



ACCESS-A-RIDE PERFORMANCE METRICS

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INTRODUCTION

MTA New York City Transit's Paratransit division (Paratransit) has provided transportation to riders with disabilities through its Access-A-Ride program (AAR) for more than 20 years. Presently, over 140,000 customers rely on Paratransit's AAR program to commute to their jobs, keep medical appointments, or generally travel throughout the city. Customers take about six million trips each year. Paratransit generally contracts with companies to provide these rides to its customers, with about 70 percent of all AAR trips being provided by its 13 dedicated transportation companies ("carriers"). These carriers use and maintain almost 2,000 NYC Transit-owned vans and sedans.

In 2017, in appearances before the MTA Board, many AAR customers strongly expressed their complaints regarding AAR service. However, few relevant operational statistics that measured service quality from the customer's perspective were available for the Board and public to review as part of their discussions on the topic. As a result, Paratransit committed to publicly reporting in 2018 more AAR performance standards and operating statistics, collectively known as the program's performance-based measurements, or performance metrics.

Summary of Findings

In order to determine the validity and usefulness of the performance metrics, the Office of the MTA Inspector General (OIG) audited AAR's calculations for the metrics and used program data to analyze AAR trips completed by contracted carriers during the ten-month period between March and December 2017. Overall, we found that Paratransit needs both to calculate certain key measures more accurately and provide more information publicly in order to present a clearer picture of program performance.

- **Paratransit Needs to Use More Appropriate Thresholds for Determining when Passenger Drop-offs are On-Time**

Fifty-three percent of all scheduled trips are arranged to accommodate the customer's preferred time of drop-off at a particular destination. In 2017, Paratransit set an on-time goal of 90 percent for trips arranged to meet a requested drop-off time. Notably, though, a drop-off that is considered "on-time" under Paratransit criteria is not necessarily on-time under guidance provided by the Federal Transit Administration (FTA).

According to this guidance, on-time means drop-off at the destination no later than the requested time and no earlier than 30 minutes prior (to minimize waiting time at buildings that may not be open that far in advance, especially under adverse weather conditions). However, by its own criteria, Paratransit deems “drop-off” to be when the vehicle comes within 150 feet of the destination according to the vehicle’s GPS. The trip is then considered to be “on-time” when it reaches that point no later than five minutes from the requested drop-off time, regardless of how early the vehicle may arrive at that point or how long it may take to traverse the last 150 feet or for the passenger to disembark.

Applying Paratransit’s criteria for measuring on-time performance to the trips completed during our ten-month audit period, we calculate that 88 percent of these drop-offs would be considered on-time, just two percent shy of Paratransit’s goal. But when applying criteria provided by the FTA, we calculate that on-time performance would be substantially lower. In fact, under these criteria, 18 percent of the drop-offs were late and 30 percent were too early. Notably, both early and late drop-offs have been the subject of many customer complaints.

- **Paratransit Does Not Report or Adequately Review Trips that Exceed Maximum-Allowed Ride Duration**

As part of complying with FTA requirements related to the Americans with Disabilities Act (ADA), Paratransit has set time limits, based on six distance categories, for the duration of individual rides. We calculate that 106,814 rides during our audit period (3.1 percent of carrier trips) exceeded their maximum-allowed durations. With very few exceptions, however, these lengthy trips—which are a source of discomfort and delay—are not being tracked, studied for causation, or reported to the public. Of particular concern is that Paratransit does not analyze those trips to identify oddly circuitous routes and other inefficiencies that could be addressed through better scheduling.

- **Frequent-Rider Experience Should be Measured and Reported**

Paratransit’s current metrics only measure discrete aspects of individual trips—pick-up, drop-off, and ride duration—without due attention to the cumulative experience of frequent riders (i.e. daily commuters or customers making round trips). Significantly, according to our analysis, many customers experience problems with at least one of these aspects on a weekly basis. Overall, we found that 30 percent of all customers who took at least one trip in a week in the ten-month audit period experienced at least one late and/or overly-long trip in that week. During some weeks, over 40 percent of customers using AAR experienced substandard trips.

- **Revised Data Collection for On-time-Pick-up Performance Metrics Inflated Numbers**

Paratransit has recently changed how it calculates on-time performance for pick-ups. The agency's primary change was to switch the data point used for determining pick-up time from when the driver indicates that the pick-up was performed, to the earlier event of when the vehicle's GPS system automatically indicates that the vehicle arrived within 150 feet of the pick-up location. While this change has the salutary effect of insulating the GPS-recorded time from driver manipulation, it inadvertently boosted the on-time performance *statistics* for pick-ups, without any actual improvement in on-time performance itself. At the same time, Paratransit did not adjust its goal for on-time performance to account for this illusory improvement. As a result, because carrier penalties and bonuses are contractually tied to these performance statistics, Paratransit paid a total of nearly \$245,000 more over nine months to carriers for the same actual performance. When annualized, we estimate these overpayments to be approximately \$327,000.

Summary of Recommendations

To address the issues revealed by our findings, we have made recommendations to Paratransit, a number of which are necessarily technical and specific. Primary among these, Paratransit needs to develop better ways to measure the timeliness of pick-ups and drop-offs, and to routinely review excessively lengthy trips to ascertain and address their root causes.

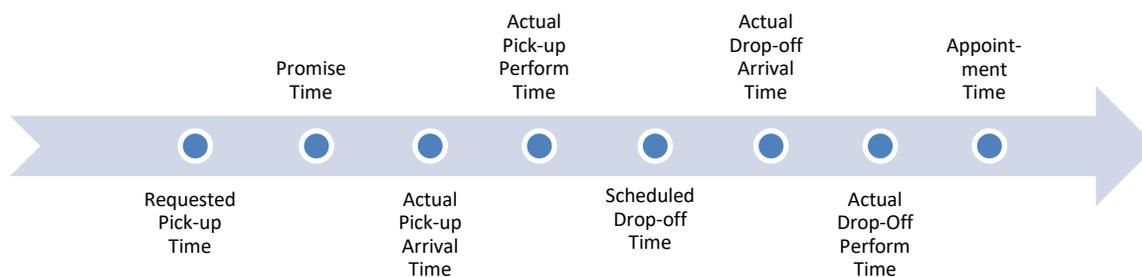
Fundamentally, Paratransit needs to find better ways to correlate objective data with the experience of its riders, and give the Board and the public more meaningful performance metrics to help them assess whether and to what extent Paratransit is meeting the needs of the very vulnerable population it serves. Currently, by using metrics that employ generous definitions of on-time performance and that evaluate trips in terms of their discrete aspects rather than cumulative experience, Paratransit has created a disparity in how AAR's performance is perceived by customers, the carriers, the public, and Paratransit itself.

Summary of Agency Response

New York City Transit and its Paratransit Division largely accepted the thresholds and criteria recommended in the report and agreed to implement those recommendations. More specifically, the agency agreed to regularly report to the MTA Board and on the agency's public dashboard the percent of trips that exceeded maximum ride-time limits. Additionally, the agency committed to reviewing excessively lengthy trips to identify and address the root causes, and plans to raise the performance goals for the carriers. Lastly, the agency agreed to calculate a new measure that will quantify and publicly report the percentage of carrier trips that meet all of the agency's performance standards and should reflect more closely a customer's experience.

BACKGROUND

To help us assess the validity and usefulness of Paratransit’s performance metrics, we must first understand the agency’s data-collection process and the terminology by which it describes these metrics. Basically, Paratransit collects data in connection with each AAR ride to track the process of scheduling a pick-up, boarding a vehicle, taking the drive, and disembarking. These “data points,” meaning the information gained at each step in the process and used to calculate the various metrics, are expressed in specialized terms (see graphic immediately below) that we explain as follows in the context of an AAR trip.



Trip Reservations

Customers reserve a trip by calling into the Paratransit call center and speaking with travel planning associates (Reservationists) between 7:00 AM and 5:00 PM. Customers must reserve a trip at least one day in advance. Reservationists give each customer the opportunity to specify either a preferred pick-up time or a required arrival (drop-off) time. In accordance with guidelines established under the federal Americans with Disabilities Act (ADA), a transit agency may negotiate pickup times with an eligible rider, but that agency cannot require the rider to schedule a trip more than one hour before or after their desired departure time (discussed below). This is called the scheduling or negotiation “window.” Reservationists schedule about 25,000 trips per day and use a software program called ADEPT to calculate the most efficient routes for each day’s trips.

As indicated above, each trip is scheduled based on one of two requested times: the pick-up time (**Requested Pick-up Time**) or the drop-off time (**Appointment Time**). A Requested Pick-up Time is used when a customer wants a ride but has no hard and fast time constraints about their drop-off time. For example, if a customer wants to visit a museum whose hours of operation are 11:00 AM–6:00 PM, the Reservationists will work with the customer to choose an optimal *pick-up* time. In contrast, for a trip scheduled using an Appointment Time, ADEPT prioritizes the *drop-off* time and generates a pick-up time that will allow a customer to reach their destination before the time of the appointment. For example, if a customer has a doctor’s appointment for 10:00 AM, ADEPT will suggest a pick-up time consistent with arriving at 10:00 AM (or a reasonable time before) given the route needed to travel. This is consistent with ADA guidelines, which provide that when there is a latest arrival time (e.g., the doctor’s appointment),

the scheduling window should be used on the early side to ensure that the rider gets to the appointment on time. Similarly, when there is an earliest departure time on a return trip (e.g., end of the work day), the guidelines provide that the scheduling window should be from that time to one hour after.

From the negotiations based on a Requested Pick-up Time or Appointment Time, the Reservationist uses ADEPT to generate what is known as the **Promise Time**. Once this Promise Time is set, the Reservationist tells the customer to be prepared to wait up to 30 minutes after this time for their ride (to allow for reasonable delays). This 30-minute window is consistent with ADA guidelines that allow for the actual pick-up to occur within a set window tied to the Promise Time.

After reservations are closed at the end of the business day, staff from the Scheduling Unit review trips reserved for the next day in ADEPT. They run reports in the system to find and fix issues such as trips that are overly long, trips with incorrect addresses, and trips that have been canceled. Where reservations are affected, staff members from the unit call customers to alert them to the change. Thereafter, staff uses the “re-optimize” module in ADEPT to ensure that there are no unnecessary gaps for drivers between trips within each route.

According to Paratransit officials, the route-planning process factors in extra time for customer boarding and disembarking, though the allowances are different. Thus, when boarding, four minutes are factored in for ambulatory customers and seven minutes for non-ambulatory customers (e.g., those using wheelchairs), while the disembarking times factored in for ambulatory and non-ambulatory customers are one minute and four minutes, respectively. For example, if a wheelchair-user has a trip that requires 20 minutes of driving time, an additional 11 minutes is added to accommodate loading and unloading, such that the total trip duration used in the scheduling process will be 31 minutes.

Paratransit’s Allowances for Scheduling Boarding and Disembarking of Customers

	Board Time	Disembark Time
Ambulatory	4 minutes	1 minute
Non-ambulatory	7 minutes	4 minutes

Once the routes are complete, Paratransit sends an automated call through a system called Interactive Voice Response (IVR) to the customers on the night before their trip confirming their Promise Time. The Scheduling Unit staff also sends the routes to the carriers electronically.

Day of Trip

On the day of the trip, the IVR system places a one-time automated call to alert customers that their ride is about 15 minutes away. This call usually occurs 15 minutes before the Promise Time or 15 minutes before the current estimated time of arrival, whichever is later. If the carrier driver arrives at the pick-up location early, they must wait at least five minutes after the Promise Time for the customer. With early arrivals, the dispatcher will call the customer to ask if they would like to start their trip early. If the driver is late (i.e., has not arrived within the 30 minute window), the customer can then call Paratransit to arrange for another ride.

Throughout the day, carrier drivers and dispatchers are the ones with primary responsibility to ensure that customers receive their rides as timely as possible. However, Paratransit Scheduling staff and Reservationists deal with delayed trips as needed. Among Paratransit's duties on the day of the trip is to provide rides for customers who call because they waited though the 30-minute window but have not yet been picked up.

Picking Up Customers to Begin Trip

Carrier vehicles are equipped with a GPS-enabled Automatic Vehicle Location Monitoring (AVLM) system, which interfaces with ADEPT and allows Paratransit to estimate times of arrival based on vehicle location. The system also allows Paratransit to accurately record pick-ups and drop-offs, as well as mileage. Additionally, the vehicles are equipped with a Mobile Data Terminal (MDT), a small screen in the vehicle where drivers can view a list of their trips, including the Promise Time and Appointment Time.

When a driver arrives at the pick-up location, the AVLM automatically records the time of that arrival. More precisely, however, the AVLM actually records arrival when the vehicle is within 150 feet of the location, meaning that the automatically-recorded arrival time (**Actual Pick-Up Arrival Time**) will be earlier than when the vehicle physically arrives at the customer's location—*how much* earlier depends on conditions. Once at the pick-up location, drivers must help customers board the vehicle, and the time taken to do so is already planned into the scheduled trip duration. Unlike the Actual Pick-Up Arrival Time, this **Actual Pick-Up Perform Time** is recorded manually when the driver indicates, by pressing a button on the MDT, that the customer has been picked up. Paratransit instructs drivers to press the button after they have finished helping the customer into the vehicle.

Dropping Off Customers at Their Destinations

The time a customer is supposed to arrive at their destination, as calculated by ADEPT, is called the **Scheduled Drop-off Time** and is noted on the MDT. For all trips, including those booked by Appointment Time, the Scheduled Drop-off Time is supposed to allow time for the customer to disembark. The **Actual Drop-off Arrival Time** is the time at which the vehicle is within 150 feet of the customer's drop-off location and is captured automatically by the vehicle's AVLM system. The **Actual Drop-off Perform Time** is the time at which the driver indicates that the

customer has been dropped off, again by pressing a button on the MDT. Again, Paratransit instructs drivers to press the button after they have finished helping the customer off the vehicle. Having explained Paratransit's performance metrics in terms of its data-collection process and associated terminology, we turn now to the sufficiency of the metrics themselves. Our related findings and recommendations are set forth below.

SECTION I: PERFORMANCE METRICS NEED IMPROVEMENT

Paratransit sets performance goals to internally track the three main phases of a typical trip—the pick-up, the drop-off, and the duration. The data points discussed previously are used to calculate the performance metrics below.

- **On-Time Performance for Pick-ups**

When a customer arranges a ride for a particular pick-up time, Paratransit defines the pick-up as “on time” if the Actual Pick-Up Arrival Time is at or within 30 minutes after the agreed-upon Promise Time. Paratransit has stated that its goal is for 92 percent of these trips to be on time.

- **On-Time Performance for Drop-offs**

When a customer arranges a ride to satisfy a set drop-off time (Appointment Time), the agency defines the trip as “on time” if the customer arrives before or up to five minutes after the Appointment Time. In May 2017, Paratransit set an on-time goal of 90 percent for these trips.

- **Maximum Ride Duration**

As part of complying with Federal Transit Administration ADA-related requirements, Paratransit has also set maximum trip durations based on the distance to be traveled. We discuss these standards below.

Prior to 2018, Paratransit did not regularly report to MTA Board members or the public the agency’s performance against these three timeliness measures for completed trips.¹ Its reports to the Board were limited to metrics such as number of trips completed and amount of revenue received.² Internally for management purposes, Paratransit tracked the percentage of pick-ups and drop-offs that were on-time as well as the percentage of trips that exceeded the agency’s maximum ride-time limits. In January 2018, to be more transparent and informative, Paratransit started reporting the following statistics, both to the Board and as an interactive dashboard on the MTA’s website:

- Ridership by type of provider
- Percentage of pick-ups and drop-offs that are on time
- Percentage of trips that are provider no-shows
- Actual vs. scheduled ride duration
- Average ride duration by trip distance category

¹ A completed trip occurs when the customer is picked up and dropped off. A trip that is canceled or for which the carrier or customer is a no-show is considered incomplete.

² The full list of service statistics, as provided in the MTA Board’s NYC Transit Committee books, consists of the number of trips requested, trips scheduled, trips completed, early and late cancellations, passenger no shows, carrier and no-fault no shows, denials, customer refusals, new applications received, and amount of revenue received.

- Customer complaints as a percentage of trips
- Call center's percent of calls answered and average call answer speed

Measuring the Timeliness of Pick-Ups

Paratransit's principal performance metric for completed trips is on-time performance based on Actual Pick-Up Arrival Times. In fact, each of its contracted carriers is evaluated against this metric and is fined if the carrier does not meet the requirement of 92 percent on-time performance. During our audit period of March–December 2017, Paratransit carrier trips were considered to be on-time an average of 93.8 percent, with a minimum of 89.8 percent in May 2017 and a maximum of 96.6 percent in August 2017.

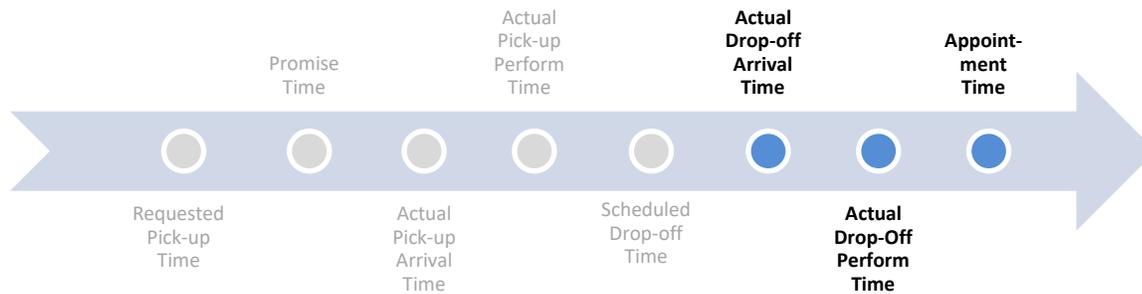
However, at the trip level, from a rider's perspective, a carrier with 92 percent on-time performance will still have picked up 8 percent of customers outside the 30 minute window, which itself is 30 minutes later than what the customer likely thinks of as "on time." As mentioned above, in our ten-month audit period, on-time performance was 93.8 percent, which meant that 212,514 trips (the remaining 6.2 percent) did not meet Paratransit's tolerant (extra 30 minutes) standard for on-time pick-up.

Further, an additional 10.4 percent of customers are picked up more than 15 minutes after the Promise Time but still within 30 minutes after that time. This equals 354,389 additional trips that Paratransit considers on time, yet the customers' perspectives of their trips is likely to be less forgiving when they experience one (or more) of these long waiting periods.

In January 2018, in addition to the long-used 30 minute standard for on-time performance of pick-ups, Paratransit added an on-time performance statistic that calculates how many trips arrive for pick-up within 15 minutes of the Promise Time. While this new metric will be on its public online dashboard, its purpose is purely informational. Paratransit has not established a new and corresponding goal to arrive within 15 minutes.

Measuring the Timeliness of Drop-offs

Appointment trips, for which the customer requests a drop-off time and then receives a resulting Promise Time, are a substantial part of Paratransit service. In fact, 53 percent of all completed trips were arranged based on a requested Appointment Time. This section focuses on three of the data points we previously explained that capture arrival performance.



In May 2017, as mentioned above, Paratransit set its on-time performance goal for Appointment Time at 90 percent. Paratransit considers on-time performance for Appointment Time as arriving before or within five minutes after the Appointment Time. By applying this standard for the three months through the time Paratransit set its goal, 85 percent of all such trips in March–May 2017 appear to have been performed on-time. Based on this result, in an effort to improve the timeliness of drop-offs, Paratransit modified some ADEPT scheduling parameters and assumptions. However, aside from providing what amounts to a five-minute “grace” period, this calculation is certainly overly generous because it uses Actual Drop-off Arrival Time (i.e., within 150 feet of the destination rather than arrival at the destination itself), compounded by the absence of any adjustment for the time it takes for the customer to disembark. Therefore a customer using a wheelchair who requested a drop-off time of 1:00 PM at their doctor’s office is considered successfully delivered to their appointment once they are within 150 feet of their destination by 1:05 PM, regardless of how long it will take to traverse the last 150 feet and disembark from the carrier van. From the customer’s perspective, it is difficult to consider this an on-time arrival.

By applying Paratransit’s standard for the entire period we studied, 88 percent of all trips with Appointment Times in March–December 2017 appear to have been performed on-time. When we recalculate performance to include unloading times and exclude the five-minute grace period, the on-time performance for drop-offs during our ten-month audit period was only 82 percent.

We also note that the FTA made clear in its 2004 ADA Compliance Review of Paratransit’s service that “on-time drop-off performance is often more critical a concern to consumers than on-time pick-up performance, particularly for trips to appointments for work, school, medical services, etc.”³ The FTA’s report pointed out that “chronic lateness could jeopardize riders’ employment or require rescheduling of appointments with the associated inconvenience.” The

³ *New York City Transit ADA Complementary Paratransit Service Compliance Review September 10-18, 2003*, Planners Collaborative, Inc. with TranSystems Corporation, issued in final version on October 22, 2004, accessed September 14, 2017, <https://www.transit.dot.gov/regulations-and-guidance/civil-rights-ada/nyct-ada-compliance-review-october-22-2004>.

FTA has also stated that drop-offs should be performed by the Appointment Time and not later.⁴ In our view, given these definitive pronouncements, Paratransit's decision to measure its on-time performance based on carriers delivering customers to a point within the *vicinity* of their destinations up to five minutes after the Appointment Time, is not in line at least with the spirit of providing timely service.

The case study below illustrates the disparity between Paratransit and its customers as to the meaning of on-time arrival.

Case Study #1: Drop-off Time - Late

Ms. Z is a Paratransit customer who generally travels within Brooklyn or between Brooklyn and Manhattan. In the week of April 23–29, 2017, she took four trips that were considered on time by Paratransit's standards even though she reached her destination after her Appointment Time. For all four trips, the vehicle arrived within 150 feet of her destination just under six minutes after the Appointment Time.

Additional time was also needed to help Ms. Z exit the vehicle because Ms. Z uses a support cane and requires a lift to board and disembark. Based on these needs, Paratransit estimates that it will take four minutes for Ms. Z to get off the vehicle once it arrives at her destination.

For three of the four trips, the Actual Drop-off Arrival Time was five minutes after her Appointment Time, while for the fourth trip it was two minutes after, meaning that for all four trips she was already late for her appointment at a point where the vehicle still had not arrived at her physical destination and where she still needed assistance to get out of the vehicle.

Excessively Early Drop-Offs

While customer complaints about late pick-ups or drop-offs are common, we also found that some customers complain that they are dropped off much too early for appointment-based trips. Early drop-offs are also a concern for the FTA, which considers drop-offs more than 30 minutes before the appointment to be too early.⁵ The FTA recommends, for the wellbeing of the customer, that the start of the drop-off window be no more than 30 minutes before the Appointment Time. However, Paratransit does not limit how early a drop-off can be, and we found that carriers have dropped off a substantial number of customers significantly earlier than

⁴ *On-Time Performance in ADA Transit, Topic Guides on ADA Transportation*, June 2010, pp. 13-14, Disability Rights Education & Defense Fund (DREDF) and TranSystems Corporation, funded and promoted by the Federal Transit Administration, accessed September 14, 2017, <http://dredf.org/ADAatg>. This topic guide was largely based on a comprehensive review of FTA compliance review reports.

⁵ *Ibid.*

their Appointment Times. Specifically, from March to December 2017, Paratransit carriers dropped off 30 percent of customers at a time that was more than 30 minutes before their Appointment Time.⁶ This can pose a problem for customers dropped off in desolate areas or at buildings that are closed, especially under adverse weather conditions.

Case Study #2: Drop-off Time - Early

Ms. A took five trips from her home in Queens to her workplace in Manhattan from March 20 to March 24, 2017. Her Appointment Time for each trip was either 5:45 AM or 5:50 AM. However, for those five trips, her Actual Drop-off Arrival Time ranged from 4:25 AM to 4:45 AM – meaning she arrived between 60 minutes and 85 minutes too early each morning. Yet, according to Paratransit’s criteria, all five drop-offs were performed on time.

As demonstrated in Case Study #2, customers sometimes arrive more than an hour before the Appointment Time for multiple trips, including in the very early morning hours, and Paratransit still considers the trips to have been performed on time. Tracking how many trips are too early would also be a useful management tool for Paratransit. After May 2017, as mentioned above, when Paratransit began to modify some ADEPT scheduling parameters and assumptions to avoid late drop-offs, Paratransit noticed that it had gone too far at first, inadvertently causing some additional drop-offs to be very early, though without knowing precisely the extent of this unintended effect. Responding to this increase in drop-offs occurring too early, Paratransit further modified ADEPT settings to try to better balance the timing of drop-offs. In our opinion, Paratransit needs to improve its tracking of early drop-offs to help ensure that trips are neither too early nor too late. Still, we recognize that doing so will be difficult for Paratransit to fully address until the agency procures, as is planned, a new scheduling system that incorporates real-time data for use in scheduling and routing.

Overall, Paratransit has been using an overly-broad window for calculating the timeliness of drop-offs. Using the FTA’s guidance of a drop-off window of no earlier than 30 minutes before the Appointment Time but no later than the Appointment Time, *and* taking into account unloading time, we calculated the actual on-time performance to be only 52 percent, much lower than Paratransit’s statistic showing an 88 percent on-time rate for drop-offs. Put another way, 650,361 trips that Paratransit measured as on-time were not, according to FTA’s guidance. And after adding in the trips that Paratransit itself had determined not to be on time, the total comes to 864,425. In our view, certainly, Paratransit’s metric for drop-off on-time performance vastly overstates that performance and does not provide an accurate picture of what customers experience.

⁶ As with late drop-offs discussed above, we included in the calculations the time Paratransit schedules for allowing the customer to disembark. Thus, we considered the drop-off to have occurred after this additional time.

Measuring How Often Rides are Too Long

In accordance with FTA regulations, Paratransit established guidelines for maximum allowed ride-times in 2001-2002. The guidelines' six categories of trip distance and the associated maximum-allowed times are shown in the table below.

To better understand the performance metric for the limiting of ride-time duration, we calculated the percentages of trips that exceeded the six categories of maximum ride-time in our sample period, and found, as the table below illustrates, that 3.1 percent or 106,814 of all trips in March–December 2017 exceeded Paratransit's standard for maximum ride-time duration.

Percent of Trips that Exceeded Maximum Allowed Ride Time in March–December 2017

Distance	Maximum Allowed Ride Time	Completed Trips in March–December 2017	Percent of Trips that Exceeded the Maximum	Completed Trips that Exceeded the Maximum
0 to 3 miles	50 minutes	876,785	1.8%	15,600
3 to 6 miles	1 hour and 5 minutes	821,564	4.5%	36,989
6 to 9 miles	1 hour and 35 minutes	561,825	3.8%	21,105
9 to 12 miles	1 hour and 55 minutes	420,688	3.4%	14,366
12 to 14 miles	2 hours and 15 minutes	223,330	2.5%	5,579
14 miles or more	2 hours and 35 minutes	491,524	2.7%	13,175
All Trips:		3,395,716	3.1%	106,814

In order to track and manage overly-long rides, from 2005 through 2015 Paratransit's then-Vice President had the Scheduling Unit produce a monthly report showing the percentage of trips that exceeded maximum ride-time for each of its six categories of ride length. The Vice President and other senior Paratransit managers reviewed these high-level reports and made generalized changes to scheduling methodology in ADEPT at least twice over the years.⁷ During a changeover in the position of Vice President of Paratransit, the agency stopped creating these

⁷ Paratransit officials noted two changes that the agency made years ago as a result of regularly running and reviewing the reports: (a) a set of changes to speed assumptions in ADEPT, and (b) a change to the parameters in ADEPT to add a 15-minute buffer at the start of routes to allow for time from the vehicle pull-outs to the time of the first customer pick-up. According to the officials, the carriers had also requested this buffer so that they could reliably get to the first pick-up in a timely manner.

reports in 2016, but began to do so again in May 2017 after customers became more vocal in their complaints. The Scheduling Unit now runs the report every week and distributes to senior managers a monthly version of the report.

After May 2017, because of the customers' public complaints, Paratransit tried to limit the number of overly-long rides by changing some ADEPT parameters and decreasing the number of shared rides. Paratransit officials informed us that, for November 2017 compared to November 2016, these efforts decreased the average ride-time of all trips from 47 to 44 minutes and increased the percentage of trips performed within scheduled ride-times from 64 percent to 69 percent. However, while Paratransit produces these reports that note the percentage of trips that exceed the maximums and has made some useful changes in ADEPT, our interviews with Paratransit staff revealed that the agency has not made a sufficient and consistent effort to understand and address the root causes of these excessively long trips, which create discomfort and delay for the riders. Instead, Paratransit only asks carriers about a sample of some rides that exceed time limits for the longest distance category and does not conduct its own research.

More specifically, Paratransit runs a quarterly report that identifies a sample of rides that have exceeded the maximum ride time for scheduled trips of 14 miles or more. Paratransit sends the report to the carriers and requires an explanation for the excessively-long rides. The carriers then respond to the agency and their responses are forwarded to Paratransit's Contract Management unit to determine if the carriers should be fined. The excuses offered by the carriers include poor traffic or weather conditions, a previous delayed trip on the same route, and another customer's non-appearance for their own trip on the same route. According to Paratransit's Chief Contract Management Officer and two contract managers, Contract Management personnel almost always accept as sufficient the excuses provided by carriers and assesses few if any financial penalties against them for overly-long rides.

Case Study #3: Long Trip Durations

Ms. B has a regularly scheduled weekday trip with a Requested Pick-up Time of 3:45 PM that brings her from her workplace in Lower Manhattan to her home in Brooklyn. Her trip is estimated to be nine miles and therefore, according to Paratransit guidelines, should not exceed 95 minutes (see chart on page 13). Nevertheless, for three straight days, April 3 - April 5, 2017, each of her trips exceeded 95 minutes.

Date	Actual Duration	Extra Stops	Minutes Past the 95-minute Maximum
Monday, April 3, 2017	116 min	2	21 min
Tuesday, April 4, 2017	124 min	2	29 min
Wednesday, April 5, 2017	146 min	2	51 min
Thursday, April 6, 2017	94 min	0	N/A

For each of these three trips, during which the vehicle made two extra stops, the customer arrived 21 to 51 minutes past the maximum ride-time of 95 minutes. These extra stops also added to the number of miles traveled. In fact, on April 4, 2017, her normal trip of nine-miles became a 26-mile trip. On the fourth day, April 6, the only time during that period when the customer was transported within the 95 minute limit, she was delivered directly to her destination without any extra stops.

While cases like Ms. B's provide reason to believe that the nature and number of added stops correlate directly with violations of the limits on maximum ride-time durations, it appears from our interviews that Paratransit does not review this data for patterns of overly long trips. Of particular concern to us is that Paratransit does not perform analyses to identify particularly circuitous routes and other inefficiencies that could be addressed through better scheduling.

SECTION II: PARATRANSIT NEEDS TO MEASURE THE CUMULATIVE EXPERIENCE OF THE CUSTOMERS

Presently, over 140,000 customers rely on Paratransit's AAR program to commute to their jobs, keep medical appointments, or generally travel throughout the city. And cumulatively, these customers take about six million trips each year.

As these numbers make clear, Paratransit customers are often frequent riders, from those taking round trips to daily commuters, and have a wealth of hands-on experience navigating the AAR system. Indeed, we found that of the customers who took trips during any particular week within our ten-month audit period, 82 percent took at least two trips within that week and 35 percent took at least four trips in that week.

Unfortunately, as we have learned, when customers take multiple trips, they are more likely to have a bad experience. As such, while each metric, as described above, can be improved to better represent individual trip experiences, we firmly believe that it is the cumulative effect of customers taking multiple trips that determines how customers experience and view the service. And yet, Paratransit's current metrics only measure discrete aspects of individual trips—pick-up, drop-off, and ride duration—without appropriate attention to the cumulative experience of frequent riders.

To better understand and represent customers' overall experiences, we looked at how many customers who took at least one trip in a week experienced trips in that week that failed to meet at least one of Paratransit's standards. We then devised a metric for the **Weekly Customer Experience** and calculated it using Paratransit's own definitions of acceptable performance for each aspect of completed trips – pick-up, drop-off, and ride duration, as previously discussed.⁸

Overall, using our metric, we found that 30 percent of all customers who took at least one trip in a week in our ten-month period experienced at least one late and/or overly-long trip in that week. We then analyzed the data using the FTA's stricter criteria for on-time performance of appointment trips: no earlier than 30 minutes before Appointment Time but no later than the Appointment Time. Based on this definition of on-time performance, 58 percent of all active customers had at least one substandard trip during a given week.

⁸ Our threshold for determining failure was not meeting one of the following Paratransit-established windows for at least one trip that each customer took in a week: a pick-up window of zero to 30 minutes after the Promise Time; Paratransit's maximum ride-time limits; or a drop-off window of less than six minutes after the Appointment Time.

The following case study shows how multiple trips per week would affect a customer.

Case Study #4: Cumulative Customer Experience

Over a 16-week period in March–June 2017, Ms. Y took 184 carrier trips, including 114 trips (62 percent) between her Brooklyn home and her workplace in Queens. She booked 101 of her 184 trips by Appointment Time.

We calculated the performance metrics for her trips using Paratransit’s criteria and found that they were similar to the overall performance for all carrier trips in the same 16-week period, as calculated by us using the same criteria:

	Ms. Y’s Carrier Trips	All Carrier Trips
Proportion Booked by Appointment Time	57.1%	53.1%
Pick-up On-time Performance	93.9%	93.8%
Maximum Ride-Time Compliance	95.3%	96.9%
Appointment On-time Performance	93.8%	88.1%

However, in the 16 calendar weeks in the sample, Ms. Y encountered substandard performance (using Paratransit’s criteria) on at least one trip each week and, in some weeks, problems occurred up to four times. For example, in the week of April 2–8, 2017, four of the 13 trips she took failed to meet at least one AAR performance standard:

- One trip exceeded the maximum ride time by 35 minutes.
- One trip had an Actual Pick-up Arrival Time 64 minutes after the Promise Time and an Actual Drop-off Arrival Time 48 minutes after her Appointment Time.
- One trip had an Actual Pick-up Arrival Time 41 minutes after the Promise Time.
- One trip had an Actual Drop-off Arrival Time nine minutes after her Appointment Time.

In the following week of April 9–15, 2017, four of the 13 trips she took failed to meet at least one AAR performance standard:

- One trip had an Actual Pick-up Arrival Time that was 36 minutes after the Promise Time.
- Three trips exceeded the maximum ride time, by four minutes, nine minutes, and 32 minutes, respectively.

And during the week of April 30–May 6, 2017, Ms. Y took nine trips, one of which had an

Actual Pick-up Arrival Time 97 minutes after the Promise Time.

Although each of the three Paratransit metrics was individually satisfied for over 90 percent of Ms. Y's trips, her overall experience with Access-A-Ride was not as reliable as that percentage would suggest. Ms. Y, who relies on Access-A-Ride for her commute, experienced substandard service on a weekly basis, and often encountered multiple delays per week. In fact, using Paratransit's own performance standards for the pick-up, duration, and drop-off of a trip, Ms. Y did not have a single week in the 16-week period that was problem-free.

Like Ms. Y in Case Study #4, most customers take round trips and many travel a number of times each week. For customers like these, providing individual metrics for separate aspects of each trip does not effectively measure the overall experience or quality of the service. As demonstrated above, by using metrics based only on individual aspects of performance, Paratransit has created a gap in perception between how customers, carriers, the public, and Paratransit itself view the level of AAR performance.

This gap in perception indicates that Paratransit needs to improve its performance measurements, in part by using our proposed Weekly Customer Experience measure, so that they better reflect the customers' actual experience. Paratransit should then publicly report these metrics to the MTA Board. This transparency will allow for a more informed and open public discussion among Board members and other interested parties, and better validate the experience of Paratransit customers. It will also allow for the setting of better customer-oriented goals for Paratransit to achieve. Finally, the proposed metric could give Paratransit another basis upon which to judge the performance of each carrier and potentially hold the carriers more accountable.

SECTION III: REVISED PICK-UP ON-TIME PERFORMANCE STANDARDS ARTIFICIALLY INFLATE PERFORMANCE

Paratransit currently has contracts with 13 carriers to provide AAR services. These contracts were awarded between 2008 and 2010 and are in effect for a period of 10 years. The contracts specify a number of standards regarding the carrier's performance in providing trips, dispatching, and reporting. However, only one of the three key performance metrics that Paratransit uses internally to monitor performance of completed trips is mentioned explicitly in the contracts: pick-up on-time performance. The contracts do not define or set goals for ride duration and drop-off on-time performance.

Performance Incentives in Carrier Contracts

The contracts allow Paratransit to adjust the monthly payments made to each carrier based on its pick-up on-time performance (i.e., the proportion of pick-ups that occur within 30 minutes of the Promise Time). These adjustments can either be penalties or rewards that Paratransit takes away from or adds to monthly payments to the carriers. The range of expected pick-up on-time performance is between 92 percent and 95 percent and carriers whose performance is outside that range can be penalized or rewarded accordingly.⁹

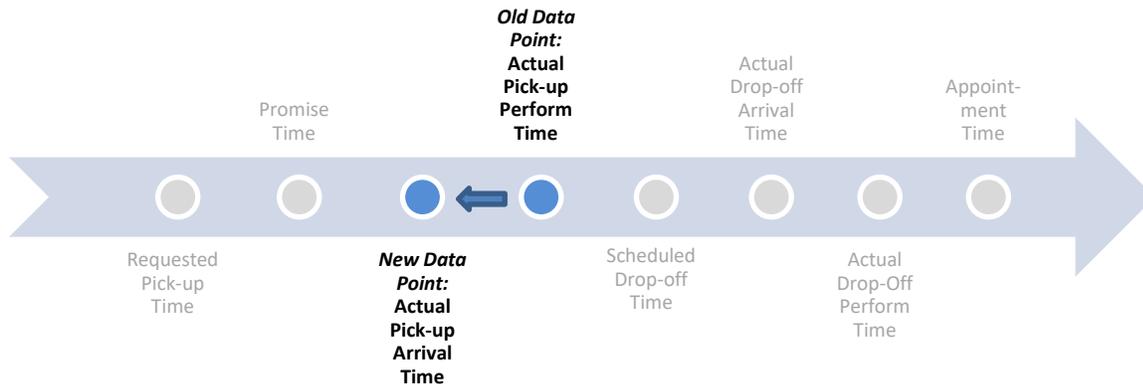
Because pick-up on-time performance determines carriers' penalties and rewards, changes in the metric can significantly affect how much Paratransit pays the carriers: Lower on-time performance generally results in lower net payments from Paratransit.

OIG found that over time, Paratransit has made three changes in time-related definitions that resulted in what appeared to be improved on-time performance numbers for pick-ups, even though actual performance had not improved.

#1: Change in Data Point used for Calculating On-time Performance of Pick-ups

Starting May 1, 2017, Paratransit began calculating pick-up on-time performance using the Actual Pick-up Arrival Time (when the GPS indicates that the vehicle has entered a 150-foot radius of the pick-up location) rather than the Actual Pick-up Perform Time. The change was applied retroactively to April 2017 reporting.

⁹ Each carrier that performs fewer than 92 percent of its pick-ups in a month within 30 minutes of the Promise Time receives a financial penalty for that month. Conversely, each carrier that performs at least 95 percent of its pick-ups in a month within 30 minutes of the Promise Time receives a financial reward for that month.



This adjustment was in response to a New York City Comptroller’s Office report which recommended making the switch for accuracy and consistency.¹⁰ As per the report, the change prevents drivers and carriers from manipulating data since the new calculation of the metric uses data from a protected automated source rather than data from a manual button press that carrier staff could later modify through ADEPT. Also, Paratransit officials stated that Actual Pick-up Arrival Time—when the vehicle pulls up to the pick-up location—is more in line with the contractual definition of on-time performance, while the Actual Pick-up Perform Time occurs after the vehicle has arrived, the customer has boarded, and the driver is prepared to depart again.

However, since Actual Pick-up Arrival Time usually occurs several minutes before the Actual Pick-up Perform Time, more rides qualify as on time. This increase in on-time performance figures occurred with the change in metric calculation even though the underlying performance had not changed. Notably, a commensurate decrease in financial penalties for carriers also resulted since fewer carriers are now assessed for having less than 92 percent pick-up on-time performance. Even though the new calculation drove an inflated performance measure, Paratransit did not adjust the 92-95 percent performance goal to reflect the change in how on-time performance is calculated.

In April 2017 (the first month for which the new calculation of the metric was used), pick-up on-time performance across all carriers was 92.5 percent; four carriers showed bad performance, seven carriers acceptable performance, and two carriers good performance. Under the old calculation of the metric, pick-up on-time performance would have been 91.0 percent, and eight carriers would have showed bad performance, four carriers acceptable performance, and one carrier good performance. Based on this apparently improved performance under the new calculation, carriers received \$29,487.60 more in April 2017 than they would have for identical performance under the old standards.

¹⁰ *Audit Report of the Metropolitan Transportation Authority’s Oversight of the Access-A-Ride Program*, Report #FK15-098A, May 17, 2016, New York City Comptroller’s Office, https://comptroller.nyc.gov/wp-content/uploads/documents/FK15_098A.pdf.

Overall, for the entire nine-month period from April to December 2017, on-time performance across all carriers would have been 92.5 percent under the old calculation of pick-up on-time performance instead of the 94.0 percent calculated under the new calculation. This corresponds to a total of \$217,631.70 in additional payments that Paratransit gave to the carriers for the time period.

#2: Change to Definition of Pick-up Window

Some years ago, Paratransit officials decided to expand the scheduled pick-up window by one minute in the carriers' favor when calculating pick-up on-time performance. Rather than considering trips to be on-time if they arrived within 30 minutes (i.e., less than 31 minutes) after the Promise Time, Paratransit calculates pick-up on-time performance using a pick-up window of 31 minutes (i.e., less than 32 minutes) after the Promise Time. That is, pick-ups are only counted as late if the vehicle arrives 32 minutes or more after the Promise Time. Paratransit officials were unsure of why the change had been made years before, but noted that the extra minute might have been added to account for imprecision in the data collection technology. However, in our opinion, notwithstanding whether this decision was valid years ago, this approach is currently not valid with today's more precise technology and certainly should not lead to more rewards or fewer penalties.

Nevertheless, over the nine-month period from April to December 2017, on-time performance across all carriers would have been 93.6 percent with the original thresholds for late and very late pick-ups instead of 94.0 percent with the current thresholds. This corresponds to an additional \$14,351.30 in payments to the carriers for the nine-month period.

#3: Change to Handling of Missing Data

Prior to the May 2017 change in calculation of pick-up on-time performance (i.e., starting to use Actual Pick-up Arrival Time instead of Actual Pick-up Perform Time to determine when the customer was picked up), missing data was not an issue because the time of the vehicle's arrival was determined by a manual button press. However, now that Paratransit uses the AVL-based Actual Pick-up Arrival Time for this calculation, incomplete entries occur more frequently because of various AVL-related technical glitches, according to Paratransit officials.

When the AVL system does not record or transmit the pick-up time, ADEPT automatically populates missing Actual Pick-up Arrival Times with the value "00:00" (or occasionally "00:01"), but does not take any action to exclude these results from the performance metric calculations. As a result, pick-ups for which no arrival time data was collected are automatically considered on time because the default arrival time, 00:00, is the equivalent of midnight at the beginning of the day, which is almost always earlier than the Promise Time.

We found that approximately two percent of trips have missing arrival time data but are considered on-time by ADEPT, which has the effect of boosting the pick-up on-time performance metric by 0.1 percent compared to when those trips were excluded from the data.

For the entire nine-month period from April to December 2017, on-time performance across all carriers would have been 93.9 percent under the old calculation of pick-up on-time performance instead of the 94.0 percent calculated under the new calculation. This corresponds to a total of \$5,730 in additional payments that Paratransit gave to the carriers for the time period.

Combined Effect of Changes to On-time Performance Calculation

The sections above describe the three changes to the methodology for calculating on-time performance. Each of these changes had the effect of increasing the value of the pick-up on-time performance metric and, because of the penalty and reward system established in the carrier contracts, higher on-time performance generally results in higher net payments from Paratransit to the carriers.

We calculated the combined impact of these changes for the entire nine-month period from April to December 2017 and found that these changes increased pick-up on-time performance from 92.1 percent to 94.0 percent. This would result in Paratransit giving a total of \$244,879.20 in additional net payments for trips during our nine-month audit period to carriers for the same actual performance.¹¹ When annualized, we estimate these overpayments to be approximately \$327,000.

Changes in metric calculations can make sense in their own right, but Paratransit's recalculation of performance standards in the carriers' favor without adjusting the goal accordingly has had unintended consequences. It allows carriers to face lower penalties or obtain rewards without actually improving their performance. Paratransit therefore weakened one of the key tools that it has for influencing carrier performance. Additionally, and perhaps more importantly for customers, the artificial increase in Paratransit's pick-up on-time performance metric makes the metric less accurate and further distanced the metric from the true level of performance that customers experience.

¹¹ Note that making multiple changes can have a greater impact than making each change individually, because the decision of whether or not to assess a penalty is based on an all-or-nothing threshold: there are some cases where none of the individual changes would put a carrier past the 92 percent threshold, but multiple simultaneous changes would.

RECOMMENDATIONS

In response to our preliminary draft, the agency provided us with initial comments, later refined through multiple conversations, methodology reviews, and email communications. Our recommendations and the essence of their cumulative response and actions appear below.

To improve management and reporting of existing performance metrics, we recommend that Paratransit:

1. Modify its definition of on-time performance by using the FTA's criteria of on-time as being no earlier than 30 minutes before the Appointment Time but no later than the Appointment Time. This definition should also account for estimated disembarking times.

Agency Response:

Agreed. "The On-time Appointment Report issued by the Command Center will reflect on-time performance for the drop-offs window to be no more than 30 minutes before the appointment time (-30/0), and we will no longer add five (5) minutes to the agreed appointment time. We will also work with our stakeholders at the MTA to revise the public dashboard and will consider the feasibility of incorporating disembarking times."

2. Routinely review trips that exceed maximum ride-time limits for any distance category to determine patterns and causes and address these causes to the extent practicable. Further, Paratransit, not the carriers, should lead the performance of this analysis and should do it more often than quarterly to ensure timeliness.

Agency Response:

Agreed. "The Contract Management Unit in coordination with the Command Center will develop a Max Ride Time review process to be performed on a periodic basis (monthly or as required). The review will identify trips determined to be excessive violations of max-ride times (for all categories) and investigate and identify the root cause."

3. Regularly report the percent of trips that exceeded maximum ride-times publicly to NYC Transit executives and the MTA Board.

Agency Response:

Agreed. "In the short term we will work with our stakeholders at the MTA and report the comparison of our ride time performance with the current maximum ride-time parameters on the dashboard. We anticipate that with the new scheduling system, we will be able to compare the actual ride time to the ride time of a direct trip."

4. To follow up on the introduction of its new 15-minute on-time performance metric for pick-ups, Paratransit should consider developing a goal for percentage of pick-ups

performed within 15 minutes of the Promise Time, just as the agency has had for its long-used 30-minute measure for pick-ups.

Agency Response:

Agreed. “We will introduce a new goal to the carriers in the upcoming contract negotiations and incorporate this goal into the Paratransit Public Dashboard.”

In a follow-up discussion, the head of Paratransit clarified that the agency will incorporate the new goal into the dashboard even before starting contract negotiations.

To better measure performance from the customer perspective, we recommend that Paratransit:

5. Track and manage the Weekly Customer Experience performance metric proposed in this report to reflect frequent-rider experience (i.e., by week, percentage of customers who took a trip and had at least one bad trip within that week).

Agency Response:

After review of the MTA/OIG methodology, Paratransit agreed to “track weekly customer experience.”

6. Regularly report the Weekly Customer Experience metric publicly to NYC Transit executives and the MTA Board.

Agency Response:

Paratransit agreed to publish a new measure that captures how many trips were successful or unsuccessful based on the key elements of a customer’s experience. The agency, however, chose to do so based on a per trip basis rather than a weekly basis. As the agency explained, “We feel approaching it from the trip perspective is consistent with our other measures. We are heading towards reflecting the exposure on a bad trip basis rather [than] a customer week.”

To ensure that on-time performance of pick-ups is accurately calculated and that carriers are appropriately incentivized, we recommend that Paratransit:

7. Calculate pick-up on-time performance based on 30 minutes from Promise Time instead of 31 minutes after that time, consistent with the MTA’s stated policy as well as the carriers’ contracts.

Agency Response:

Agreed. “We will ensure that that internal and external reporting reflects a 30 minute window option (not to exceed 30 minutes and 59 seconds) from Promised Time to Arrival Time, consistent with the Paratransit Public Dashboard. Further, the Contract Management Unit has adjusted the late window to 30 minutes in the Late Trip Summary Report.”

8. Raise the public management goal for pick-up on-time performance to 94 percent from 92 percent in order to account for the recent change to using the GPS arrival time in the performance calculations.

Agency Response:

Agreed. "Currently our standard matches the carrier's contractual standard. Going forward, we will modify the on-time performance goal in the new carrier contract and the dashboard to 94%."

In a follow-up response, the head of Paratransit clarified that the agency "will move towards the 94% on the [dashboard] chart" even before the agency negotiates a new contractual standard with the carriers.

9. Eliminate trips with missing data in the calculations for pick-up and drop-off on-time performance.

Agency Response:

Agreed. The head of Paratransit stated that the agency will work with the MTA Information Technology Department along with the software vendor to remove, if possible, the missing data from calculations.

10. Raise the penalty and reward thresholds for pick-up on-time performance when entering into the next set of carrier contracts.

Agency Response:

Agreed. "We will modify the 'Liquidated Damages' and 'Credits for Performance Deficiencies' in the new carrier contract."