SERVICE STANDARDS

2018/2019/2020

This document outlines transit service standards for Detroit Department of Transportation. All standards regard the Motor Bus mode; the Department does not operate any other modes.

As outlined by Title VI, this document covers these required standards:

- Vehicle Load
- Vehicle Headways
- On-Time Performance
- Transit Amenities
- Service Availability
- Service & Fare Equity Analysis
- Vehicle Assignment

1. Vehicle Load

Vehicle Load Factor is described as follows by FTA Circular 4702.1B:

> *Vehicle load can be expressed as the ratio of passengers to the total numbers of seats on a vehicle. For example, on a 40-seat bus, a vehicle load of 1.3 means all seats are filled and there are approximately 12 standees. A vehicle load standard is generally expressed in terms of peak and off-peak times*.

The standard load factor for bus service is **1.25**, not to exceed **1.50** on a regular basis. Therefore:

- A typical 40-foot bus has 38 seats. A total of 48 riders is standard; 57 or more riders exceeds the maximum load standard;
- A typical 60-foot bus has 57 seats. A total of 71 riders is standard; 86 or more riders exceeds the maximum load standard.

DDOT does not distinguish load standards for peak vs off-peak times. School dismissal times may cause short-term load surges. Staff will assess if school-related loads are consistent enough to warrant additional scheduled service.

If the Service Development & Scheduling group receives reports of crowding, it will monitor the route and/or trips affected. If overcrowding can be documented on five (5) separate occasions over a period of one month, Service Development & Scheduling will add service at the next available opportunity, pending the availability of equipment and operators.

2. Vehicle Headways

Vehicle headway is described as follows by FTA Circular 4702.1B:

> *Vehicle headway is the amount of time between two vehicles traveling in the same direction on a given line or combination of lines. A shorter headway corresponds to more frequent service. Vehicle headways are measured in minutes (e.g., every 15 minutes. Headways and frequency of service are general indications of the level of service provided along a route. Vehicle headway is one component of the amount of travel time expended by a passenger to reach his/her destination.*

Standard headways are as follows:

- Weekday morning and afternoon peak period: **no less frequent than every 45 minutes**
- Weekday off-peak, Weekends: **no less frequent than every 75 minutes**

Off-peak standards apply to routes that maintain the same frequency during peak and off-peak periods. **No route shall have headways wider than every 75 minutes.**

These factors determine the establishment of headways:

- Load factor
- Customer demand
- Ridership trends
- Proximity to other routes
- Standard “start and end” times of major destinations along the route Population trends
- Population density

DDOT is working actively to improve base headways. Staff hopes to improve this service standard in future versions of this document.

3. On-Time Performance

On-time performance is described as follows by FTA Circular 4702.1B:

> *On-time performance is a measure of runs completed as scheduled. The criterion first must define what is considered to be "on time." For example, a transit provider may consider it acceptable if a vehicle completes a scheduled run between zero and five minutes late in comparison to the established schedule. On-time performance can be measured against route origins and destinations only, or against origins and destinations as well as specified time points along the route. Some transit providers set an on-time performance standard that prohibits vehicles from running early (i.e., ahead of schedule) while others allow vehicles to run early within a specified window of time (e.g., up to five minutes ahead of schedule). An acceptable level of performance must be defined (expressed as a percentage). The percentage of runs completed system-wide or on a particular route or line within the standard must be calculated and measured against the level of performance for the system.*

Mid-route on-time performance checks **actual departure times** against **scheduled departure times**. Departures that are **6 or more minutes behind schedule** are considered late. The count of on-time departures is divided by the total number of scheduled departures; the resulting percentage is the ontime performance rate.

Using AVL data, DDOT Service Development & Scheduling produces an AVL On-Time report every week.

Standards measured by AVL Data are as follows:

- On-target: **85 percent or better**
- Needs improvement: 75 to 84 percent
- Fail: below 75 percent

Routes that fall below target for six (6) consecutive weeks shall be reviewed. Service Development & Scheduling will remedy poorly performing routes by adjusting running times at the next quarterly schedule change.

Please note, a completely new AVL system (software and hardware) will arrive at DDOT during the term of this document. Service Standard targets will remain in effect with the new system, but methods to compile data may change.

4. Service Availability

Service Availability is described as follows by FTA Circular 4702.1B:

> *Service availability is a general measure of the distribution of routes within a transit provider's service area. For example, a transit provider might set a service standard to distribute routes such that a specified percentage of all residents in the service area are within a one-quarter mile walk of bus service or a one-half mile walk of rail service. A standard might also indicate the maximum distance between stops or stations. These measures related to coverage and stop/station distances might also vary by population density.*

As a municipal department, DDOT's transit service area is coterminous with **Detroit city limits**. Selected DDOT services operate beyond city limits. Such services may exist for these reasons:

- Linear routing along the border of Detroit
- Irregularly shaped municipal boundaries, causing incidental coverage to a neighboring jurisdiction that sits between different areas of Detroit
- Legacy transit routing never assumed by a suburban provider
- Route extensions to connect Detroit residents to major activity centers or transfer points that are outside of city limits (such services shall not be "free-standing" suburban routes, but rather suburban extensions of regular city-focused routes)
- Cross-municipal routes funded by regional agencies and operated by DDOT

These types of routes enter the service area of neighboring transit systems. DDOT does not set out to provide full coverage to suburban areas; as such, for the purposes of this standard, suburban areas receiving DDOT service are not considered part of the service area.

Standard service availability is as follows:

- Service area residents within 1/4 mile of a bus stop: **80 percent**
- Service area residents within 1/2 mile of a bus stop with Weekday all-day service: **95 percent**

5. Service & Fare Equity Analysis

Transit requirements to evaluate service and fare changes are described as follows by FTA Circular 4702.1B:

> *To further ensure compliance with 49 CFR Section 21.5(b)(2), 49 CFR Section 21.5(b)(7), and Appendix C to 49 CFR part 21, all providers of public transportation to which this Section applies shall develop written procedures consistent with this Section to evaluate, prior to implementation, any and all service changes that exceed the transit provider's major service*

> *change threshold, as well as all fare changes, to determine whether those changes will have a discriminatory impact based on race, color, or national origin. The written procedures and results of service and/or fare equity analyses shall be included in transit provider's Title VI Program.*

At DDOT, we have developed standards and policies to meet this requirement. Measurements for service change are revenue hours and revenue miles.

Major Service Change Policy

A service equity analysis will be conducted whenever DDOT implements a major service change to the bus system. A major service change is defined as the addition of, or reduction in, more than 25 percent of revenue hours and/or revenue miles on any one route.

Disparate Impact Policy

A major service change to the bus system will be deemed to have a disparate impact on minority populations if 25 percent or more of the affected service falls in census block groups with minority populations higher than the DDOT service area average.

Disproportionate Burden Policy

A major service change to the bus system will be deemed to have a disproportionate burden if 25 percent or more of a service reduction falls in census block groups with minority populations higher than the DDOT service area average.

In any instance where the service change reaches or exceeds 25 percent, staff conducts an equity analysis.

Most census block groups in DDOT's service area are low-income and/or minority; as such, the transit routes that serve these areas are often classified as low-income and/or minority. As part of a commitment to fair, equitable and accessible service planning, staff may conduct an equity analysis even when the change does *not* reach the 25 percent threshold.

Fare Equity Analysis and Evaluation

A fare equity analysis/evaluation will be conducted whenever DDOT implements a fare change, regardless of the amount of increase or decrease.

A fare change includes system-wide fare changes, a change on certain routes and/or a change to fare payment type or fare media.

Promotional fare programs are not subject to a fare equity analysis/evaluation. Such instances may include:

- Clean air promotions, where a local governmental entity or DDOT itself makes free fare available for all riders;
- Temporary fare reductions that are mitigating measures for other actions, such as construction activities that close a segment of the bus system; Promotional fare reductions that last less than 180 days.

6. Transit Amenities

Transit Amenities are described as follows by FTA Circular 4702.1B:

> *Transit amenities refer to items of comfort, convenience, and safety that are available to the general riding public. Fixed-route transit providers must set a policy to ensure equitable distribution of transit amenities across the system. Policies in this area address how these amenities are distributed within a transit system, and the manner of their distribution determines whether transit users have equal access to these amenities. This…is not intended to impact funding decisions for transit amenities. Rather, this…applies after a transit provider has decided to fund an amenity.*

In regards to specific amenities, DDOT has established the following standards:

- **Seating:** DDOT does not have a bench or seating program. Benches exist only as part of shelters (see below).
- **Escalators & Elevators:** DDOT operates only one elevator at a revenue facility. The elevator is located at a downtown bus station served by routes from all over the service area. All interaction with transit vehicles takes place on the ground floor of the bus station; the elevator is only useful for occasional events on the second floor of the building.
- **Information:** DDOT does not have an active program for on-street customer information. Limited maps and digital displays are provided at two transit hubs.
- **Waste receptacles:** In partnership with Department of Public Works (DPW), DDOT is placing waste receptacles at high-ridership bus stops. A stop qualifies if it averages seven (7) or more boardings and deboardings per day. Such stops are distributed evenly throughout the service area.
- **Shelters:** DDOT has developed standards for placement of shelters. They are as follows: **Level of Service.** Level of service is measured in frequency (time between buses) and span (hours of operation per day). Bus stops with higher levels of service will be given higher priority for shelters.

- **Stability of Route within Service Network.** Some routes run on corridors where service will always be needed. Others are located in areas where demand for service is likely to evolve over time, and where there may be a need to restructure the route to meet customer needs. Shelters are a long-term infrastructure investment, and as such will be directed toward bus stops whose locations and levels of service are likely to be constant over time.
- **Site Dimensions and Pavement Characteristics.** Shelters must be safely sited and anchored, and installation sites must conform to the federal Americans with Disabilities Act and all other applicable laws and regulations. Sidewalk width, type and condition of pavement, and the presence or absence of driveways, crosswalks, and obstacles in the right of way may determine where and how shelters can be installed.
- **Position on Route.** Bus shelters are an amenity for customers and are most useful at stops where customers tend to board rather than alight. Stops located within 1 mile of the end of the route will be deprioritized for shelter installation. However, since different routes generate traffic at different points based on the destinations they serve, each route will be evaluated independently to determine which segments of the route should be prioritized for shelter installation.
- **Transfer Points.** Where two or more bus routes intersect, it is desirable to provide a pleasant waiting environment for customers seeking to transfer between them. Transfers between stable routes with high levels of service will be prioritized for shelter installation.
- **Stops Shared by Multiple Routes.** Where two or more routes share a bus stop location, the same amenity can be utilized by customers on different routes. Stops shared by stable routes with high levels of service will be prioritized for shelter installation.
- **Proximity to Major Destinations.** Many routes serve destinations where large numbers of people travel by bus. Destinations include schools, hospitals, and large retail outlets. Bus stops within 500 feet of such destinations will be prioritized for shelter installation.
- **Distribution of Shelters on Route.** To maintain an equitable distribution of amenities throughout the DDOT service area, locations within 1/2 mile of other shelter stops on the same route will be deprioritized for shelter installation.
- **Legacy Shelters.** Some existing DDOT shelters may not meet the above criteria, either because demand for service has shifted over time, or because they were evaluated according to earlier sets of criteria. In most cases, these shelters will be left in place until the end of their useful lives, but will not be replaced with new shelters once they become deteriorated or damaged beyond repair. Where necessary, legacy shelters may be moved to new locations where they will meet the needs of larger numbers of customers.

- **Shelter Requests from Customers and the Community.** DDOT will evaluate all shelter requests according to the above criteria, and will consider and prioritize them accordingly. While we will not accommodate every request we receive, we welcome customer input to help us recognize where unmet needs may exist.

7. Vehicle Distribution

Vehicle Distribution is described as follows by FTA Circular 4702.1B:

> *Vehicle assignment for each mode. Vehicle assignment refers to the process by which transit vehicles are placed into service in depots and on routes throughout the transit provider's system. Policies for vehicle assignment may be based on the age of the vehicle, where are would be a proxy for condition. For example, a transit provider could set a policy to assign vehicles to depots so that the age of the vehicles at each depot does not exceed the systemwide average. The policy could also be based on the type of vehicle. For example, a transit provider may set a policy to assign vehicles with more capacity to routes with higher ridership and/or during peak periods. The policy could also be based on the type of service offered. For example, a transit provider may set a policy to assign specific types of vehicles to express or commuter service. Transit providers deploying vehicles equipped with technology designed to reduce emissions could choose to set a policy for how these vehicles will be deployed throughout the service area.*

DDOT vehicles are assigned to two operating facilities. Each batch of vehicles is split between the facilities in roughly even proportions. DDOT's fleet consists of 40-foot buses and 60-foot buses of varying ages.

DDOT operates two types of specialty vehicles. **60-foot articulated buses** are assigned based on ridership levels. Service Development & Scheduling selects high-ridership trips for coverage by articulated buses. **40-foot hybrid buses** are assigned to both operating facilities and may be used on any route.

Otherwise, DDOT does not assign specific vehicles or vehicle types to specific routes. Any vehicle type, old or new, may appear on any route at any time. A review of daily vehicle assignments will exhibit this vehicle assignment technique.