52%	16	0.8	1 ●	-1
03:00pm	1	1	23	56%	18	0.4	1 ▲	0
03:20pm	2	2	43	53%	14	0.8	1 ●	-1
03:40pm	1	1	23	58%	14	0.4	1 ▲	0
04:00pm	1	1	19	47%	14	0.4	1 ▲	0
04:20pm	2	2	42	52%	14	0.8	1 ●	-1
04:40pm	2	2	32	40%	12	0.6	1 ●	-1
05:00pm	1	1	35	87%	12	0.7	1 ▲	0
05:20pm	2	2	29	36%	12	0.6	1 ●	-1
05:40pm	1	1	23	58%	14	0.4	1 ▲	0
06:00pm	1	1	12	31%	21	0.2	1 ▲	0
06:20pm	1	1	19	48%	23	0.4	1 ▲	0
06:40pm	1	1	14	35%	36	0.3	1 ▲	0
07:20pm	1	1	15	38%	38	0.3	1 ▲	0
07:40pm	1	1	12	31%	38	0.2	1 ▲	0
08:20pm	1	1	11	26%	62	0.2	1 ▲	0
09:20pm	1	1	14	36%	62	0.3	1 ▲	0
10:40pm	1	1	12	31%	61	0.2	1 ▲	0
11:40pm	1	1	8	20%	61	0.2	1 ▲	0
Total	**64**	**64**	**1167**				**51**	**-13**

20 Min

Hourly

Benchmarks

The Chicago Transit Authority (CTA) defines the vehicle headway standard for the Key Route bus network for more heavily ridden time periods to be at least every 10 minutes during the weekday peak periods, 15 minutes during the weekday midday period, 20 minutes during the weekday evening period, 15 minutes on Saturday afternoons, and 20 minutes on Sunday afternoons. CTA has a standard that headways should be better than 30 minutes at all times of the day. They also measure the percentage of trips meeting headway adherence. Service operates more frequently than the headway standards based on ridership demand and meeting the vehicle load standards. Minor exceptions to all headway standards are permitted for the purposes of scheduling practicality and improved efficiency.

The Washington Metropolitan Area Transit Authority (WMATA) indicates that service headway is the amount of time scheduled between bus arrivals. Much like with span of service, transit agencies must consider that while low headways reduce the time customers must wait for a route to arrive and shortens their travel time, they also increase costs by requiring more buses and operators for the line/route. They must also consider that these periods of time will occur multiple times for customers who transfer to other routes to complete their trip. WMATA evaluates which lines/routes may not be safely and/or comfortably transporting riders due to overcrowding by evaluating the percentage of passenger time spent on vehicles that exceed crowding guidelines. The target vehicle load often varies based on trip frequency and between the peak and off-peak periods: higher transit demand deserves more service, but riders may be more likely to tolerate standing, especially if their trip distances are relatively short. Generally, headways of more than 20 minutes should have a maximum load of 100% of seated capacity, while service with shorter headways can allow 120% of seated capacity. The current target is 5 percent in a crowded condition.

Potential metric: headway to load factor

The number and percentage of route trips per day when load factors exceed 1.0 and 1.3 may indicate a potential schedule adjustment as part of the shakeup process or other mitigation as needed. This information is presently tracked by Metro.

2. On-time performance (OTP)

On-time performance (OTP) is defined specifically by each system; a trip is considered on time if it arrives or departs from a time point within a specified range of time. A typical range is 0 to 5 minutes after the scheduled arrival/departure time. A trip that leaves a time point early is referred to as "hot" or "running hot."

Importance to Pass-Ups

Passengers can rely on the accuracy of departures and arrivals at stops to ensure getting on the bus.

LA Metro

Metro defines OTP as trips that are not more than one (1) minute early and no more than five (5) minutes late. A target of 85% has been established. Performance against target on system basis was measured at 70.9% in September 2024.

Benchmarks

CTA has a similar definition for OTP. Their goal is 65% of customers on every route board on time buses. WMATA considers a bus to be on time if it arrives at least two (2) minutes earlier or seven (7) minutes later than the scheduled arrival times. WMATA has a target of 78% and recent performance was 76%. The New York Metropolitan Transportation Authority (MTA) defines OTP as each bus trip of a particular route must not be earlier than one (1) minute before or not later than five (5) minutes after its scheduled departure time at each of its assessed (terminal or enroute) time points. MTA had an OTP performance in October 2024 at 82.7%. San Francisco Municipal Railway (MUNI) measures OTP as how well MUNI vehicles adhere to the schedule and serves as an indicator for the reliability and attractiveness of Muni service as a travel option for customers.

NY MTA tracks OTP, service delivered, customer journey time, and wait assessment.

Potential metric: OTP

Track on-time performance against a target goal of 100% on time, no time allowance for early or late by route/line, to be able to conduct more effective process improvement analysis of how to improve bus scheduling.

3. Load standards

Load standards relates to the agency-established goal for passenger loads (not the maximum vehicle load, which is considerably higher). The loading standard is usually expressed as a percentage of seated capacity, the maximum number of standees, or the maximum load. The loading standard often varies over the day, with the peak-period loading standard higher than off-peak periods. Some agencies also specify a time or distance duration that certain loads are allowed (e.g., 150% for up to 10 minutes). The loading standard is used to calculate demand-based headways during the various periods of the service day.

The maximum load point(s) (MLPs) is (are) the location(s) along a route where the greatest number of passengers are on board. Having this maximum load point information, along with other factors, allows the scheduler to determine the number of vehicles that will need to pass the MLP in order to accommodate the passengers wanting to use the service.

Importance to Pass-Ups

Load factors define the maximum number of passengers that can be allowed on a vehicle. When load factors are exceeded, passengers are passed up and wheelchairs and scooters cannot be accommodated.

LA Metro

Metro defines the peak load factor of 1.3 for 40-foot and 60-foot vehicles. Loads per route are tracked daily. The maximum load is determined for each route. There is no target and overall data available for system-wide loads. Max Loads per bus stop is maintained.

Benchmarks

NY MTA tracks bus wheelchair ramp/lift usage deployments per month. King County, Washington has a standard that no trip can have a standing load for 20 minutes. MUNI tracks the percentage of daily trips above capacity. CTA tracks loads but does not include this information in scheduling analysis. CTA tracks WC pass-ups if there is a complaint.

The CTA load standards are not the maximum capacity of the given vehicle types, rather they are set at levels that provide a reasonable amount of comfort for customers on their daily commutes. Any routes and time periods that exceed these standards on a regular basis should be targeted for improved service.

The WMATA vehicle load factor evaluates which lines/routes may not be safely and/or comfortably transporting riders due to overcrowding. The target vehicle load factor often varies based on trip frequency and between the peak and off-peak periods: higher transit demand deserves more service, but riders are more likely to tolerate standing. Generally, headways of more than 20 minutes should have maximum load factor of 1.00, while frequencies below this can allow 1.20. Averages for an entire line/route or time period will most often show lower numbers unless all trips exceed maximum capacity. It is likely that some trips on a line/route will exceed maximum capacity when the average for the time period exceeds a load factor of 0.80.

The following are the peak load factors for peer agencies, for 40-foot buses:

PEER AGENCY PEAK LOAD FACTORS
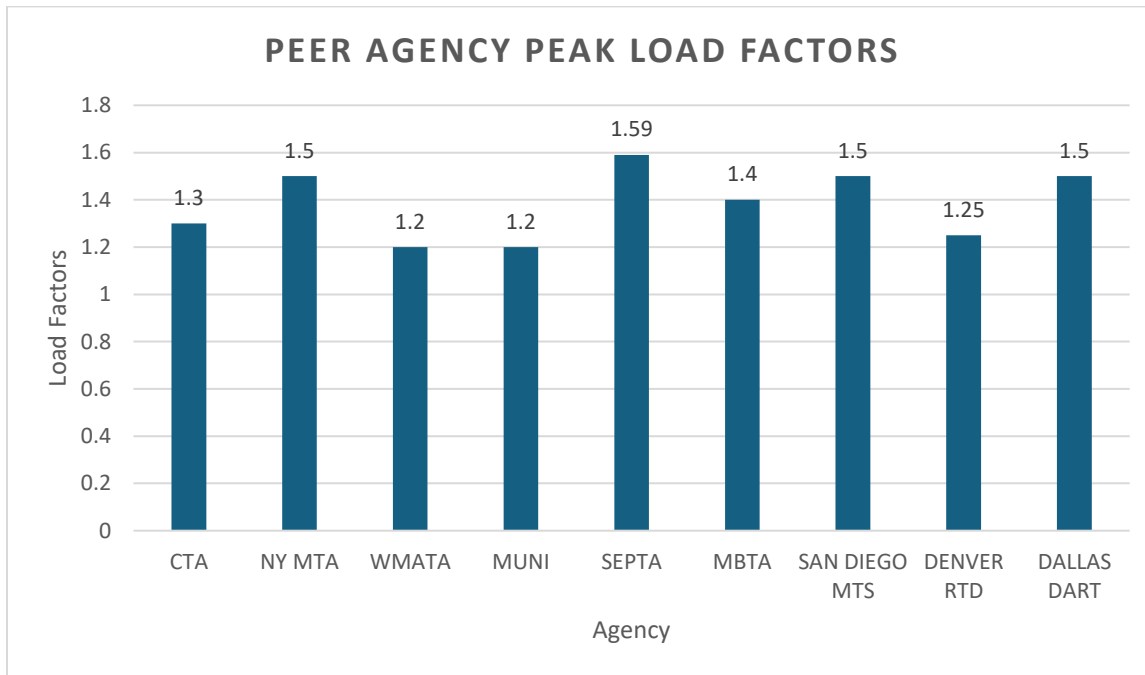
Figure 21: Peer Agency Peak Load Factors

Potential metric: load factors

Keep a load factor of 1.3 as the standard but evaluate passenger and WC pass-ups by line/route/load factor for process improvement. Evaluate locations along routes where the passenger load is greatest. The maximum load point can differ by direction and by time of day. Long or complex routes may have multiple maximum load points, one for each segment, also known as "peak load point."

4. Percentage of service delivered

This metric relates to the percentage of routes that are planned but are cancelled.

Importance to Pass-Ups

When trips are cancelled, passengers must adjust their schedule and may not arrive at the stop when the bus does, and this leads to missed trips.

LA Metro

Metro has a target of 2% maximum of trips cancelled.

Benchmarks

CTA tracks this data and publishes that 2.8% of the trips did not run. NY MTA measures 'Service Delivered' (sometimes referred to as throughput) measuring the ability to deliver the scheduled

service. It is calculated as the percentage of scheduled bus trips that are actually provided during peak hours (NY MTA); performance is less than 96%.

WMATA defines this metric as the share of scheduled buses that are actually provided at the peak load point during peak hours and has established a goal of 98%. Recent performance has been at 97.8%.

Potential metric: percent service delivered

Keep the target at 2% cancellation rate but evaluate by line/route relating to complaints, and pass-ups.

5. *Wheelchair Pass-Ups*

Wheelchair pass-ups includes the number or percentage of wheelchair passengers pass-ups.

Importance to Pass-Ups

This is a key ADA measure and responsibility of Metro and requires immediate remedial action to transport the passenger.

LA Metro

Metro has a metric in its service standards that requires an assessment of the route or system when there are more than 6% WC pass-ups on a rolling 6 month basis. Their present performance for the last fiscal year is 2.8% systemwide. See example of data in the chart in **Appendix E** for the report by line and in total.

Benchmarks

WMATA and CTA do not have a metric for WC pass-ups and do not have available data. NY MTA only tracks the number of wheelchair ramp or deployments on buses each month. Winnipeg Transit collects and publishes information on their website on:

- Full Bus Pass-ups by Month
- Wheelchair User Pass-ups by Month
- Map of Full Bus Pass-Up Locations – Past Year
- Map of Wheelchair Pass-Up Locations – Past Year
- Full Bus Pass-Ups By Route Past year
- Wheelchair User Pass-Ups By Route Past year

In Winnipeg, pass-ups occur most often in September of each year as students begin classes, following new schedules, often at new schools and universities. Passenger loads are at their highest in the first few weeks of classes, until everyone learns their new routines and figures out

the best way to get to class. A similar spike tends to occur in January, when similar travel patterns are followed.

Potential metric: wheelchair pass-ups

Key Metric to be Implemented: **Reduce the threshold from 6% to 4% for analysis. This is currently the highest level for any route but may not capture the poor performing routes.**

6. *Passenger Pass-ups*

The metric includes the number or percentage of general passenger pass-ups.

Importance to pass-ups

This is a key measure and ties to complaints received and incidents that are tracked.

LA Metro

Metro does not have a metric for this but collects pass-up data on all routes on a daily and annual basis. Pass-up data is collected by route, a sample FY24 report is below for reference with the full table provided in **Appendix G**. Note that system-wide, the pass-up percentage is low at 0.05%.

Route/Lines	Total Riders	Pass-ups	Percent
002	6,126,619	3,366	0.05%
004	7,750,385	3,432	0.04%
010	2,245,768	1,044	0.05%
014	3,619,400	2,088	0.06%
016	6,448,752	7,958	0.12%
018	6,728,711	6,888	0.10%
020	2,871,028	1,345	0.05%
028	3,197,177	1,807	0.06%
030	2,961,899	1,072	0.04%
033	5,320,770	6,078	0.11%
System total	**234,093,170**	**121,536**	**0.05%**

Table 9: Pass-Up Data per Route

Benchmarks

WMATA and CTA measure number of trips but do not measure bus pass-ups. NY MTA does not measure passenger pass-ups.

Potential metric: passenger pass-ups

Create a daily metric of total passenger pass-ups which should be reviewed no less than annually for development of a process improvement plan to reduce full bus passenger pass-ups.

5. Summary of Results and Conclusions

Based on the data reviewed and information gleaned from interviews and surveys, the results and conclusions of this review are presented below. These are roughly organized around the three objectives defined by OIG in commissioning this review of bus pass-ups.

a. Does Metro have policies and procedures to guide its bus pass-up process and are the policies and procedures in line with industry best practices?

Generally, there are no industry best practices for measuring bus pass-ups. Most comparable agencies do not cover pass-ups in their manuals and only one agency could be found that actively tracks pass-ups. Metro does have a policy addressing pass-ups generally and standard operating procedures which address pass-ups involving passengers with wheelchairs or other mobility devices. However, changes to the policies and procedures are recommended to make them more specific and effective. The following conclusions and recommendations for potential improvement are from the review of the pass-up and ridership data, interviews with Metro personnel, survey of Metro operators, and the review of Metro policies and those of other agencies:

i. *From Interviews*

1. Procedures to manage communications not documented
2. Key definitions such as full buses not communicated
3. Training on pass-ups not completed
4. Data on pass-ups not shared or evaluated
5. Inconsistent corrective actions for pass-ups noted for operators and supervisors

ii. *From Procedure Review*

1. 6% threshold for wheelchair pass-ups over a six month period appears too high. The systemwide average across all routes is 2.38% for the period July 2023-June 2024. Only 11 of the 88 routes had wheelchair pass-ups over 3% and no route had wheelchair pass-ups over 6%. Tracking routes with wheel-chair pass-ups over 2.38% will identify those routes with potential shake-up actions.
2. Data should be mined by Metro on a monthly basis to develop relationships between types of pass-ups and operations
3. Lack of consistency in definitions such as "full bus"
4. Capacity analysis process not documented

5. Few procedures are in place to handle bus service scheduling and pass-up monitoring
6. ADA procedure for alternative accessible service is not fully compliant
7. Enhance ADA Complaint Categorization & Prioritization
    o Continue to ensure pass-up complaints related to disability access are <u>explicitly</u> categorized in CCATS and prioritized for resolution.
    o Conduct regular audits of complaint handling timelines to ensure compliance with 49 CFR 37.169.

8. Improve Alternative Transportation for Pass-Ups
    o Establish a formalized procedure to provide alternative transportation for customers with disabilities who experience pass-ups and document this process to comply with 49 CFR 37.163.

9. Increase Operator Training & Accountability
    o Continue "mystery rider" program for random compliance checks on bus operators to ensure adherence to accessibility policies.
    o Require annual ADA training for operators focused on passenger assistance, service animals, and handling mobility devices.

iii. *From Training Review*

1. Refresher training has not been completed since 2022
2. Pass-up codes used in ATMS not explained
3. Exercise of good judgment and common sense may allow variation in approach and results
4. For wheelchair pass-up training, there is no mention of the reasons that might lead to a wheelchair pass-up and there is no specific direction provided to state that the procedures are the same regardless of the reason for the WC pass-up.
5. Training does not address full bus pass-ups

iv. *From Benchmarking*

1. Based on the benchmarking completed, and the proposed metrics, the following KPIs are recommended in the categories of timeliness, efficiency, and reliability related to pass-ups:
    • Accessibility Compliance – The degree to which services are accessible to individuals with disabilities by reviewing the wheelchair pass-up percentage. KPI would be the % of ADA-Wheelchair pass-ups of total pass-ups.

- Bus Reliability – The degree that passengers are able to board at each stop by reviewing the pass-up percentage. KPI of total pass-ups/passengers able to board.
- Bus Crowding – The degree of bus loads above seated capacity by reviewing bus loads over 1.3. KPI of Avg. #of seated passengers to seating capacity.
- Service Operated – Degree that published trips are operated by reviewing the percentage of operated trips by line. KPI of total service trips operated to total planned trips.
- Complaints – Degree that complaints are related to bus service by reviewing the customer complaints about bus service per 100,000 bus passenger boardings. KPI of #of complaints per 100,000 riders.

2. The following metrics are recommended to assist in measuring the KPIs:
- Headways to load factor (presently tracked by Metro) – The number and percentage of route trips per day that exceeded 1.0 and 1.3 load factors and analyzed for potential schedule adjustments as needed.
- On-time Performance (OTP) – Track OTP against a target goal of 100% on time, with no time allowance for early or late by route/line to be able to conduct bus service process improvement analysis.
- Load Factors – Keep a load factor of 1.3 as the standard but evaluate passenger and wheelchair pass-ups by line/route for process improvement.
- Percentage Service Delivered – Keep the target at 2% cancellation rate but evaluate by line/route relating to complaints and pass-ups.
- Wheelchair Pass-ups – Reduce the threshold from 6% to 3% for analysis. This is currently the highest level for any route but may not capture other poor performing routes.
- Passenger Pass-ups – Create a daily metric of total passenger pass-ups for development of a process improvement plan to reduce full bus passenger pass-ups.

b. Were bus operators who bypassed a customer acting according to Metro policies and procedures and what were the root causes for pass-ups?

Data from pass-up complaints received by Metro during fiscal year ending June 30, 2024, as well as information gathered from operators, was reviewed to see if Metro's policies were being followed. We found that generally, the procedures in place for wheelchair pass-ups are more specific and more closely followed and enforced than those for general pass-ups. The policies and procedures for general pass-ups are more informal and rely heavily on operator judgment in the field. Because of this it is likely that general pass-ups are being underreported. This is an area where policies, procedures, and training can be established and provided to operators to provide more specificity and guidance that can assist operators and reduce bus pass-ups.

c. Is there a correlation between the number of bus pass-ups and ridership statistics and are there any trends between bus pass-ups and bus operations, e.g. bus routes, operators, divisions, service areas, etc.?

i. *The following key correlations were found using the results of the research and analysis:*

1. Pass-up complaint categories: The majority of pass-up complaints are not for wheelchair pass-ups. Pass-ups related to wheelchair access and other disability issues made up only 20.78%.

2. Location: There is a strong correlation between ridership numbers and numbers of pass-up complaints.

   a. The Santa Monica lines (4, 33, and 720) receive some of the highest numbers of pass-up complaints.

   b. Rates of pass-up complaints (pass-up complaint/100,000 riders) are higher among lines with longer headways, which tend to be lines with lower ridership. Lines with higher ridership and shorter headways have lower rates of pass-up complaints.

3. Time of day and day of week: Pass-up complaints are much higher Tuesday-Friday and slightly lower on Monday. Pass-up complaints follow a daily pattern with peaks during morning and afternoon rush hours and a smaller peak at midday lunch.

4. High load factors: Routes that have the highest average load factors will experience more passenger pass-ups and wheelchair pass-ups in absolute numbers.

   a. Wheelchair Pass-ups: The 21 routes that had the wheelchair pass-ups over 3% had an average load factor of .65 compared to the average system-wide factor of .53. These are highlighted in Appendix E.

   b. Full vehicle Pass-ups: The 10 routes that had overall pass-ups greater than the average .08% for all routes, had an overall pass-up rate of .11% and had an average load factor of .68 compared to an average of .53.

5. Cancelled trips: There was a positive correlation between the number of pass-ups and cancelled trips. The top ten routes that had higher cancellations had an average wheelchair pass-ups rate of 3.94% compared to an average of 2.38% across all routes.

These same routes had an average trip cancel rate of 2.8% compared to an average of 1.7%.

6. Headways on certain routes in service school trippers show stops where the buses are too full and require another bus. We evaluated whether these transit circumstances affect full bus and wheelchair pass-ups.

   a. School Trippers: We identified the Metro lines/routes designated as school trippers. This information was aligned with the data on pass-ups, ridership, load factors, and cancelled trips. We determined that there was a positive correlation between school trippers and pass-ups.

7. 50% of lines/routes having the top ten load factors were school trippers

8. 40% of the lines/routes having the highest top ten overall pass-ups were school trippers

9. 40% of the lines/routes having the highest top ten wheelchair pass-ups were school trippers

10. Rush hours fill buses quickly: Leap frogging and Balancing Service. Operators skip stops to even out service when vehicles get bunched up and have higher dwell times and contribute to a higher number of bus pass-ups.

11. Operators only stop once: Closes door and departs a stop. It is unclear whether there is a correlation between wheelchair pass-ups and when the operator is unable to reopen the door based on Metro policies since this information is not tracked but could be traced to videos relating to complaints.

12. Sign Malfunction: vehicle "not in service" not designated or the "head sign" shows the incorrect route or destination; does not use or update "discharge only." It is unclear whether there is a correlation since this information is not tracked.

13. Operator Common Sense and Good Judgement: Operator chooses not to stop due to safety concerns. Based on interviews and coverage in training, this has a positive correlation but cannot be assigned a numerical value.

6. Recommendations

1. **Metro should develop procedures in the following areas to improve analysis, measurement, and management of bus pass-ups:**

   a. Metro currently utilizes a threshold of 6% rate of pass-up (established by Metro's Office of Management and Budget) before an analysis of a specific route wheelchair pass-ups is performed. This threshold is twice the 2.8% system wide average. We recommend the threshold be reduced to 3% and the procedure used in Metro's Title VI Plan service standards should be updated to reflect the revised percentage.

   b. Procedure to cover pass-up related data collected and how data will be used to reduce the number of pass-ups to include load factors, cancellations, school trippers, time of day, and other factors

   c. The appropriate definition of the meaning of "full bus" should be included in all applicable procedures. The Board adopted definition of 147% of capacity should be used for regular operations pass-ups and the 2 available wheelchair spaces being full should be used for ADA pass-ups.

   d. Procedure for conducting Route/Line Capacity analysis

   e. Procedure to handle scheduling and pass-up monitoring

   f. Update the ADA procedure for alternative accessible service to be fully compliant including:

      i. Address Equipment Failures More Explicitly - It is recommended that Metro clearly state that lifts be tested every day before leaving the division to be placed into service and that vehicles with inoperative lifts must be held back until fixed or taken out of service before the next service day unless no spare is available. Metro should consider revising the Metro Bus Operations Control Standard Operating Procedures (SOP) 10.01– Accessible Service. 49 CFR 37.163

      ii. Strengthening Documentation and Reporting - The Current SOP includes documentation forms for incidents but lacks specific procedures for reporting accessibility-related complaints and equipment failures. 49 CFR 27.13(a)

   g. Procedure to ensure that Metro includes mandatory ADA compliance training for all operators, focusing on assisting passengers with various disabilities, proper use of accessibility equipment, and handling service animals. 49 CFR 37.173

h. Procedure related to Service Animals- The current SOP states that Metro permits service animals but lacks detailed guidelines on handling situations where the service animal is out of control or poses a threat.

   i. It is recommended that Metro defines clear procedures for operators to follow if a service animal is out of control or poses a direct threat to the health or safety of others. 49 CFR 37.167(d). **NOTE – Metro is in the process of making this change as the issuance of this report**.

i. Procedure to perform Maintenance Checks for Accessibility Equipment- The current SOP addresses procedures when equipment fails but does not emphasize preventive maintenance. The procedure should include regular maintenance checks for all accessibility equipment to ensure functionality. 49 CFR 37.161(a)

j. Procedure on how communications should be handled for all types of pass-ups

k. Procedure to ensure that corrective actions for pass-ups are consistent for operators and supervisors.

l. Procedure to hold ongoing meetings, including "RAP" sessions, on pass-up levels and corrective actions to improve.

2. **Key performance metrics should be established and tracked against pass-ups data for potential improvements. These metrics are noted below:**

    a. Headway to load factor
    The number and percentage of route trips per day when load factors exceed 1.0 may indicate a potential schedule adjustment as part of the schedule adjustment (shakeup) process or other mitigation as needed. Load Factors exceeding 1.3 should result in a schedule adjustment. This information is presently tracked by Metro.

    b. On time performance
    Track on-time performance against a target goal of 100% on time with no time allowance for early or late by route/line, to be able to conduct process improvement analysis of how to improve bus scheduling.

    c. Route and System-wide Load factors
    Keep a load factor of 1.3 as the standard but evaluate passenger and wheelchair (WC) pass-ups by line/route/load factor for process improvement. Evaluate locations along routes where the passenger load is greatest. The maximum load point can differ by direction and by time of day. Long or complex routes may have multiple maximum load points, one for each segment. Also known as "peak load point."

d. Percent of service delivered

Keep the target at 2% cancellation rate but evaluate periodically by line/route relating to complaints, and pass-ups.

e. Wheelchair pass-ups

Reduce the threshold from 6% to 3% for analysis. This is currently the highest level for any route but may not capture the poor performing routes.

f. General (non-wheelchair) Passenger pass-ups

Create a daily metric of total passenger pass-ups which should be reviewed periodically but no less than annually for development of a process improvement plan to reduce full bus passenger pass-ups.

g. Pass-ups per 100,000 riders

Create a formal pass-up rate metric such as pass-ups/100,000 riders for each line/route. Track the metric each month and communicate the data to supervisors and operators through "RAP" sessions in each Division and other communication channels.

3. **Initial training and annual refresher training should be completed for operators and Metro staff**

   a. Complete annual Refresher training to include pass-up procedures for operators and supervisors.

   b. Include explanation of pass-up codes used in the Advanced Transportation Management System (ATMS).

   c. Discuss variation in operator management of pass-ups using good judgment and common sense.

   d. Include the reasons that might lead to a wheelchair pass-up as there is no specific direction provided to state that the procedures are the same regardless of the reason for the wheelchair (WC) pass-up.

   e. Training should include coverage of full bus pass-ups.

   f. Create a specific passenger pass-up training module. This module should include guidance on how to handle different types of pass-up situations such as full bus (including a definition of full bus), wheelchair or ADA pass-up, and difficult passengers. The goal is to provide more guidance to operators for exercising their judgement in the field.

   g. Develop public education campaigns for riders on the importance of being ready to board, being at the stop, being aware of when the bus is approaching, and making sure the operator knows a passenger is waiting for the bus and can see the passenger.

   h. Train all appropriate staff on new procedures.

4. **Physical Characteristics of Bus Stops**

   a. Create a procedure to review the physical characteristics of bus stops at which pass-ups occur due to passenger visibility or the passenger not being at the stop. When warranted by the physical review, make changes to the bus stop such as adding or improving lighting; trimming vegetation; removing obstructions; or adding shade to encourage passengers to use the bus stop.

7. <u>Appendices</u>

The following appendices are included in this section:

    a.   Bus Operator Survey and Results

    b.   LA Metro data per route

    c.   Average load factors per route

    d.   Benchmarking metrics and definitions

    e.   Detailed Benchmarking Results

    f.   Sample LA Metro report by line and in total

    g.   LA Metro pass-up data report

    h.   Table of Recommendations

a. Bus Operator Survey and Results

Text of Survey

What is this survey?

Metro has asked The Lopez Group, LLP, to review pass-ups at Metro. To help us better understand pass-ups, we are conducting a survey among Operators. Your input is important and valuable because of your first-hand experience as an Operator. The information that you give to us in this survey is confidential and your individual responses will be aggregated with other recipients. No responses given by you will be linked to you individually.

1. Below is a list of situations when passenger pass-ups could happen. Please answer if you have ever experienced a pass-up due to the situation listed below (choose all that apply):
   a. Passenger not in clear view
   b. Passenger not at the stop
   c. Passenger attempting to load the bus with unallowable items (e.g., shopping carts, wagons, bags that do not fit through bus doors or block aisle)
   d. Lack of access due to construction or police activity
   e. Bike rack full
   f. Overcrowded or full bus
   g. Wheelchair spaces are full
   h. Wheelchair size or use (e.g., wheelchair being used to carry personal belongings and not the passenger)
   i. Human waste or other hazardous material
   j. Passenger poses threat
   k. Safety issues, please describe
2. Other type of pass-up not listed, please specify
3. Thinking about pass-ups that have occurred while you were operating a bus, what were the top three (3) reasons for passenger pass-ups (choose up to three):
   a. Passenger not in clear view
   b. Passenger not at the stop
   c. Passenger attempting to load the bus with unallowable items (e.g., shopping carts, wagons, bags that do not fit through bus doors or block aisle)
   d. Lack of access due to construction or police activity
   e. Bike rack full
   f. Overcrowded or full bus
   g. Wheelchair spaces are full

     h.   Wheelchair size or use (e.g., wheelchair being used to carry personal belongings and not the passenger)

     i.   Human waste or other hazardous material

     j.   Passenger poses threat

     k.   Safety issues, please describe

4. Other type of pass-up not listed, please specify

5. Do pass-ups tend to occur more frequently at certain times of the day or night (more than one answer is possible):

     a.   Early morning before 6:00 a.m.

     b.   6:00 a.m. to 8:00 a.m.

     c.   8:00 a.m. to 10:00 a.m.

     d.   10:00 a.m. to noon

     e.   Noon to 2:00 p.m.

     f.   2:00 to 4:00 p.m.

     g.   4:00 p.m. to 6:00 p.m.

     h.   Evening after 6:00 p.m.

Survey Results

Below are the responses from the survey.

i. *Survey question 1*

Below is a list of situations when passenger pass-ups could happen. Please answer if you have ever experienced a pass-up due to the situation below? (choose all that apply)

Answer Choices	Responses	
Wheelchair size or use (e.g., wheelchair being used to carry personal belongings and not the passenger)	23.94%	62
Safety issues (please specify)	25.10%	65
Passenger attempting to load the bus with unallowable items (e.g., shopping carts, wagons, bags that do not fit through bus doors or block aisle)	48.65%	126
Lack of access due to construction or police activity	49.42%	128
Bike rack full	49.42%	128
Human waste or other hazardous material	49.42%	128
Passenger poses threat	51.35%	133
Wheelchair spaces full	62.93%	163
Passenger not in clear view	72.97%	189
Passenger not at the stop	78.38%	203
Overcrowded or full bus	79.54%	206
	Answered	**259**
	Skipped	**0**

Below is a list of situations when passenger pass-ups could happen. Please answer if you have experienced a pass-up due to the situation listed below (choose all that apply):
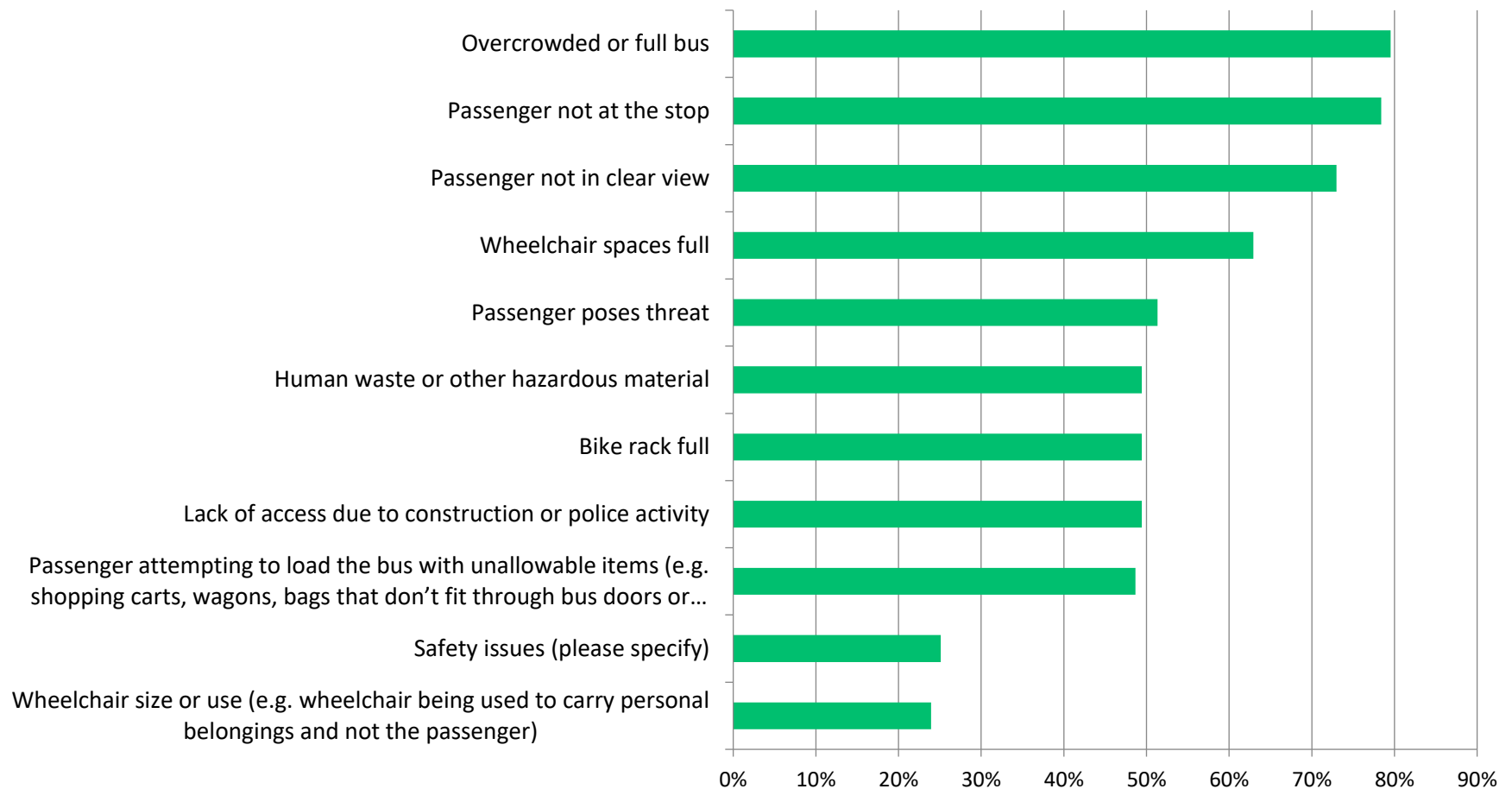
ii. Survey question 2

Other type of pass-ups not listed in Question 1, please specify

Theme	Number	Percentage
Fare Evasion Issues	2	2%
Aggressive Behavior	3	3%
Visibility and Lighting	5	5%
Intoxication and Substance Use	6	6%
Weapons and Security	6	6%
Homelessness	8	9%
Clothing and Dress Code	9	10%
Public Transport Conditions	11	12%
Waiting and Boarding Issues	21	23%
Passenger Safety Concerns	22	24%
Total	**93**	
Answered	**77**	
Skipped	**182**	

Other Type of Pass-up Not Listed
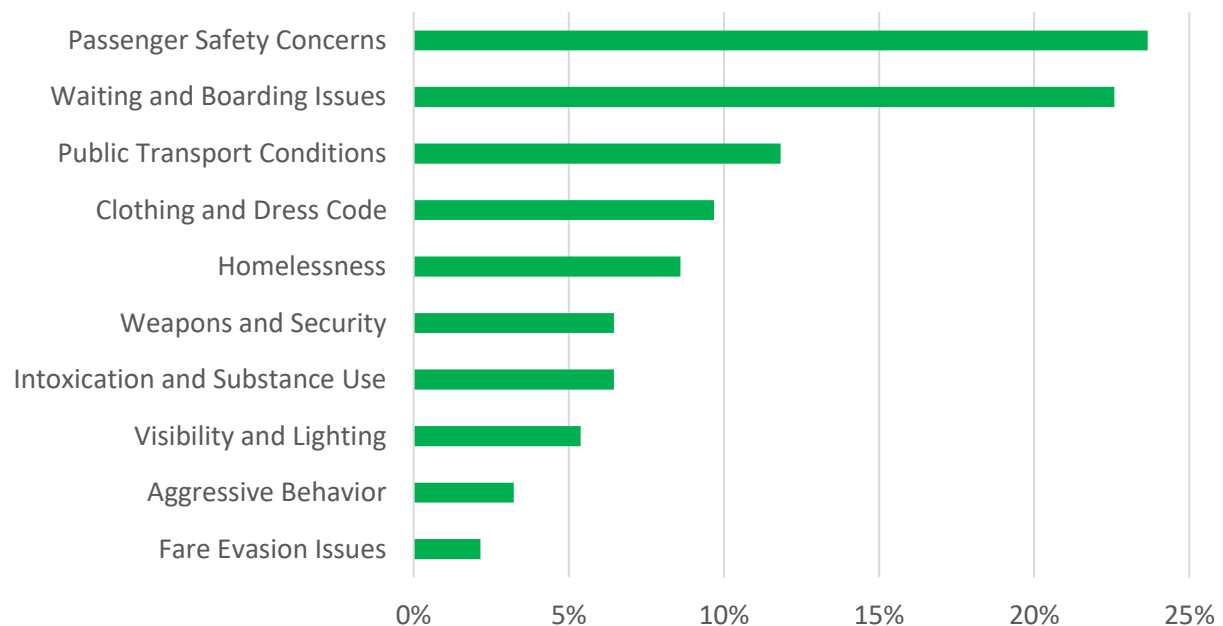
iii.   Survey question 3

Thinking about the pass-ups that have occurred while you were operating a bus, what were the top three (3) reasons for passenger pass-ups (choose up to three)

Answer Choices	Responses	
Wheelchair size or use (e.g., wheelchair being used to carry personal belongings and not the passenger)	4.25%	11
Safety issues (please specify)	4.25%	11
Bike rack full	11.97%	31
Passenger poses threat	11.97%	31
Human waste or other hazardous material	14.29%	37
Lack of access due to construction or police activity	20.08%	52
Passenger attempting to load the bus with unallowable items (e.g., shopping carts, wagons, bags that do not fit through bus doors or block aisle)	21.24%	55
Wheelchair spaces full	23.55%	61
Passenger not in clear view	51.74%	134
Overcrowded or full bus	56.37%	146
Passenger not at the stop	60.62%	157
	Answered	**259**
	Skipped	**0**

Thinking about pass-ups that have occurred while you were operating a bus, what were the top three (3) reasons for passenger pass-ups (choose up to 3):
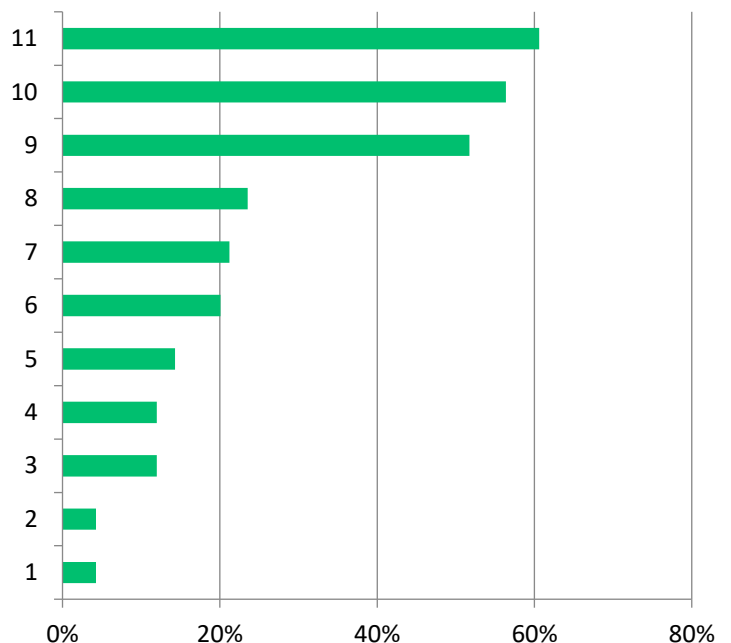
iv. Survey question 4

Other type of pass-up not listed in Question 3, please specify

Theme	Number	Percentage
Intoxication Issues	1	2%
Fare and Payment Concerns	1	2%
Weapons and Violence	2	4%
Public Intoxication	2	4%
Aggressive Behavior	3	6%
Lighting at Bus Stops	3	6%
Construction Impacts	3	6%
Prohibited Items	3	6%
Homelessness	4	8%
Bus Stop Conditions	9	17%
Boarding and Alighting Issues	9	17%
Passenger Safety Concerns	12	23%
Total	**52**	
Answered	**51**	
Skipped	**208**	

Other Type. of Pass-up. Not Listed
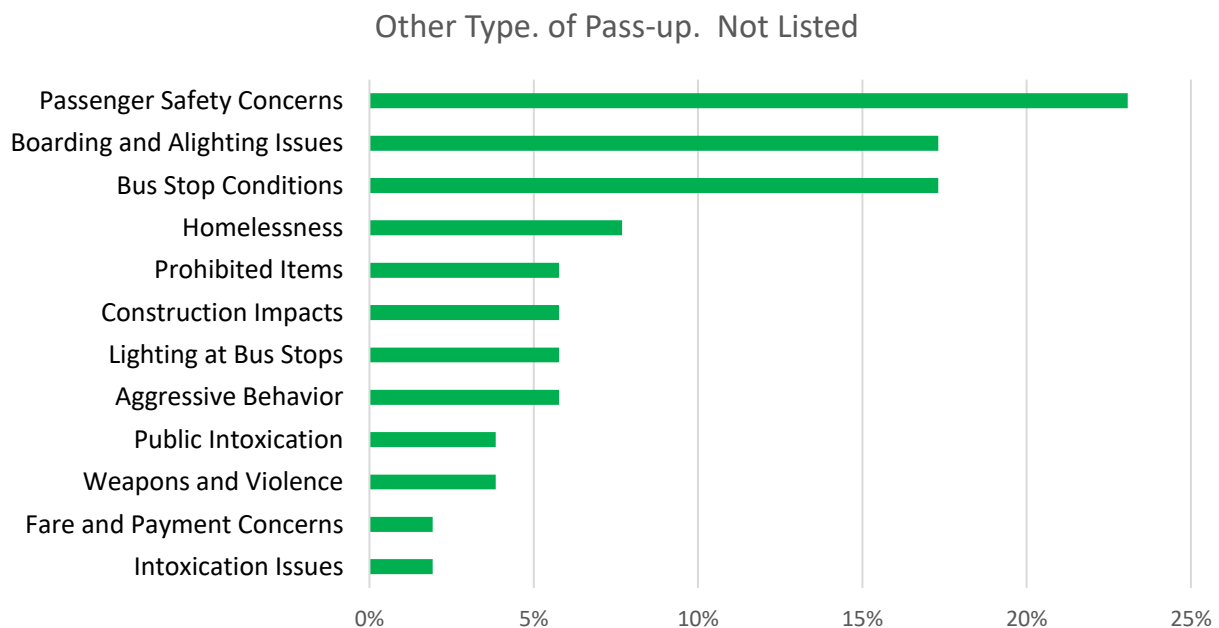
v. *Survey question 5*

Do pass-ups tend to occur more frequently at certain times of the day or night (more than one answer is possible)

Answer Choices	Responses	
Early morning before 6:00 a.m.	29.34%	76
6:00 a.m. to 8:00 a.m.	35.14%	91
8:00 a.m. to 10:00 a.m.	24.32%	63
10:00 a.m. to noon	10.04%	26
Noon to 2:00 p.m.	15.83%	41
2:00 to 4:00 p.m.	33.20%	86
4:00 p.m. to 6:00 p.m.	42.86%	111
Evening after 6:00 p.m.	40.54%	105
	Answered	**259**
	Skipped	**0**

Do pass-ups tend to occur more frequently at certain times of the day or night
(more than one answer is possible):
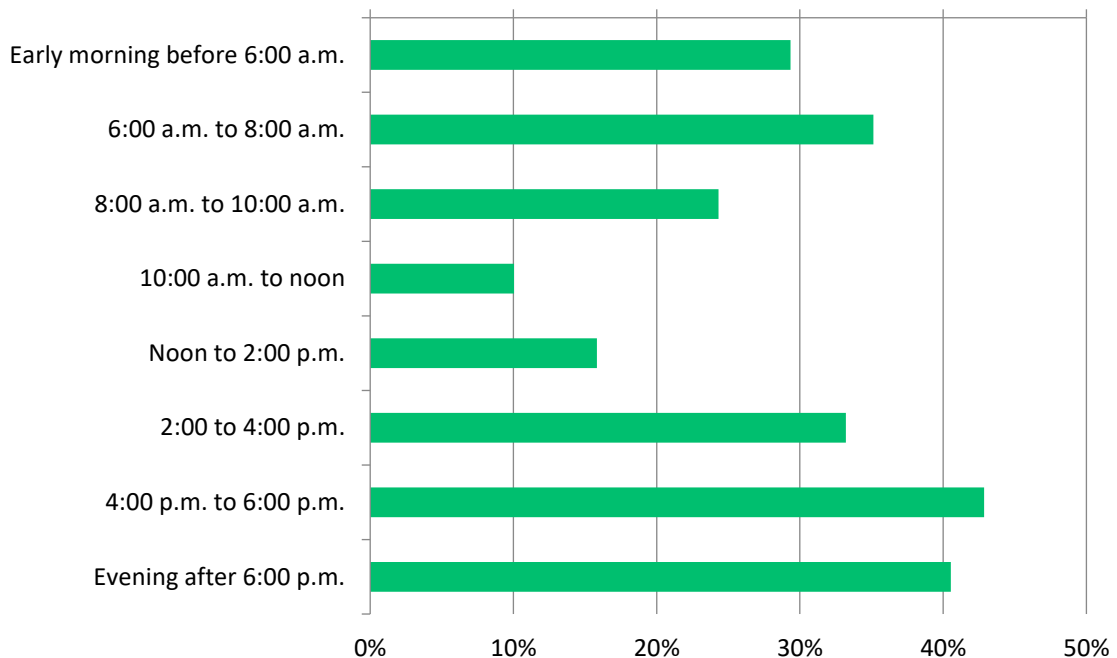
b. Pass-up Data per Route

Route Number	Total Riders	Overall Pass-ups	Percent	W/C Pass-ups	Cancelled Trips	School Routes	Average Load Factors
002	6,126,619	3,366	0.05%	3.70%	1.3%	yes	0.622199571
004	7,750,385	3,432	0.04%	2.53%	2.2%		0.582910714
010	2,245,768	1,044	0.05%	1.05%	0.9%	yes	0.619711027
014	3,619,400	2,088	0.06%	2.07%	1.1%		0.687375
016	6,448,752	7,958	0.12%	2.57%	1.1%		0.666328947
018	6,728,711	6,888	0.10%	5.25%	3.3%		0.718783242
020	2,871,028	1,345	0.05%	2.76%	2.1%	Yes	0.594079487
028	3,197,177	1,807	0.06%	2.36%	1.3%	Yes	0.626990762
030	2,961,899	1,072	0.04%	2.17%	1.2%		0.562127563
033	5,320,770	6,078	0.11%	2.57%	2.3%		0.598157088
035	1,569,720	156	0.01%	0.62%	0.6%		0.442141176
040	4,571,417	2,671	0.06%	2.32%	2.6%		0.649052632
045	4,357,881	6,887	0.16%	4.36%	2.5%	Yes	0.71814899
051	5,910,598	5,404	0.09%	2.06%	2.5%	Yes	0.701219224
053	3,467,950	4,254	0.12%	4.16%	2.8%		0.671931429
055	2,265,361	1,800	0.08%	1.73%	2.5%		0.615440972
060	4,627,245	2,913	0.06%	2.21%	2.4%		0.63965019
062	998,361	156	0.02%	0.71%	0.4%		0.656798246
066	4,044,497	2,277	0.06%	2.20%	2.5%		0.579505319
070	4,938,567	3,098	0.06%	2.56%	3.0%		0.65104898
076	1,919,981	358	0.02%	0.85%	2.3%		0.499351563
078	2,123,613	906	0.04%	1.52%	1.4%		0.506607735
081	3,244,299	3,708	0.11%	3.50%	2.2%	Yes	0.690851711
090	1,830,153	239	0.01%	0.42%	1.5%	Yes	0.536792079
092	1,795,833	382	0.02%	1.11%	1.6%		0.479148649
094	2,235,029	876	0.04%	1.05%	1.40%		0.629624031
096	224,203	1	0.00%				

Route Number	Total Riders	Overall Pass-ups	Percent	W/C Pass-ups	Cancelled Trips	School Routes	Average Load Factors
102	488,568	21	0.00%	0.11%	0.1%		0.3776375
105	4,611,369	2,132	0.05%	2.64%	1.5%		0.70813555
106	1,222,299	56	0.00%	0.61%	0.3%		0.372976636
108	4,448,248	3,353	0.08%	2.65%	3.7%		0.772987342
110	2,314,486	643	0.03%	1.47%	2.0%		0.630572034
111	4,623,719	2,673	0.06%	4.61%	2.6%		0.588318066
115	3,639,014	2,413	0.07%	3.61%	2.6%	yes	0.696611486
117	2,599,084	1,682	0.06%	3.08%	2.5%		0.562801556
120	937,348	202	0.02%	1.60%	0.1%		0.453453704
125	1,481,528	6	0.00%	0.23%			0.465205556
127	549,485	59	0.01%	0.38%	0.1%		0.203361111
128	326,493	0	0.00%				0.419727273
134	378,976	103	0.03%		0.9%		0.511712766
150	935,447	214	0.02%	0.84%	0.6%	yes	0.331472103
152	3,083,866	1,696	0.05%	1.89%	0.9%	yes	0.692785953
154	169,641	19	0.01%		0.2%		0.240859375
155	341,483	29	0.01%	0.22%	0.3%		0.287222222
158	428,223	36	0.01%	0.61%	0.1%		0.453985294
161	252,608	2	0.00%		0.1%		0.419205882
162	3,040,978	1,103	0.04%	2.00%	0.8%		0.613660714
164	1,795,135	583	0.03%	1.20%	0.9%	yes	0.500213115
165	2,418,724	1,690	0.07%	1.64%	0.9%	yes	0.625115942
166	1,778,817	1,946	0.11%	1.73%	2.0%	yes	0.60325969
167	462,819	2	0.00%	0.88%	0.2%		0.377695122
169	568,472	156	0.03%	0.71%	0.1%	yes	0.50877027
177	55,578	0	0.00%				0.181625
179	297,230	7	0.00%		0.2%		0.1975
180	2,986,642	1,163	0.04%	1.37%	1.5%		0.507246341
182	854,855	134	0.02%	0.34%	0.2%	yes	0.454464516

Route Number	Total Riders	Overall Pass-ups	Percent	W/C Pass-ups	Cancelled Trips	School Routes	Average Load Factors
202	55,921	3	0.01%		0.0%		0.117568966
204	6,932,264	2,345	0.03%	3.23%	3.9%		0.629642523
205	858,227	2	0.00%				0.350926471
206	2,771,951	784	0.03%	1.33%	3.2%		0.67984739
207	8,110,164	4,532	0.06%	3.77%	4.3%		0.644969965
209	91,014	3	0.00%		0.1%		0.169984375
210	4,304,931	1,877	0.04%	2.66%	2.8%		0.639360215
211	81,554	2	0.00%		0.6%		0.2295
212	2,936,787	671	0.02%	0.92%	2.5%		0.53935641
217	2,810,911	1,300	0.05%	1.46%	1.7%	yes	0.524674757
218	188,071	0	0.00%				0.404157895
222	344,828	35	0.01%	0.15%	0.3%		0.205979167
224	2,005,871	566	0.03%	0.96%	1.6%	yes	0.554982014
230	973,225	303	0.03%	0.88%	1.0%	yes	0.468309524
232	1,387,988	10	0.00%				0.480340426
233	4,135,842	2,052	0.05%	3.23%	2.1%		0.551910891
234	2,691,270	938	0.03%	1.14%	1.7%		0.523564103
236	550,004	98	0.02%	0.32%	0.0%	yes	0.387295455
237	498,847	40	0.01%	0.17%	0.0%	yes	0.38961039
240	3,427,505	1,387	0.04%	1.85%	1.2%		0.436113208
242	516,360	178	0.03%	0.38%	0.1%	yes	0.287958763
244	501,657	131	0.03%	0.73%	0.1%	yes	0.396041379
246	953,362	125	0.01%	0.51%	0.1%		0.396611111
251	4,319,881	2,106	0.05%	2.99%	1.7%	yes	0.574309179
256	176,459	1	0.00%				0.261512195
258	600,551	19	0.00%	0.41%	0.0%		0.430567308
260	3,270,238	1,326	0.04%	1.59%	1.6%		0.639934307
265	307,811	20	0.01%		0.1%	yes	0.380846154
266	1,707,316	128	0.01%	0.13%			0.46630303

Route Number	Total Riders	Overall Pass-ups	Percent	W/C Pass-ups	Cancelled Trips	School Routes	Average Load Factors
267	375,789	29	0.01%	0.62%	0.1%		0.351094828
268	211,734	16	0.01%	0.52%	0.3%		0.239617021
287	261,252	2	0.00%		0.1%		0.231
294	440,598	51	0.01%	0.15%	1.1%		0.278725352
344	464,057	27	0.01%	0.95%	0.0%		0.48406
460	1,298,664	417	0.03%	1.68%	0.1%		0.760946667
487	378,144	21	0.01%	0.19%	0.2%		0.358869919
501	380,788	2	0.00%		1.3%		0.225975
550	86,084	1	0.00%		0.1%		0.174025641
577	219,420	0	0.00%				0.264973214
601	131,555	4	0.00%		1.0%		0.058848214
602	341,375	97	0.03%	1.42%	0.1%	yes	0.367992424
603	2,596,453	3	0.00%				0.623630719
605	696,579	2	0.00%	2.20%			0.436204545
611	457,850	12	0.00%	0.89%	0.0%		0.42975
617	190,130	17	0.01%		0.0%		0.193153061
660	278,420	4	0.00%		0.1%		0.197818182
662	639,436	44	0.01%	0.36%	0.0%	yes	0.355964789
665	159,836	2	0.00%		0.0%		0.183134146
686	74,195	2	0.00%		0.0%		0.125253731
690	312,258	84	0.03%	0.28%	0.3%	yes	0.230347826
720	6,410,073	3,134	0.05%	2.19%	2.7%		0.581764012
754	4,181,978	909	0.02%	1.93%	1.8%		0.592436747
761	2,158,830	517	0.02%	1.51%	1.4%		0.52042623
857	212,813	1	0.00%		0.3%		0.053146853
901	4,412,865	503	0.01%	1.41%	0.9%		0.513505515
910	4,724,832	1,366	0.03%	1.97%	0.6%		0.602398246
System total	**31,247,233**	**7,220**	**0.02%**	**2.38%**	**1.7%**		**0.535434672**

c. **Average Load Factors**

The table below reflects average load factors (LF) per route overall, between July-November 2023 and separately between January-June 2024 (before/after the December 2023 service change). The last column on the right reflects whether any change is noted due to the December 2023 service change. Peach cells reflect routes with a lower load factors following the service change.

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
108	0.772987342	0.770162437	0.77579798	0.005636
460	0.760946667	0.774767123	0.747844156	-0.02692
18	0.718783242	0.708426523	0.729485185	0.021059
45	0.71814899	0.722964286	0.71343	-0.00953
105	0.70813555	0.702061224	0.714241026	0.01218
51	0.701219224	0.695158784	0.707259259	0.0121
115	0.696611486	0.690544218	0.702597315	0.012053
152	0.692785953	0.679176871	0.705947368	0.02677
81	0.690851711	0.692473282	0.689242424	-0.00323
14	0.687375	0.684076923	0.690673077	0.006596
206	0.67984739	0.663698413	0.696390244	0.032692

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
53	0.671931429	0.672828571	0.671034286	-0.00179
16	0.666328947	0.662009868	0.670648026	0.008638
62	0.656798246	0.665298246	0.648298246	-0.017
70	0.65104898	0.641279352	0.660979424	0.0197
40	0.649052632	0.644064356	0.654167513	0.010103
207	0.644969965	0.631770318	0.658169611	0.026399
260	0.639934307	0.636715328	0.643153285	0.006438
60	0.63965019	0.639515152	0.63978626	0.000271
210	0.639360215	0.636473118	0.642247312	0.005774
110	0.630572034	0.615798319	0.645598291	0.0298
204	0.629642523	0.608906542	0.650378505	0.041472
94	0.629624031	0.640449612	0.61879845	-0.02165
28	0.626990762	0.614736111	0.63918894	0.024453
165	0.625115942	0.612087591	0.637956835	0.025869
603	0.623630719	0.598954248	0.64830719	0.049353

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
2	0.622199571	0.624691304	0.619771186	-0.00492
10	0.619711027	0.62275	0.616648855	-0.0061
55	0.615440972	0.626048611	0.604833333	-0.02122
162	0.613660714	0.607864286	0.619457143	0.011593
166	0.60325969	0.603705426	0.602813953	-0.00089
910	0.602398246	0.601466667	0.603329825	0.001863
33	0.598157088	0.59875	0.597568702	-0.00118
20	0.594079487	0.583083333	0.604742424	0.021659
754	0.592436747	0.573542169	0.611331325	0.037789
111	0.588318066	0.580309645	0.596367347	0.016058
4	0.582910714	0.580696429	0.585125	0.004429
720	0.581764012	0.584929204	0.57859882	-0.00633
66	0.579505319	0.561941489	0.597069149	0.035128
251	0.574309179	0.571768116	0.576850242	0.005082
117	0.562801556	0.563945736	0.561648438	-0.0023

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
30	0.562127563	0.554704545	0.569584475	0.01488
224	0.554982014	0.546920863	0.563043165	0.016122
233	0.551910891	0.542678218	0.561143564	0.018465
212	0.53935641	0.535041026	0.543671795	0.008631
90	0.536792079	0.538534653	0.535049505	-0.00349
217	0.524674757	0.520258537	0.529048309	0.00879
234	0.523564103	0.511871795	0.53525641	0.023385
761	0.52042623	0.519327869	0.52152459	0.002197
901	0.513505515	0.517319853	0.509691176	-0.00763
134	0.511712766	0.523553191	0.49987234	-0.02368
169	0.50877027	0.500263158	0.51775	0.017487
180	0.507246341	0.503678049	0.510814634	0.007137
78	0.506607735	0.500198895	0.513016575	0.012818
164	0.500213115	0.497155738	0.503270492	0.006115
76	0.499351563	0.496257813	0.502445313	0.006187

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
344	0.48406	0.49622	0.4719	-0.02432
232	0.480340426	0.480552083	0.480119565	-0.00043
92	0.479148649	0.470351351	0.487945946	0.017595
230	0.468309524	0.459952381	0.476666667	0.016714
266	0.46630303	0.466777778	0.465828283	-0.00095
125	0.465205556	0.4527	0.477711111	0.025011
182	0.454464516	0.43912987	0.469602564	0.030473
158	0.453985294	0.444470588	0.4635	0.019029
120	0.453453704	0.452611111	0.454296296	0.001685
35	0.442141176	0.422215385	0.462864	0.040649
605	0.436204545	0.425290909	0.447118182	0.021827
240	0.436113208	0.430416268	0.441651163	0.011235
258	0.430567308	0.421538462	0.439596154	0.018058
611	0.42975	0.437444444	0.422055556	-0.01539
128	0.419727273	0.412727273	0.426727273	0.014

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
161	0.419205882	0.412441176	0.425970588	0.013529
218	0.404157895	0.409342105	0.398973684	-0.01037
246	0.396611111	0.394469136	0.398753086	0.004284
244	0.396041379	0.361422535	0.429256757	0.067834
237	0.38961039	0.381394737	0.397615385	0.016221
236	0.387295455	0.382060606	0.392530303	0.01047
265	0.380846154	0.37371875	0.387757576	0.014039
167	0.377695122	0.385292683	0.370097561	-0.0152
102	0.3776375	0.3735	0.381775	0.008275
106	0.372976636	0.37482243	0.371130841	-0.00369
602	0.367992424	0.368815385	0.36719403	-0.00162
96	0.358988372	0.347139535	0.370837209	0.023698
487	0.358869919	0.370482759	0.348507692	-0.02198
662	0.355964789	0.345774648	0.36615493	0.02038
267	0.351094828	0.355344828	0.346844828	-0.0085

Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
205	0.350926471	0.353205882	0.348647059	-0.00456
150	0.331472103	0.321559322	0.341643478	0.020084
242	0.287958763	0.283154639	0.292762887	0.009608
155	0.287222222	0.283555556	0.290888889	0.007333
294	0.278725352	0.271309859	0.286140845	0.014831
577	0.264973214	0.286178571	0.243767857	-0.04241
256	0.261512195	0.251097561	0.271926829	0.020829
154	0.240859375	0.237125	0.24459375	0.007469
268	0.239617021	0.233425532	0.245808511	0.012383
287	0.231	0.223596154	0.238403846	0.014808
690	0.230347826	0.222652174	0.238043478	0.015391
211	0.2295	0.2392	0.2198	-0.0194
501	0.225975	0.222975	0.228975	0.006
222	0.205979167	0.210041667	0.201916667	-0.00812
127	0.203361111	0.201990741	0.204731481	0.002741

| Route	Average of LF	Average of LF Jul-Nov 2023	Average of LF Jan-Jun 2024	December 2023 Service Change
660	0.197818182	0.198285714	0.197350649	-0.00094
179	0.1975	0.195885714	0.199114286	0.003229
617	0.193153061	0.185265306	0.201040816	0.015776
665	0.183134146	0.182195122	0.184073171	0.001878
177	0.181625	0.17625	0.187	0.01075
550	0.174025641	0.15674359	0.191307692	0.034564
209	0.169984375	0.16778125	0.1721875	0.004406
686	0.125253731	0.127636364	0.122941176	-0.0047
202	0.117568966	0.116862069	0.118275862	0.001414
601	0.058848214	0.059955357	0.057741071	-0.00221
857	0.053146853	0.055342857	0.051041096	-0.0043
Grand Total	**0.535434672**	**0.530916953**	**0.539944635**	**0.009028**

Route 108

The average load factor for route 108 over the two (2) periods is 0.77 and is the highest average load factor of all routes. Prior to the December 2023 service change, the average load factor was 0.770. After the service change, the load factor increased to 0.776. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

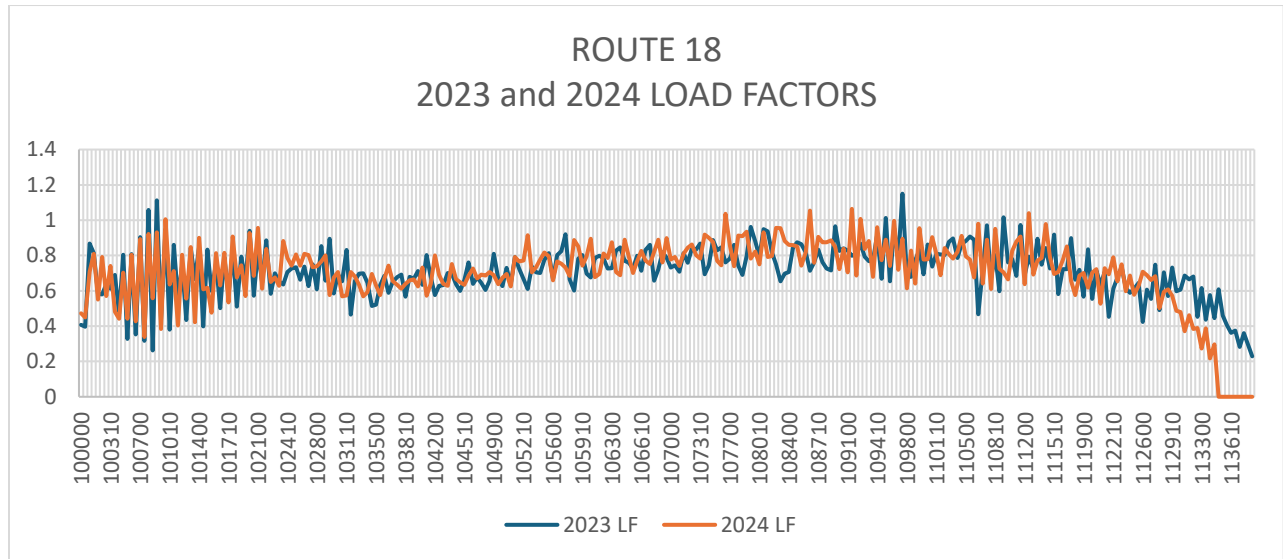ROUTE 108
2023 and 2024 LOAD FACTORS
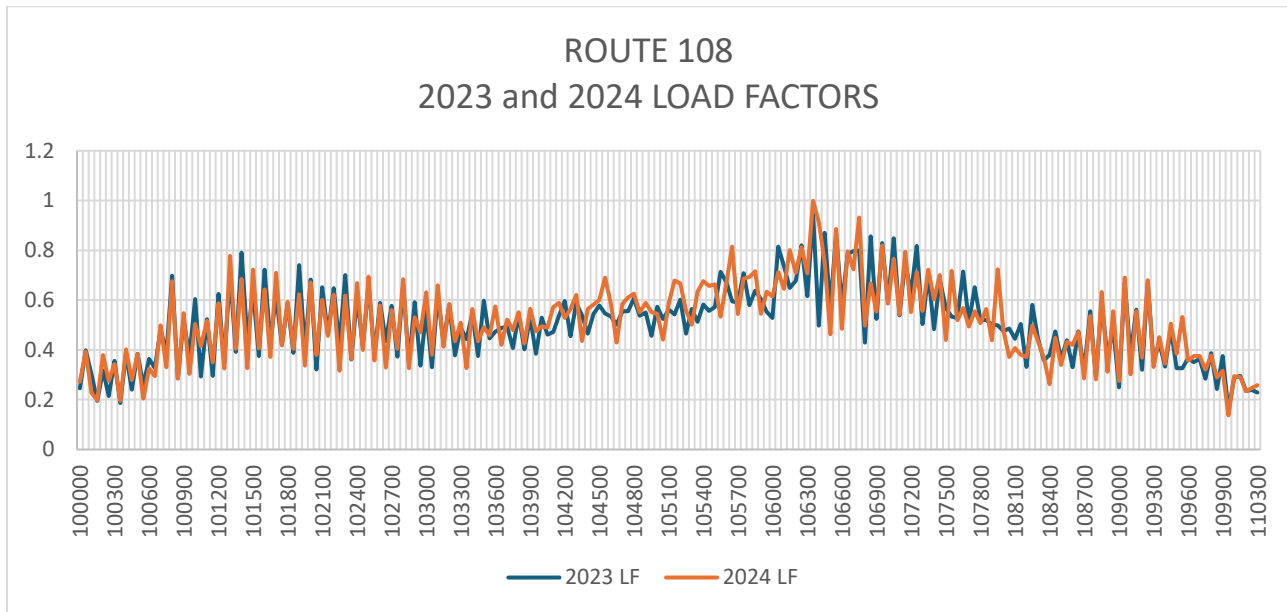
Route 460

The average load factor for route 460 prior to the December 2023 service change was 0.775; this decreased to 0.748 after the service change. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

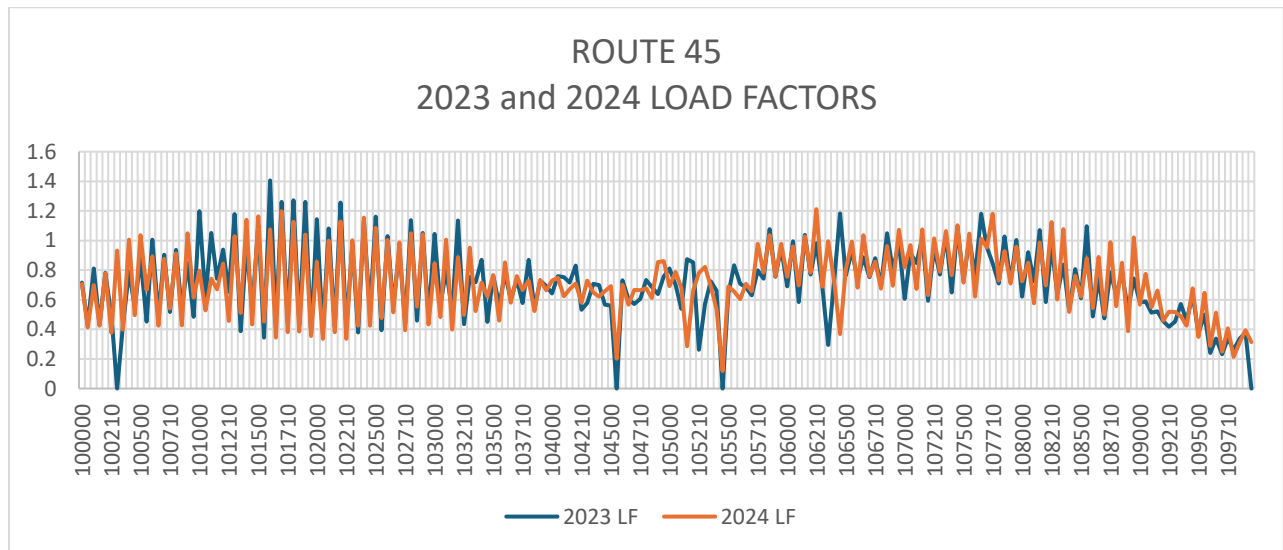
ROUTE 460
2023 and 2024 LOAD FACTORS
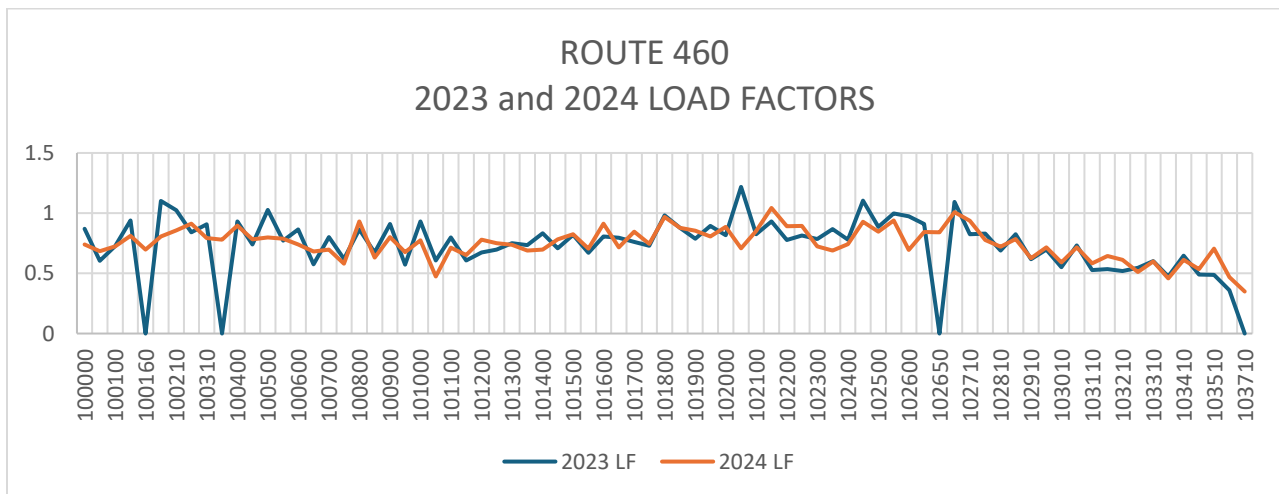
Route 18

The average load factor for route 18 prior to the December 2023 service change was 0.708; this increased to 0.729 after the service change. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

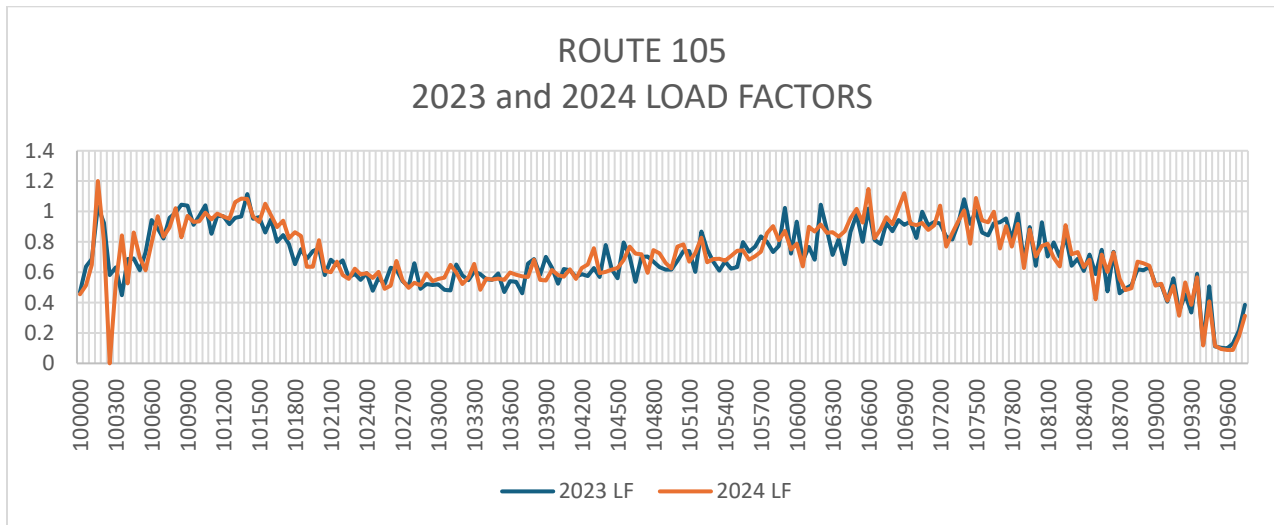**ROUTE 18**
2023 and 2024 LOAD FACTORS

Route 45

The average load factor for route 45 prior to the December 2023 service change was 0.723; this decreased to 0.713 after the service change. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:
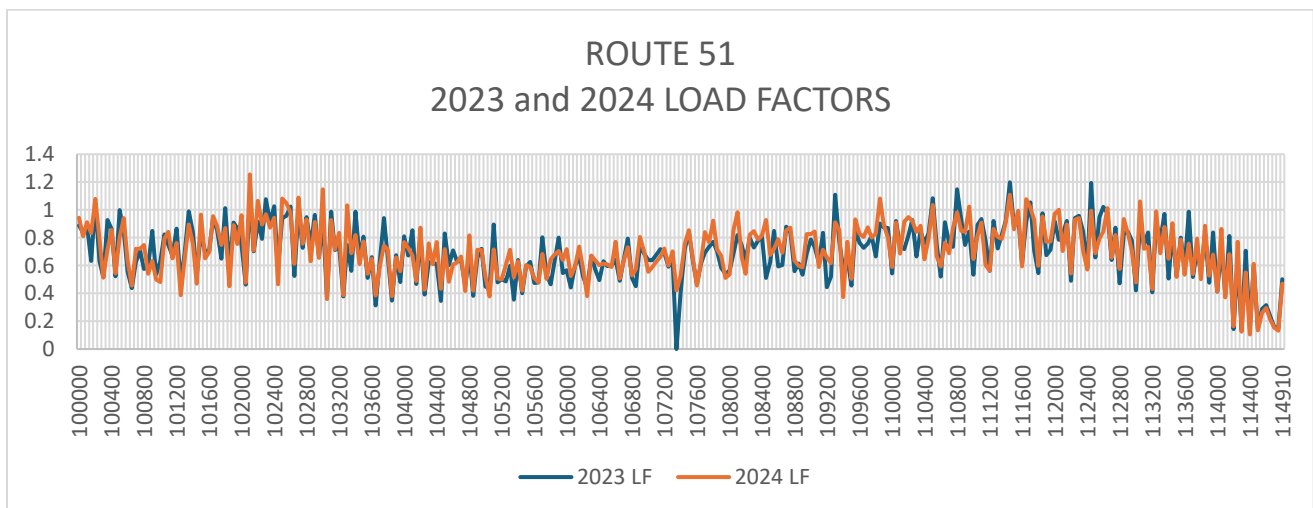
ROUTE 45
2023 and 2024 LOAD FACTORS

Route 105

The average load factor for route 105 over the two (2) periods is 0.71. Prior to the December 2023 service change, the average load factor was 0.702. After the service change, the load factor increased to 0.714. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

Route 51

The average load factor for route 51 over the two (2) periods is 0.701. Prior to the December 2023 service change, the average load factor was 0.695. After the service change, the load factor was 0.707. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

Route 115

The average load factor for route 115 over the two (2) periods is 0.697. Prior to the December 2023 service change, the average load factor was 0.691. After the service change, the load factor increased to 0.703. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:

ROUTE 115
2023 and 2024 LOAD FACTORS

Route 152

The average load factor for route 152 over the two (2) periods is 0.693. Prior to the December 2023 service change, the average load factor was 0.679. After the service change, the load factor increased to 0.706. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:
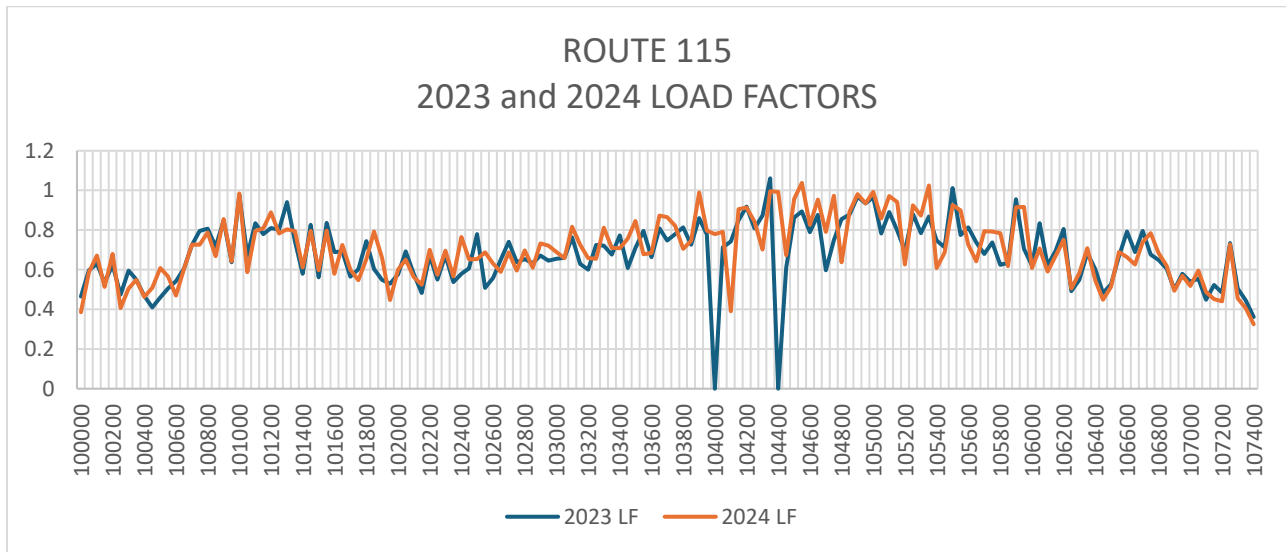

ROUTE 152
2023 and 2024 LOAD FACTORS

Route 81

The average load factor for route 81 prior to the December 2023 service change was 0.692; this decreased to 0.689 after the service change. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:
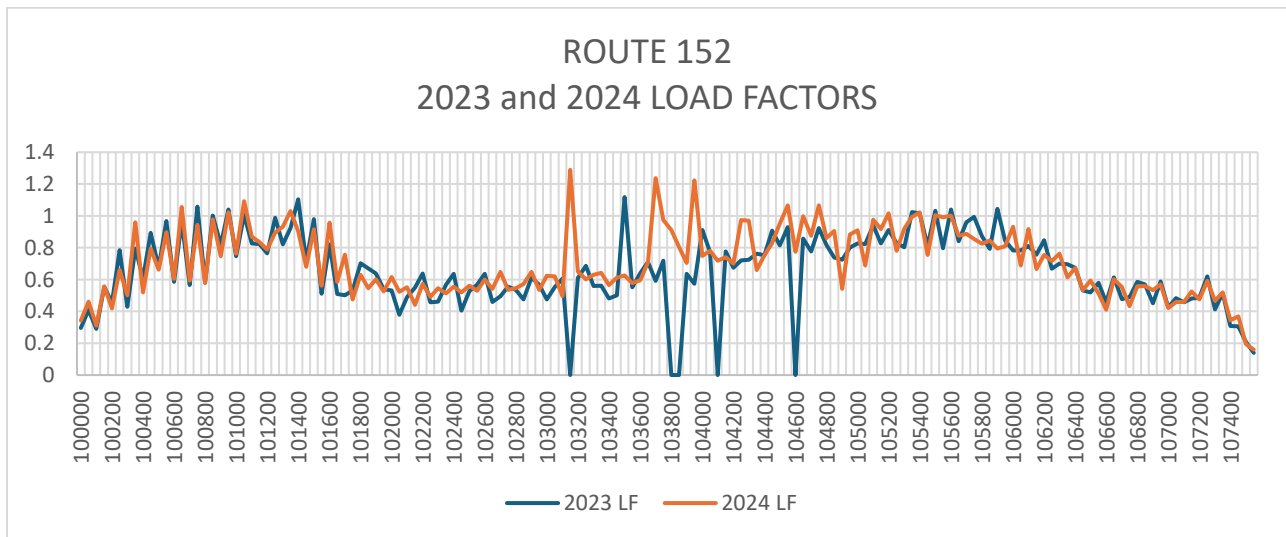

Route 14

The average load factor for route 14 over the two (2) periods is 0.687. Prior to the December 2023 service change, the average load factor was 0.684. After the service change, the load factor increased to 0.691. The table below shows the load factor patterns comparing trip numbers for the two (2) periods:
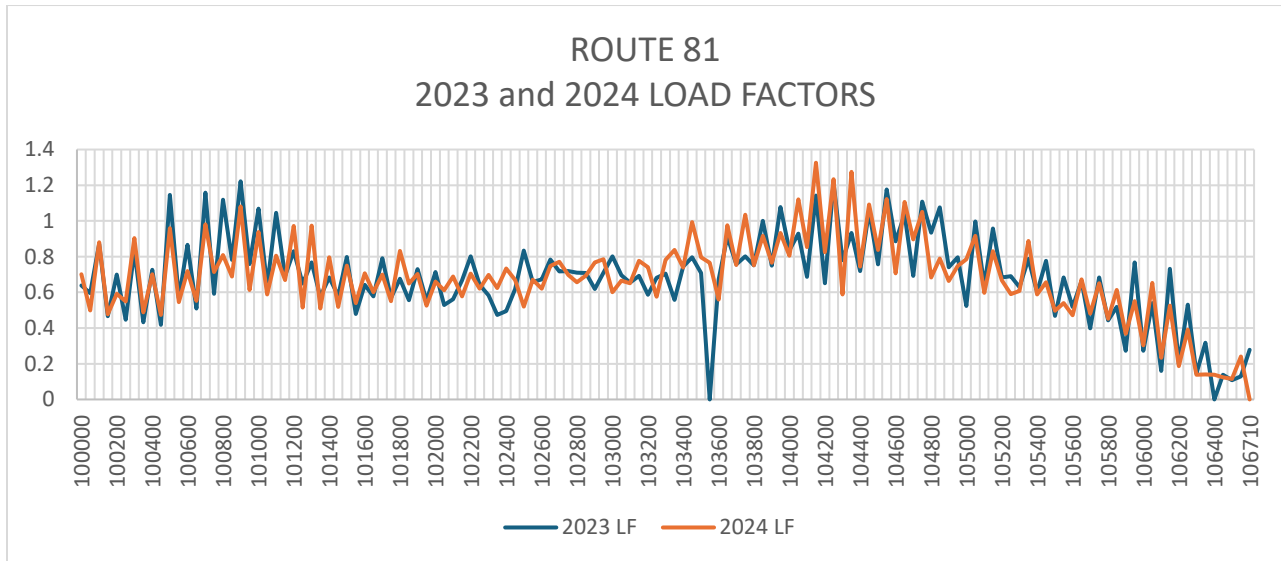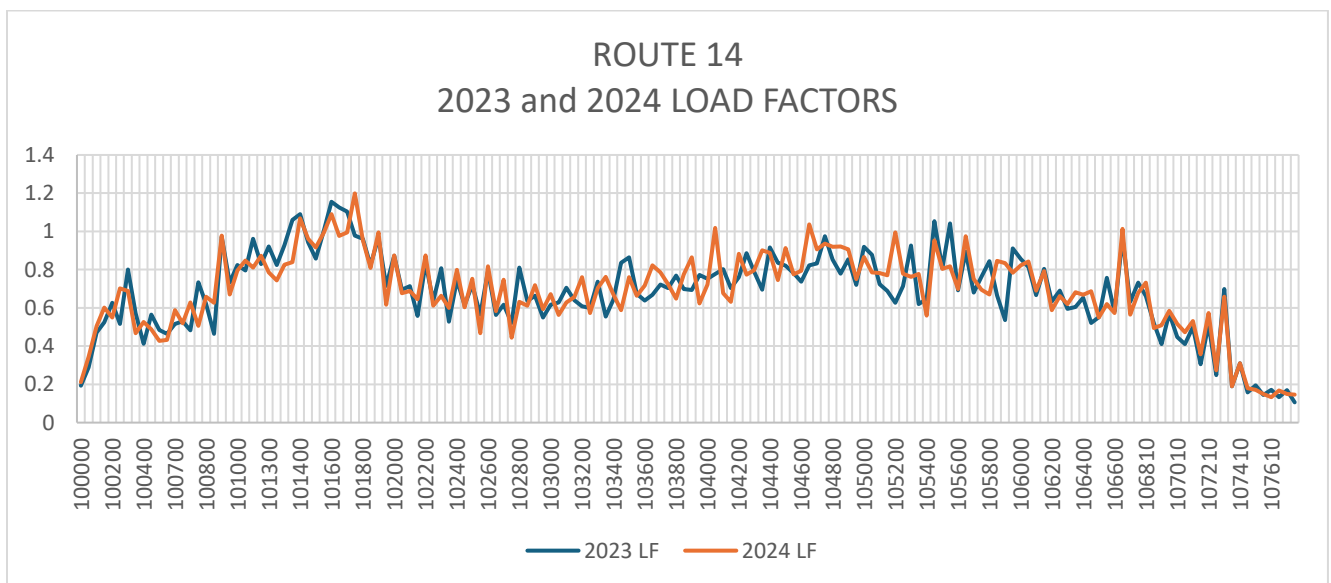
d. Benchmarking Metrics

Agency	% Service Delivered	On-Time Performance (OTP)	Accuracy of Real Time arrival info	Availability of Real Time arrival info	Reliability of Bus Service	Availability of seats on bus; Bus Crowding	Wait times for buses
NY MTA	X	X			X		X
	The share of scheduled buses that are actually provided at the peak load point during peak hours	The share of customer trips with a total travel time within 5 minutes of the scheduled time			Wait Assessment (WA) measures how evenly buses are spaced at selected timepoints (NY MTA)		ABST: The average time that customers spend waiting at a stop beyond their scheduled wait time ATT: The average time customers spend onboard a bus beyond their scheduled travel time
WMATA	X	X	X	X	X	X	X
	The percentage of scheduled trips that are actually operated in the time period specified.	The percentage of trips that depart a timepoint is no more than 2 minutes early or 7 minutes late relative to the scheduled departure time.	Real-time prediction accuracy	Real-time information availability	Fleet reliability is the mean distance between bus mechanical failures	Evaluates overcrowding using the percentage of passenger time spent on vehicles that exceed crowding guidelines.	Frequency/Service Headway: The amount of time scheduled between bus arrivals.
CTA	X	X			X		X
	The percent of scheduled bus hours delivered, including Holidays.	Bus On-Time performance is the percentage of time when the interval between two buses is 60 seconds or less in			Miles between reported bus service disruptions due to equipment – Miles traveled during the month divided by the number of reported service disruptions due to equipment. Average percent of bus fleet unavailable for service- Daily		Bus Excess Wait Time from schedule is defined as the difference between scheduled and actual average wait times.

Agency	% Service Delivered	On-Time Performance (OTP)	Accuracy of Real Time arrival info	Availability of Real Time arrival info	Reliability of Bus Service	Availability of seats on bus; Bus Crowding	Wait times for buses
		addition to the percent of times when the interval between two buses is double the scheduled internal and greater than 15 minutes.			average number of buses unavailable for service for any reason divided by the total number of buses in the fleet		
MUNI	X	X			X	X	
		On-time performance (OTP) measures how well Muni vehicles adhere to the schedule and serves as an indicator for the reliability and attractiveness of Muni service as a travel option for our customers			Percentage of scheduled Muni service hours delivered - Filled service hours are divided by scheduled hours and reported system-wide.	Percentage of trips where vehicles are above capacity for 10% or more of the stops	
AC Transit	X	X			X		
	Service Reliability is based on the percentage of service trips operated, divided by the total planned service trips. Trips not operated are any planned service trips that did not	On Time Performance is the percentage of buses that depart time points no more than one minute early and no more than five minutes later than scheduled.			AC Transit tracks the miles between chargeable road calls- The average miles traveled between mechanical problems that result in a service disruption of greater than ten minutes.		

Agency	% Service Delivered	On-Time Performance (OTP)	Accuracy of Real Time arrival info	Availability of Real Time arrival info	Reliability of Bus Service	Availability of seats on bus; Bus Crowding	Wait times for buses
	operate during the reporting period.						

e. **Detailed Benchmarking Results**

i. *Identify best practices*

The Metro scope of work included an assessment of procedures from other Transit agencies and how these agencies track performance metrics and publish scorecards on performance on their websites and in the public domain. Information published by peer agencies such as WMATA, CTA, and NY MTA as well as other agencies were researched. While many other transit agencies publish information on performance, only one agency, Winnipeg, publishes information on pass-ups on a daily basis. Most agencies consider missed trips and pass-ups as factors in reducing bus transit reliability. This together with load factors, cancelled trips, school trippers, and headways affects the number of pass-ups.

Bus System Rule Books

CTA and NY MTA have a Bus System Rule Book that defines the rules of conduct for their various transit agencies. Unlike Metro's rule book, neither CTA nor NY MTA cover bus pass-ups in the rule book, unlike the LACMTA rule book. Since Metro has pass-ups covered in their operator manual, this is a good practice compared to CTA and NY MTA. The Metro operator manual would depict a best practice if it covered all types of pass-ups, procedures to manage them, and metrics to track performance.

NY MTA

NY MTA's rule book covers the rules governing the conduct and safety of the public in the use of the facilities of the NY MTA Bus Company, but do not track bus pass ups.

CTA

CTA publishes a rule book covering all rules of conduct for CTA operating employees. Unlike NY MTA, CTA does not publish the fines associated with the rules of conduct and does not cover bus pass-ups.

Reliability

The Transit Cooperative Research Program (TCRP) report 'Minutes Matter: A Bus Transit Service Reliability Guidebook' defines three (3) hallmarks of bus transit reliability as:

- Short and consistent wait times
- Consistent on-time arrivals at the destination, and
- Consistent travel times

These three hallmarks influence the number of pass-ups an agency has due to the predictability of service that ensures riders will be at the bus stops for pickup.

The primary focus for the TCRP research was to provide recommendations for increasing on-time-performance (OTP) as most participating agencies had OTP as their primary measure, an indirect way to see the effect on the number of pass-ups.

Load Factors

The American Public Transportation Association (APTA) benchmarking report on 'Metro Service Policies and Standards' completed in 2019-2020 includes information on peak period load standards for 40-foot buses and is shown below.

Property	Peak Loading Standard (based on seats)	Off-Peak Standard (based on seats)	Comments
Philadelphia (SEPTA)	1.59		Unspecified off-peak
Seattle (King County)	1.5	1.25	No trip can have standing load for 20 minutes or longer
New York City (NY MTA)	1.5	1.4	
Dallas (DART)	1.5	1.0	
San Diego (MTS)	1.5	1.0	
Boston (MBTA)	1.4	1.0	
Chicago (CTA)	1.3	1.0	
LA Metro	1.3	1.0	
Denver (RTD)	1.25	1.0	
San Francisco (MUNI)	1.2	1.0	

Table 10: Peak Period Load Standards of Peer Agencies

Load factors ranged from 1.2 to 1.59 based on the agency assessments of risk related to crowded buses. Information on the various methods on how these load factors were set is not available. Metro's load factor threshold is included in the table at 1.3.

Real Time Arrival and Departure Assistance

A study of the impact of improved real time bus arrival information was completed with NY MTA, Tampa, and Atlanta. This research aimed to understand if real-time information (RTI) increases transit ridership, a critical question asked by decision-makers facing pressure to increase ridership under tight budget constraints. This study presents a meta-analysis of the impacts of RTI on transit ridership in three American cities (New York City, Tampa, and Atlanta) that share a common RTI system, known as OneBusAway. While these cities share a similar RTI platform, they differ in the characteristics of the transit systems themselves, the way in which RTI was launched, and the data available for analysis. Therefore, a different methodology has been utilized to study each city.

The results reveal that two of the three studies (Tampa and Atlanta) did not find a substantial change in transit trips associated with use of RTI. However, one study (New York City) did show an increase in ridership likely attributable to providing RTI and was most significant on the routes with the greatest level of transit service (measured in revenue miles).

Primary conclusion: **Since New York City has substantially more bus service than Atlanta or Tampa in terms of the number of routes, the span of service, and the frequency of service on most routes, this suggests that the potential for ridership gains due to RTI may be greatest in areas that already have high levels of pre-existing transit service.**

Complaints

The AC Transit public transit agency in Oakland, California identified nine (9) key reasons for complaints. Passenger pass-ups is identified as the fourth highest reason for complaints overall:

Rank	Reason for Complaint	Description
1	Hazardous Operation	Unsafe driving, speeding, swerving, running red light
2	Driver Conduct/ Discourtesy	Something driver has said or done
3	No Show	Bus does not arrive for schedule
4	*Pass-up*	*Bus arrives at a stop, but does not pick up the passenger*
5	Late	Bus is late
6	Cancellation	Bus did not make schedule due to mechanical or personnel issues
7	!Sharp	Bus arrives at a stop and leaves before scheduled time
8	Fare/Transfer Dispute	Disagreement on fare between driver and passenger
9	Refusal to Allow Aboard	Driver refuses to allow a passenger on board

Table 11: AC Transit Complaint Categories

Medium Size Agency Metrics

The American Bus Benchmarking Group (ABBG) benchmarked 19 medium sized agencies (100-600 bus fleet size) noting the following metrics that are used (missed trips were included in the customer success dimensions). Missed trips and on-time departure performance were key aspects of customer satisfaction.

Success Dimensions	Key Performance Indicators
Growth and Learning	Ridership: passenger boardings (*five-year % change*)
	Service levels: vehicle revenue miles and hours (*five-year % change*)
	Passengers per revenue mile and hour
	Staff training
Customer	Customer information (*scheduled and real-time*)
	On-time departure performance
	Passenger miles per revenue capacity mile
	Passenger miles per revenue seat mile
	Lost vehicle mile
	Missed trips
Internal Processes	Peak fleet utilization
	Network efficiency (*revenue miles and hours per total miles and hours, nonrevenue split by category*)
	Staff productivity (*total vehicle hours and miles per labor hour, overall and by category*)
	Staff absenteeism rate (*by staff category and absenteeism type*)
	Fleet reliability (*miles/time between road calls die to technical faults*)
Financial	Total cost per vehicle mile and hour
	Total operating cost per vehicle mile and hour (*service operation, maintenance, administration*)
	Service operation cost per revenue mile and hour
	Total operating cost per boarding and passenger mile
	Operating cost recovery
	Fare revenue per boarding and passenger mile
Safety	Number of vehicle collisions per vehicle mile and hours (*preventable, nonpreventable, on-property*)
	Number of staff injuries per staff work hour
	Number of passenger injuries per boarding and passenger mile
	Number of third-party injuries per vehicle mile and hour
Environmental	Fuel consumption (*per total vehicle mile, passenger mile, and capacity mile*)
	Carbon dioxide emissions (*per total vehicle and passenger mile*)

Table 12: Peer Agency Metrics Used

National Transit Database (NTD) Service Effectiveness

Lastly, NTD collects data from agencies and publishes national transit summaries and trends. In the 2023 report, service effectiveness results were published based on using load factors. The excerpt from this report is below:

Service Effectiveness

Service effectiveness can be measured using load factor, which is the average number of passengers on board a transit vehicle. Transit vehicles that are fuller will have higher load factors, whereas transit vehicles with more empty seats will have lower load factors.

Rail modes typically carry a greater number of passengers than Fixed-Route Bus modes due to Rail modes having higher vehicle capacities and typically serving high-density travel corridors. Similarly, Fixed-Route Bus modes carry more passengers than Demand Response and Vanpool modes because of their higher vehicle capacities and because they typically serve medium-density travel markets. See below for data:
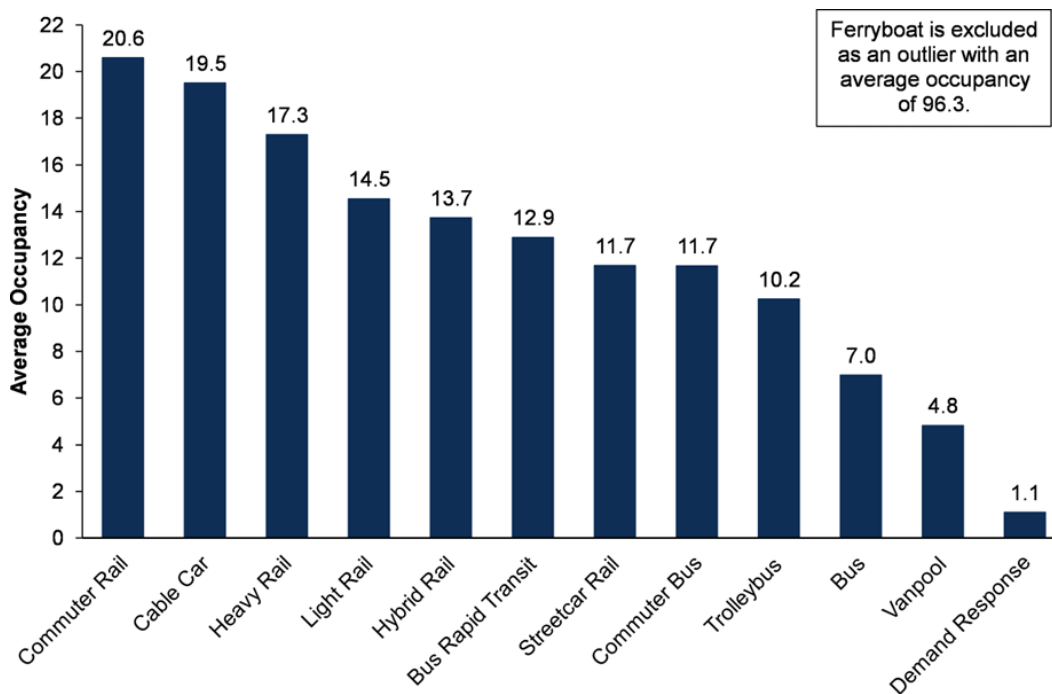

Figure 22: 2023 National Average occupancy (PMT per VRM) by Mode

ii.   Review key benchmarks from peer agencies.

Bus Pass-Up data is not a commonly tracked individual Key Performance Indicator (KPI) for transit agencies. Winnipeg Transit is one of the only benchmarked transit agencies that publishes pass-up data and has done so since 2020 (during Covid).

Most agencies track bus reliability and do not track pass-up counts. Metro tracks the number of full bus pass-ups and wheelchair pass-ups. This information is published to the Service Councils internally. However, this information is not published externally for review by the public. Bus reliability seems to be the metric that would include passenger pass-ups for other agencies.

Benchmarking was conducted on 6 transit agencies across the United States, including NY Metropolitan Transportation Authority, Washington Metropolitan Area Transportation Authority, MUNI, Chicago Transit Authority, AC Transit, and Winnipeg, Canada. All 6 transit agencies utilize On-Time Performance (OTP) as one of their performance metrics for their transit service. Most of these agencies use broad metrics that don't track pass-ups specifically.

➢ Five of the 6 transit agencies track the percentage of service delivered, identifying the percentage of scheduled bus hours and/or trips that took place. When service is cancelled, it is more difficult for passengers to track when the next bus will be available leading to potential pass-ups.

➢ Five out of 6 transit agencies also track the reliability of their bus service; however, this is calculated slightly differently across agencies. Reliability covers the credibility of the service and whether there will be available service. This influences the rider's availability for boarding the bus when it arrives leading to potential pass-ups.

➢ Four of the six agencies are tracking miles between reported bus service disruptions due to equipment/maintenance needed, while one agency tracks how evenly buses are spaced at selected timepoints. This data provides information on schedule compliance and could lead to pass-ups if the rider can't predict when the bus will arrive.

➢ Three out of the six transit agencies also track Bus Wait Times as part of their service reliability metrics. These agencies are tracking based on wait time, defined as the difference between scheduled and actual average wait times. When riders have to wait for service, particularly when the service is not running on time, they might seek alternatives and could be passed-up when attempting to find other transit solutions.

➢ WMATA is the only benchmarked agency that also tracks real-time arrival information availability, along with real-time arrival prediction accuracy. This data is provided to riders, and if it is inaccurate, may lead to pass-ups as the rider would be planning on another timeslot for the bus to arrive.

➢ Winnipeg utilizes pass-up metrics as part of their KPIs. Metrics include Full Bus Pass-ups, Wheelchair User Pass-ups, Location of Full Bus Pass-up, Location of Wheelchair User Pass-

ups, Full Bus Pass-ups by route, and Wheelchair Pass-ups by route. This is the best way to track pass-ups rather than the broader ones discussed above.

The metrics, with definitions, being used and published by the benchmarked transit agencies are presented in **Appendix D**. We also developed information on the relationship between reliability and ridership as noted in the chart below. This reinforces the importance of managing pass-ups and how agencies view the impact of bus reliability on ridership and customer satisfaction.

CTA	WMATA	NY MTA	MUNI	Overall
Respondents ranked increased service during the weekdays, more accurate real-time arrival information for buses, and if buses were faster and more reliable as the top factors that would encourage more frequent use of CTA.	Most frequent suggestions for improvement: shorter wait times/better on-time performance, cleaner buses, improved safety from crime and harassment. Service reliability remains an area of focus	What needs to improve to increase your satisfaction? Wait time, More reliable service, crowding, people not paying, and travel times and bus speeds	Overall customer satisfaction with Muni is tracked to help improve the customer experience to make Muni the most attractive travel choice in San Francisco. This includes on-time performance accurate arrival times, more frequent services and trip time satisfaction	Reliable service is an incentive for passengers to use transit services. Bus crowding and on-time performance have been noted as keys for customer satisfaction.

Table 13: Peer Agency Feedback

Winnipeg Transit

The charts below provide information on pass-ups by month documenting the pass-up locations for the last year as of March 21, 2025. For example, in March 2025, Winnipeg had only 42 wheelchair passes, and full bus pass-ups amounted to 4,965 for the month. The data is published daily on the agency's website.
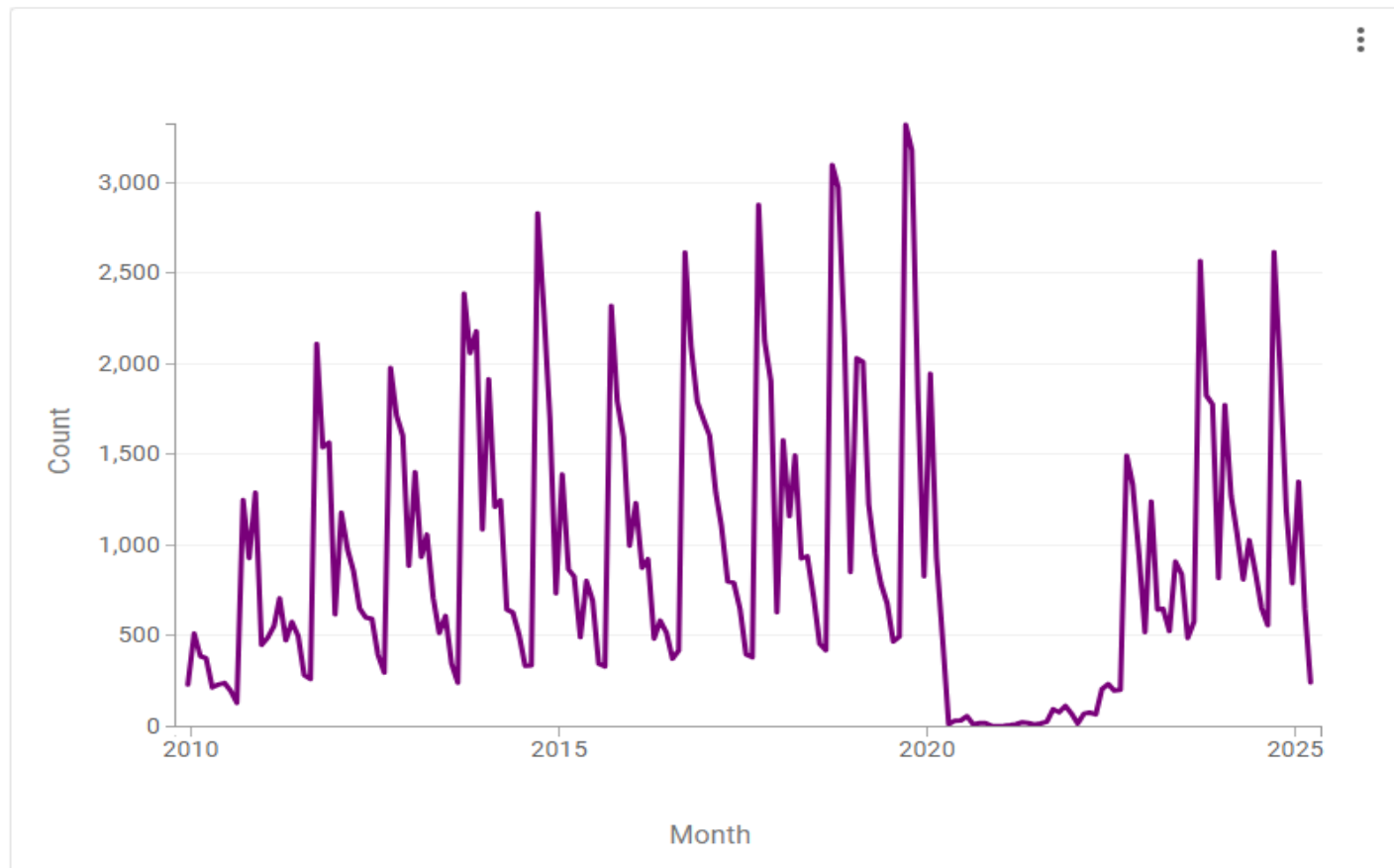

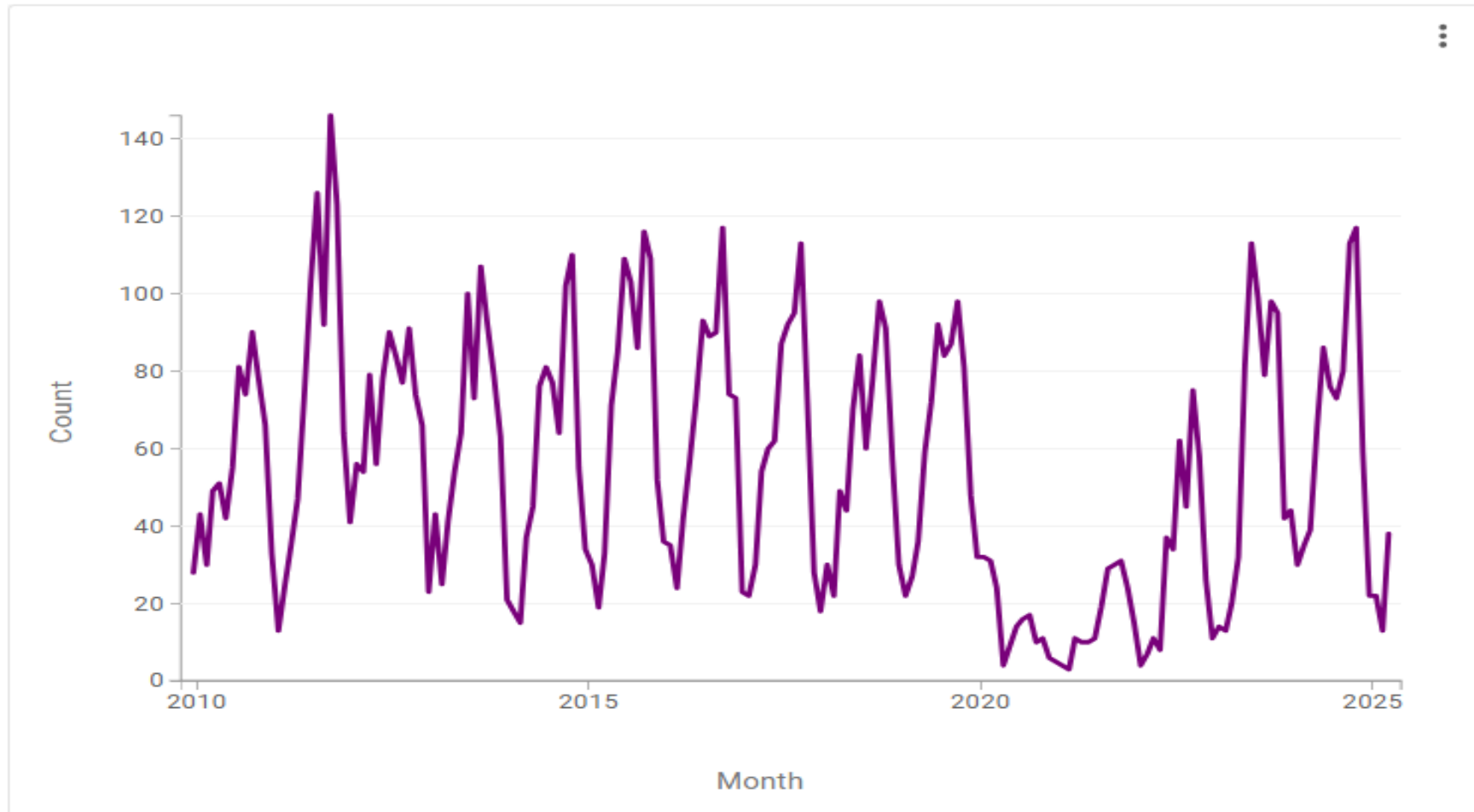*Figure 23: Winnipeg - Full Bus Pass-Up by Month*

Figure 24: Winnipeg - Wheelchair User Pass-Ups By Month

New York Metropolitan Transportation Authority

The New York Metropolitan Transportation Authority (NY MTA) relies on performance measurement and benchmarking to help assess how effectively it is achieving its overall mission of providing safe reliable, and efficient public transportation services. NY MTA publishes an Open Data Portal on performance metrics for Bus operations including Wheelchair Ramp and Lift Usage.

In addition to the interactive data portal, NY MTA releases an Annual Performance Metrics Report comparing their performance to peer agencies. In the most recent 2022 report, NY MTA noted the following findings:

- NY MTA is more efficient than domestic peers as measured by operating cost per passenger and average operating cost per revenue vehicle mile. Moreover, the NY MTA improved its cost per unlinked trip by 22% over 2021.
- After consideration of the US's unique labor market conditions of employers paying fully for healthcare and pension contributions, NY MTA operating expenses are better than the average of global peers in average cost per revenue vehicle mile, and 15% more expensive to the average of global peers on cost per passenger.
- Maintenance costs are relatively high by comparison to domestic and international peers, which is primarily attributable to facility and infrastructure maintenance costs incurred due to the age and complexity of our system. Additional focus is being applied to improve the efficacy and productivity of our maintenance activities.
- Additional areas of opportunity receiving focus in 2023 include: on-time performance, mean distance between failure, and staff days lost to accidents

Washington Metropolitan Area Transportation Authority

WMATA is committed to data transparency. The transit agency is currently utilizing interactive dashboards, performance reporting, and downloadable data as a way to get the most out of Metro's data resources. WMATA utilizes three interactive dashboards to share data with the public. Below is a description of each dashboard, along with an example of the data shared. WMATA's MetroPulse Dashboard provides access to real-time data on headway and scheduling adherence, number of scheduled buses, and number of active buses in service.

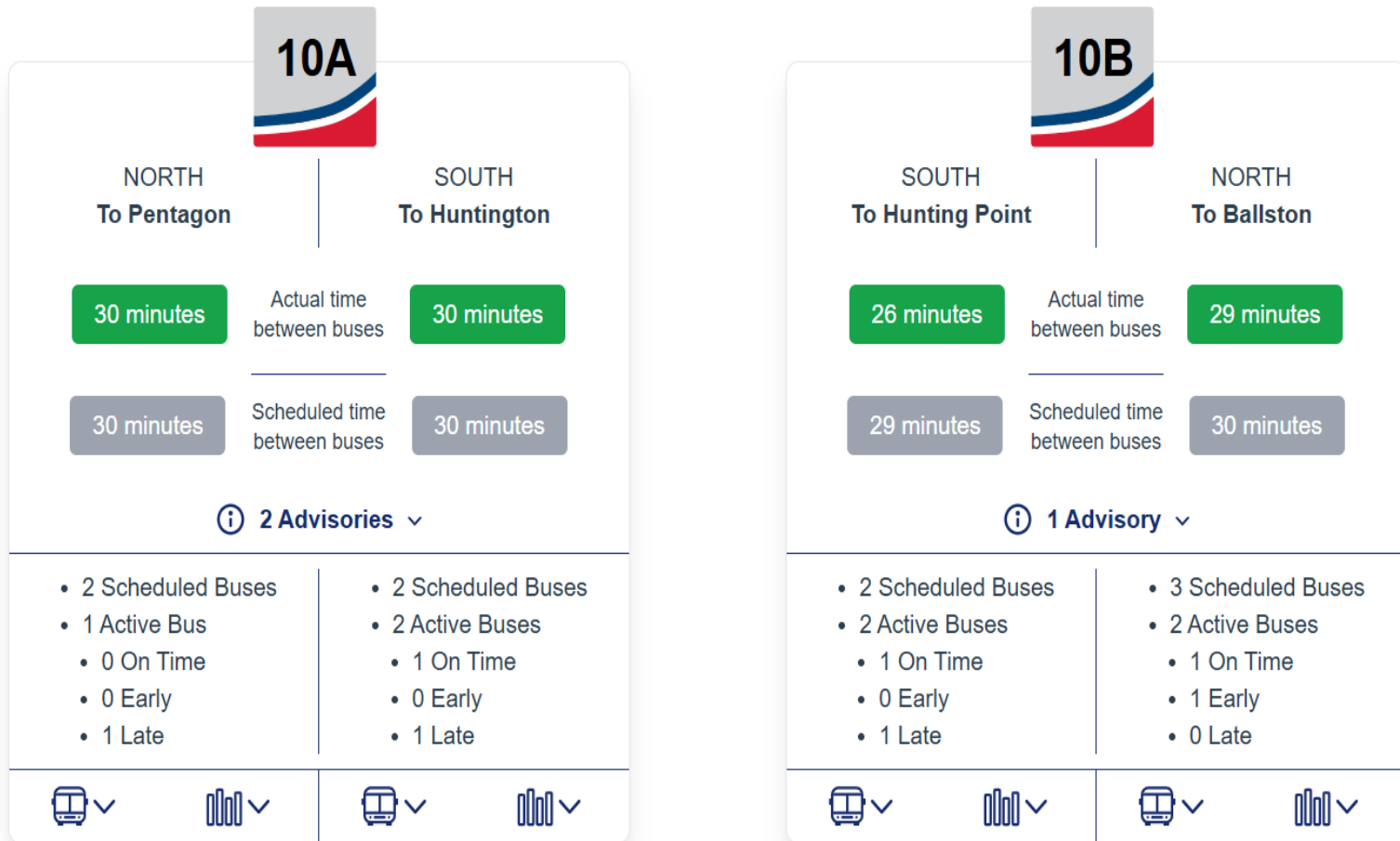*Figure 25: WMATA Dashboard*

WMATA also utilizes a Service Excellence Dashboard that captures data from the past year, including key performance indicators like on-time performance, missed trips and prediction accuracy. This dashboard also reports elevator and escalator performance at particular stations.
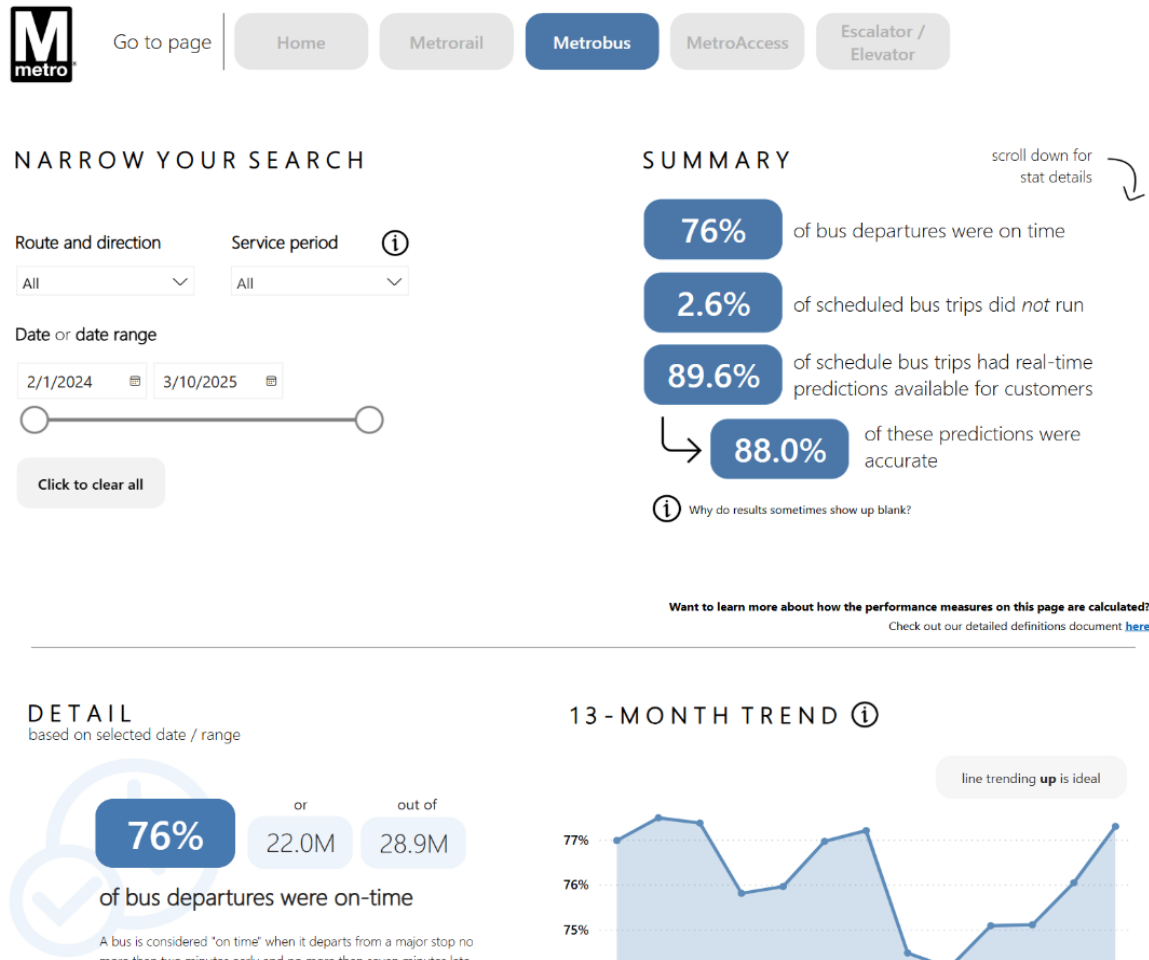
Figure 26: WMATA Metro Service Excellence Dashboard

Figure 27: WMATA Dashboard Additions

WMATA also publishes a Ridership Data Dashboard that provides information on bus ridership. This dashboard shows the average Metrobus ridership by Weekday/ Saturday/ Sunday by route for the selected month and year. Below is an example of the February 2025 Metrobus Ridership Summary.

Figure 28: WMATA Metrobus Ridership

From the WMATA APTA peer review, there were three findings and four recommended measures to implement that could affect bus pass-ups:

1. Provide resources needed to ensure that bus service productivity (passenger per mile) and loading is checked on a regular basis (ex. review of service at peak load points 3 times a year and full riding checks of all routes in pool and take a random sample every 2 years) agencies uses automated passenger counters (APC) data versus on board survey

2. Adjust and control service on high volume local bus routes (routes with frequency of 10 minutes or less) to maintain headways versus on-time performance (time points) in order to reduce overcrowding; can add or drop in a bus to maintain a service in high volume service; applies to high volume/high frequency routes

3. Establish performance measures that evaluate bus operations from a customer standpoint such as:

- % of buses dispatched from bus depots on time
- % of buses on-time on routes where frequency is greater than 10 minutes (i.e., on-time being 1 minute ahead to 3 minutes late)
- % of buses maintaining published headway on routes where frequency is less than 10 minutes (i.e., number of headway intervals within +2 to -2 of scheduled headway) high frequency/high volume
- % of lost trips based on on-time and headway adherence criteria; operator loses time that equals their headway; tell bus that is behind to discharge only "run cut" use a floater or fill-in bus; review schedules

Chicago Transit Authority

Chicago Transit Authority (CTA) publishes Public Performance Metrics that are designed to measure the CTA's success in meeting the goal of providing on-time, efficient, courteous, safe and clean service. The agency utilizes the monthly performance metrics to set internal goals for performance in an effort to encourage improvement and establish accountability.

The Customer Service Department gathers bus pass-ups of disabled passengers by garage. The data by year is reflected below.

Garage	2019	2020	2021	2022	2023	2024	Total
CTA Passing up a Disabled Passenger	**119**	**144**	**136**	**131**	**170**	**139**	**839**
G-103rd	13	18	21	25	30	22	129
G-74th	16	15	20	18	23	22	114
G-77th	15	31	18	10	21	21	116
G-Chicago	12	27	25	22	28	19	133
G-Forest Glen	27	18	16	15	16	12	104
G-Kedzie	13	11	11	13	17	20	85
G-North Park	23	24	25	28	35	23	158

Table 14: CTA Passing Up a Disabled Passenger

While CTA also utilizes many other KPIs to determine transit effectiveness and reliability, CTA publishes information on Ridership, On-time performance, Bus Excess Wait Times, Bus Service Percentage Delivered, and Bus Scheduled and Delivered.

CTA publishes Bus Ridership data for the last twelve (12) months including Total Monthly Ridership, Weekly Average Rides by Month, Year-To-Date Ridership, Percentage Change over Time and three Ridership metrics utilized.

AC Transit

AC Transit conducted a Pass-Up Analysis Report that details their experience with bus pass-ups since March 2020, as well as efforts to address those pass-up issues. The report details the extent of the problem, solutions put in place to date, and key challenges to further progress. Three key issues were identified as contributing factors to an increase in pass-ups in March 2020 as COVID shelter-in-place orders took place:

1. Six-foot distancing requirements cut on-board capacity to approximately one-quarter to one-third of pre-covid capacity.
2. Fares were suspended to reduce contact between riders and operators but also encouraged additional ridership.
3. Reductions in available workforce due to the direct impacts on the pandemic on AC Transit required reducing service to 65% of pre-COVID levels.

There was an increased demand for transit services caused by the free fare period which causes ridership to increase from March to October 2020. In April 2020 there was an 8% likelihood that the bus would be considered overcrowded, but by September 2020 this rate increased to 12%.

As of March 2021, AC Transit operators can track the number of pass-ups on their Transit Control Head (TCH) vehicle tablet that is located within the driver compartment area. The operator has three options to select when reporting the pass-up:

1. 1-5 passengers on the bus
2. 6-10 passengers on the bus
3. More than 10 passengers on the bus

Solution Put into Place

AC Transit implemented a standby bus program to address the pass-ups issues during the pandemic. No data is available on the effectiveness of this program.

Challenges

AC Transit has identified challenges with respect to increasing service further to reduce pass-ups

1. Funding
2. Service Commitments
3. Workforce and training Constraints

iii. _Technology Options for Consideration_

We looked into technology that helps with ridership and possible reduce bus pass-ups by addressing ADA needs in the areas of sight and hearing.

BlindSquare

BlindSquare is an accessible GPS application designed to assist blind, deafblind, and partially sighted individuals in navigating both outdoor and indoor environments. By integrating with third-party navigation apps, BlindSquare provides detailed information about points of interest and intersections, facilitating safe and reliable travel

What is the application

BlindSquare is the world's most widely used accessible GPS app for individuals with visual impairments. It offers features such as announcing points of interest, street intersections, and the ability to save previously located places. The app utilizes 'Acapela' voices in various languages to deliver information about the environment, even when the device is tucked away, allowing for a hands-free experience. The app is available in 26 languages and is used by blind and visually impaired users in over 150 countries, indicating its widespread adoption and potential integration with various public transportation systems worldwide.

How has it been implemented?

BlindSquare has been implemented in various settings to enhance accessibility:

- **Public Transportation:** The Massachusetts Bay Transportation Authority (MBTA) has integrated BlindSquare to assist visually impaired passengers in navigating transit systems.
- **Indoor Navigation:** The app can be combined with tactile guidance systems and braille labels to facilitate indoor navigation. Building owners can customize and automate the system to suit specific environments.
- **Events:** BlindSquare Event is a free version of the app that provides all features of the paid version at registered events of special interest to blind and visually impaired individuals. Outside these events, it functions as a demo.

Besides MBTA, who has implemented it?

BlindSquare has been adopted by various organizations and venues to improve accessibility:

- **Educational Institutions:** The Perkins School for the Blind has recognized and reviewed BlindSquare as a valuable tool for orientation and mobility.
- **Public Venues:** The app is used in numerous public spaces worldwide, often in collaboration with tactile guidance systems and braille labels, to assist visually impaired individuals in navigating complex environments.

NaviLens

NaviLens is an innovative navigation and information accessibility app designed to help people who are blind or visually impaired navigate public spaces more independently. The app uses color-coded QR-style tags, known as **NaviLens codes**, which can be detected by a smartphone camera from several meters away and at wide angles without the user having to precisely aim the camera. Once a tag is detected, the app reads out contextual information or navigation instructions, helping users find bus stops, train platforms, public amenities, and other key locations. In addition to aiding visually impaired users, NaviLens has expanded its use to enhance accessibility and real-time information for all users, including those with cognitive disabilities and tourists in unfamiliar environments.

How has it been implemented?

NaviLens has been implemented in various public transportation systems, museums, universities, public buildings, and tourist attractions. Institutions place physical NaviLens codes in strategic locations. These codes are linked to specific audio instructions or information that the app reads aloud. The codes can also deliver text and video information in multiple languages. Implementation often includes:

- Strategic placement of codes in areas such as station entrances, ticket machines, escalators, and platforms.
- Providing accessible route information and emergency instructions.
- Partnering with accessibility organizations to ensure codes are positioned and configured for optimal benefit.

The MBTA has been one of the prominent adopters, using NaviLens codes to improve station navigation and deliver dynamic updates on service changes.

Several organizations and transit authorities worldwide have implemented NaviLens, including:

- **New York City MTA (Metropolitan Transportation Authority)** — tested and expanded NaviLens codes in subway stations and bus stops.
- **Transport for London (TfL)** — pilot programs in London Underground stations.
- **Barcelona Metro** and public transit systems throughout **Spain**, where the technology originated.
- **Los Angeles Metro** — implemented pilot projects to improve bus stop and station accessibility.
- **The Louvre Museum (Paris)** — for providing detailed multilingual information on exhibits.
- **University of Alicante (Spain)** — for indoor navigation.

- **Port Authority of New York and New Jersey** — at major terminals.

Aira

Aira is a service that connects blind and low-vision users with trained human agents via a smartphone app or smart glasses. Users can request assistance at any time, receiving real-time navigation and detailed descriptions of their surroundings. Aira does not rely on pre-installed infrastructure, as it provides live human assistance.

No physical installation is required, and the service works both indoors and outdoors. The service provides personalized, real-time guidance for complex navigation challenges. However, the service does require a paid subscription for full access and is dependent on mobile data or WiFi availability.

GoodMaps

GoodMaps is an indoor mapping and navigation platform that utilizes LiDAR-generated 3D maps and smartphone sensors to provide real-time wayfinding assistance without requiring physical infrastructure. The GoodMaps app enables straightforward navigation and interaction in busy locations. Entrance-to-destination wayfinding enables users to find their way independently, confidently, and with increased safety.

The app leverages GPS, Wi-Fi, and Bluetooth to pinpoint user locations and guide them via voice prompts.

GoodMaps does not require installation of physical markers or beacons and has high-accuracy mapping with 3D LiDAR scans. The service also supports multimodal navigation with transit stop integration. However, the service does require consistent internet or Bluetooth connectivity for optimal performance and mapping accuracy can be affected by indoor signal obstructions. Additionally, the mapping process can be time intensive and may require updates.

f. Sample Report by Line and In Total

The table below presents data per line for wheelchair (WC) overload/standing, WC filled, WC mechanical, WC other, WC total pass-ups (PU), WC boarding, WC pass-ups percentage (PU PCT), revenue hours, and WC boarding per revenue hour (rev hour), and WC pass-ups (PU) per revenue hour (rev hour). Only line 18 had over 6% wheelchair pass-ups.

The 11 routes that had the wheelchair pass-ups over 3% had an average load factor of .65 compared to the average system-wide factor of .53. These are shaded in grey below.

Line	WC Overload/ Standing	WC Filled	WC Mechanical	WC Reason Unreported	WC Other	WC Total PU	WC Boarding	WC PU PCT	Revenue Hours	WC Boarding Per Rev Hour	WC PU Per Rev Hour
18	218	4	2	4		228	3,292	6.93%	11696.1	0.28146	0.01949
53	107	1	2			110	1,958	5.62%	8311.3	0.23558	0.01323
204	65	3	1	2		71	1,502	4.73%	9742.8	0.15417	0.00729
207	93	2			1	96	2,052	4.68%	12406.2	0.16540	0.00774
111	84	2		1		87	1,882	4.62%	9723	0.19356	0.00895
16	56		1	1		58	1,277	4.54%	12338	0.10350	0.00470
202			1			1	23	4.35%	457.3	0.05030	0.00219
45	66			1		67	1,555	4.31%	9003.1	0.17272	0.00744
70	73	4				77	1,937	3.98%	11853.4	0.16341	0.00650
910	30	1				31	791	3.92%	10561.4	0.07490	0.00294

Line	WC Overload/ Standing	WC Filled	WC Mechanical	WC Reason Unreported	WC Other	WC Total PU	WC Boarding	WC PU PCT	Revenue Hours	WC Boarding Per Rev Hour	WC PU Per Rev Hour
2	71	1		1		73	1,892	3.86%	13897.4	0.13614	0.00525
460	14					14	407	3.44%	5331.1	0.07634	0.00263
105	46					46	1,368	3.36%	9777.9	0.13991	0.00470
134	1					1	30	3.33%	1786.5	0.01679	0.00056
115	50	1		1		52	1,562	3.33%	8054	0.19394	0.00646
117	55	5				60	1,829	3.28%	6340.4	0.28847	0.00946
210	51					51	1,565	3.26%	10438.1	0.14993	0.00489
244	3					3	96	3.13%	1478	0.06495	0.00203
233	64	8	2	4		78	2,502	3.12%	7980.8	0.31350	0.00977
166	16					16	518	3.09%	4195	0.12348	0.00381
51	68	2		3		73	2,379	3.07%	12022.3	0.19788	0.00607
4	50	3		4	1	58	1,997	2.90%	18287.4	0.10920	0.00317
251	54	1				55	1,902	2.89%	10089.1	0.18852	0.00545
14	23			2		25	911	2.74%	8115.2	0.11226	0.00308
Total	**1,999**	**69**	**15**	**43**	**5**	**2,131**	**78,598**	**2.71%**	**1628914.2**	**0.04825**	**0.00131**

g. LA Metro Pass-Up Data Report

Route/Lines	Total Riders	Pass-ups	Percent
45	4,357,881	6,887	0.16%
16	6,448,752	7,958	0.12%
53	3,467,950	4,254	0.12%
33	5,320,770	6,078	0.11%
81	3,244,299	3,708	0.11%
166	1,778,817	1,946	0.11%
18	6,728,711	6,888	0.10%
51	5,910,598	5,404	0.09%
55	2,265,361	1,800	0.08%
108	4,448,248	3,353	0.08%
115	3,639,014	2,413	0.07%
165	2,418,724	1,690	0.07%
14	3,619,400	2,088	0.06%
28	3,197,177	1,807	0.06%
40	4,571,417	2,671	0.06%
60	4,627,245	2,913	0.06%
66	4,044,497	2,277	0.06%
70	4,938,567	3,098	0.06%
111	4,623,719	2,673	0.06%
117	2,599,084	1,682	0.06%
207	8,110,164	4,532	0.06%
2	6,126,619	3,366	0.05%
10	2,245,768	1,044	0.05%
20	2,871,028	1,345	0.05%
105	4,611,369	2,132	0.05%
152	3,083,866	1,696	0.05%
217	2,810,911	1,300	0.05%
233	4,135,842	2,052	0.05%
251	4,319,881	2,106	0.05%
720	6,410,073	3,134	0.05%
4	7,750,385	3,432	0.04%
30	2,961,899	1,072	0.04%

Route/Lines	Total Riders	Pass-ups	Percent
78	2,123,613	906	0.04%
94	2,235,029	876	0.04%
162	3,040,978	1,103	0.04%
180	2,986,642	1,163	0.04%
210	4,304,931	1,877	0.04%
240	3,427,505	1,387	0.04%
260	3,270,238	1,326	0.04%
110	2,314,486	643	0.03%
134	378,976	103	0.03%
164	1,795,135	583	0.03%
169	568,472	156	0.03%
204	6,932,264	2,345	0.03%
206	2,771,951	784	0.03%
224	2,005,871	566	0.03%
230	973,225	303	0.03%
234	2,691,270	938	0.03%
242	516,360	178	0.03%
244	501,657	131	0.03%
460	1,298,664	417	0.03%
602	341,375	97	0.03%
690	312,258	84	0.03%
910	4,724,832	1,366	0.03%
62	998,361	156	0.02%
76	1,919,981	358	0.02%
92	1,795,833	382	0.02%
120	937,348	202	0.02%
150	935,447	214	0.02%
182	854,855	134	0.02%
212	2,936,787	671	0.02%
236	550,004	98	0.02%
754	4,181,978	909	0.02%
761	2,158,830	517	0.02%
35	1,569,720	156	0.01%
90	1,830,153	239	0.01%

Route/Lines	Total Riders	Pass-ups	Percent
127	549,485	59	0.01%
154	169,641	19	0.01%
155	341,483	29	0.01%
158	428,223	36	0.01%
202	55,921	3	0.01%
222	344,828	35	0.01%
237	498,847	40	0.01%
246	953,362	125	0.01%
265	307,811	20	0.01%
266	1,707,316	128	0.01%
267	375,789	29	0.01%
268	211,734	16	0.01%
294	440,598	51	0.01%
344	464,057	27	0.01%
487	378,144	21	0.01%
617	190,130	17	0.01%
662	639,436	44	0.01%
901	4,412,865	503	0.01%
96	224,203	1	0.00%
102	488,568	21	0.00%
106	1,222,299	56	0.00%
125	1,481,528	6	0.00%
128	326,493	0	0.00%
161	252,608	2	0.00%
167	462,819	2	0.00%
177	55,578	0	0.00%
179	297,230	7	0.00%
205	858,227	2	0.00%
209	91,014	3	0.00%
211	81,554	2	0.00%
218	188,071	0	0.00%
232	1,387,988	10	0.00%
256	176,459	1	0.00%
258	600,551	19	0.00%

Route/Lines	Total Riders	Pass-ups	Percent
287	261,252	2	0.00%
501	380,788	2	0.00%
550	86,084	1	0.00%
577	219,420	0	0.00%
601	131,555	4	0.00%
603	2,596,453	3	0.00%
605	696,579	2	0.00%
611	457,850	12	0.00%
660	278,420	4	0.00%
665	159,836	2	0.00%
686	74,195	2	0.00%
857	212,813	1	0.00%
System total	**234,093,170**	**121,536**	**0.05%**

h. Table of Recommendations

	List of Recommendations and Proposed Actions				
No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
1	**Metro should develop procedures in the following areas to ensure analysis, measurement, and management of bus pass-ups:**				
1.a.	Metro currently utilizes a threshold of 6% rate of pass-up before an analysis of a specific route wheelchair pass-ups is performed. This threshold is twice the 2.8% system wide average. We recommend the threshold be reduced to 3% and the procedure used in Metro's Title VI Plan service standards should be updated to reflect the revised percentage.				
1.b.	Procedure to cover pass-up related data collected and how data will be used to reduce the number of pass-ups to include load factors,				

List of Recommendations and Proposed Actions

No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	cancellations, school trippers, time of day, and other factors.				
1.c.	Definition of the meaning of "full bus" should be included in all applicable procedures.				
1.d.	Procedures for conducting Route/Line Capacity analysis.				
1.e.	Procedures to handle scheduling and pass-up monitoring.				
1.f.	Update the ADA procedure for alternative accessible service to be fully compliant. i. Address Equipment Failures More Explicitly - It is recommended that Metro clearly state that lifts be tested every day before leaving the division to be placed into				

			List of Recommendations and Proposed Actions		
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	service and that vehicles with inoperative lifts must be held back until fixed or taken out of service before the next service day unless no spare is available. Metro should consider revising the Metro Bus Operations Control Standard Operating Procedures (SOP) 10.01– Accessible Service. 49 CFR 37.163 ii. Strengthening Documentation and Reporting -The Current SOP includes documentation forms for incidents but lacks specific procedures for reporting accessibility-related complaints and				

List of Recommendations and Proposed Actions

No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	equipment failures. 49 CFR 27.13(a)				
1.g.	Procedures to ensure that Metro includes mandatory ADA compliance training for all operators, focusing on assisting passengers with various disabilities, proper use of accessibility equipment, and handling service animals. 49 CFR 37.173				
1.h.	Procedures related to Service Animals- The current SOP states that Metro permits service animals but lacks detailed guidelines on handling situations where the service animal is out of control or poses a threat. i. It is recommended that Metro defines clear procedures for operators to follow if a service animal is out of control or poses a direct threat to the health or				

	List of Recommendations and Proposed Actions				
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	safety of others. 49 CFR 37.167(d)				
1.i.	Procedure to perform Maintenance Checks for Accessibility Equipment- The current SOP addresses procedures when equipment fails but does not emphasize preventive maintenance. The procedure should include regular maintenance checks for all accessibility equipment to ensure functionality. 49 CFR 37.161(a)				
1.j.	Procedures on how communications should be handled for all types of pass-ups				
1.k.	Ensure that corrective actions for pass-ups are consistent for operators and supervisors.				

	List of Recommendations and Proposed Actions				
No.	**Recommendations**	**Staff Assigned**	**Agree or Disagree**	**Proposed Action**	**Completion Date Estimate**
1.l.	Procedures to hold ongoing meetings, including "RAP" sessions, on pass-up levels and corrective actions to improve.				
2	**Key performance metrics should be established and tracked against pass-ups data for potential improvements. These metrics are noted below:**				
2.a.	Headway to load factor - The number and percentage of route trips per day when load factors exceed 1.0 may indicate a potential schedule adjustment as part of the schedule adjustment (shakeup) process or other mitigation as needed. Load Factors exceeding 1.3 should result in a schedule adjustment. This information is presently tracked by Metro.				
2.b.	On time performance -				

	List of Recommendations and Proposed Actions				
No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	Track on-time performance against a target goal of 100% on time, no time allowance for early or late by route/line, to be able to conduct process improvement analysis of how to improve bus scheduling.				
2.c.	Route and System-wide Load factors - Keep a load factor of 1.3 as the standard but evaluate passenger and wheelchair (WC) pass-ups by line/route/load factor for process improvement. Evaluate locations along routes where the passenger load is greatest. The maximum load point can differ by direction and by time of day. Long or complex routes may have multiple maximum load points, one for each segment. Also known as "peak load point."				

List of Recommendations and Proposed Actions

No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
2.d.	Percent of service delivered - Keep the target at 2% cancellation rate but evaluate periodically by line/route relating to complaints, and pass-ups.				
2.e.	Wheelchair pass-ups - Reduce the threshold from 6% to 3% for analysis. This is currently the highest level for any route but may not capture the poor performing routes.				
2.f.	General (non-wheelchair) Passenger pass-ups - Create a daily metric of total passenger pass-ups which should be reviewed periodically but no less than annually for development of a process improvement plan to reduce full bus passenger pass-ups.				
2.g.	Pass-ups per 100,000 riders -				

	List of Recommendations and Proposed Actions				
No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	Create a formal pass-up rate metric such as pass-ups/100,000 riders for each line/route. Track the metric each month and communicate the data to supervisors and operators through "RAP" sessions in each Division and other communication channels.				
3.	**Training should be completed for operators and Metro staff**				
3.a.	Complete annual Refresher training to include pass-up procedures for operators and supervisors.				
3.b.	Include explanation of pass-up codes used in the Advanced Transportation Management System (ATMS).				
3.c.	Discuss variation in operator management of pass-ups using good				

No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	judgment and common sense.				
3.d.	Include the reasons that might lead to a wheelchair pass-up and there is no specific direction provided to state that the procedures are the same regardless of the reason for the wheelchair (WC) pass-up.				
3.e.	Training should include coverage of full bus pass-ups.				
3.f.	Create a specific passenger pass-up training module. This module should include guidance on how to handle different types of pass-up situations such as full bus (including a definition of full bus), wheelchair or ADA pass-up, and difficult passengers. The goal is to provide more guidance to operators for exercising their judgement in the field.				

	List of Recommendations and Proposed Actions				
No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
3.g.	Develop public education campaigns for riders on the importance of being ready to board, being at the stop, being aware of when the bus is approaching, and making sure the operator knows you are waiting for the bus and can see you.				
3.h.	Train all appropriate staff on new procedures.				
4,	**Physical Characteristics of Bus Stops**				
4.a.	Create a procedure to review the physical characteristics of bus stops at which pass-ups occur due to passenger visibility or the passenger not being at the stop. When warranted by the physical review make changes to the bus stop such as adding or improving lighting; trimming vegetation; removing obstructions; or adding shade to encourage				

	List of Recommendations and Proposed Actions				
No.	Recommendations	Staff Assigned	Agree or Disagree	Proposed Action	Completion Date Estimate
	passengers to use the bus stop.				

Metro's Management Response

Metro Interoffice Memo

Date	August 12, 2025
To	Karen Gorman Inspector General
From	Conan Cheung Chief Operations Officer
Subject	25-AUD-07 Metro Bus Pass-Ups

Thank you for sharing the draft report on the Metro Bus Pass-Ups. We appreciate the thorough review and valuable recommendations outlined in the report. We acknowledge the importance of addressing these issues to enhance the overall public transit experience.

While we agree with many of the report's findings and recommendations, we will need additional time to conduct a thoughtful and detailed review. A comprehensive response will require further coordination with relevant departments and stakeholders. We will provide a more thorough response within 60–90 days, outlining our approach to addressing the report's recommendations.

We appreciate your patience and look forward to continued collaboration on these important issues.

cc:
Edna Stanley
Diane Corral-Lopez
Chris Reyes
Audit Administration