



# **Service Standards Monitoring Report**

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**TITLE VI OF THE CIVIL RIGHTS ACT OF 1964**

**October 2019**

# Service Standard Monitoring

## Introduction

As part of the Title VI Program update, the Federal Transit Administration (FTA) requires transit providers to monitor the performance of their transit system relative to their system-wide service standards and service policies not less than every three years in order to remain in compliance with Title VI requirements. DDOT must submit the results of its monitoring program as well as documentation verifying the Department Director's approval of the monitoring results to the FTA as part of its Title VI Program.

This section detailing DDOT's service monitoring results are divided into six sections corresponding to the four standards and two policies established in Circular 4702.1B for service monitoring:

- Standards
  - Vehicle Load
  - Vehicle Headway
  - On-Time Performance
  - Service Availability
- Policies
  - Distribution of Transit Amenities
  - Vehicle Assignment

Using the methodology and standards developed for each of these metrics in the Service Standards and Policies section of DDOT's 2018 Title VI Program Plan (set for the three year period 2018 – 2020), DDOT concludes that there are no disparate impacts in the levels of service that it provides.

## Methodology

For each reviewed bus route, we calculated the percentage of all persons residing in areas served by the route, who are minority persons. We defined the geographic area of coverage for each route by including all Census block groups within one-half mile walking distance of bus stops served by that route. For each route, we calculated the number of minority persons residing in all block groups served, and determined the percentage of minority persons among all persons served by the route. If a route provides more than 33% of its service in a minority block group its classified as a minority route.

DDOT monitors its service once a year during the month of October. This period was selected because it is a time period during which ridership levels are not impacted by holidays and school vacations. DDOT monitored and compared its Express routes to its two non-minority routes during the morning peak to evaluate during the month of October 2019.

Table 1 below shows the route classification. The population of DDOT’s service area is 89 percent minority and 11 percent low-income. DDOT has 43 routes of which there are two non-minority routes and one non-low-income routes. The yellow highlighted cells indicate non-minority and non-low-income routes.

**Table 1: DDOT Minority & Low Income Route Classifications**

Route			In Minority Block Groups			In Low-Income Block Groups		
Number	Name	Total Length	Length	%	Is Minority	Length	%	Is Low-Income
1	Vernor	17.11	5.24	30.64%	No	9.41	55.00%	Yes
2	Michigan	21.13	5.35	25.30%	No	10.18	48.17%	Yes
3	Grand River	29.51	22.96	77.82%	Yes	14.41	48.81%	Yes
4	Woodward	17.68	10.22	57.79%	Yes	10.89	61.60%	Yes
5	Van Dyke-Lafayette	22.69	16.24	71.58%	Yes	11.82	52.09%	Yes
6	Gratiot	21.07	16.90	80.22%	Yes	11.49	54.53%	Yes
7	Seven Mile	39.84	38.14	95.72%	Yes	14.21	35.66%	Yes
8	Warren	40.36	27.67	68.57%	Yes	24.80	61.45%	Yes
9	Jefferson	14.89	8.78	58.99%	Yes	5.76	38.72%	Yes
10	Greenfield	26.12	20.63	79.00%	Yes	8.90	34.09%	Yes
11	Clairmount	30.05	26.87	89.45%	Yes	16.36	54.44%	Yes
12	Conant	23.84	14.18	59.49%	Yes	13.04	54.72%	Yes
13	Conner	16.13	13.42	83.22%	Yes	8.17	50.67%	Yes
15	Chicago-Davison	25.86	25.86	100.00%	Yes	13.42	51.89%	Yes
16	Dexter	37.66	29.45	78.18%	Yes	20.98	55.70%	Yes
17	Eight Mile	48.30	27.54	57.02%	Yes	17.54	36.32%	Yes
18	Fenkell	30.33	24.44	80.59%	Yes	17.03	56.16%	Yes
19	Fort	16.80	7.48	44.52%	Yes	11.20	66.66%	Yes
23	Hamilton	22.22	11.71	52.72%	Yes	15.34	69.05%	Yes
26	Junction	10.73	4.38	40.87%	Yes	5.26	49.06%	Yes
27	Joy	31.64	21.68	68.54%	Yes	13.89	43.91%	Yes
29	Linwood	20.00	12.65	63.27%	Yes	12.19	60.93%	Yes
30	Livernois	28.45	18.53	65.12%	Yes	12.70	44.65%	Yes
31	Mack	22.19	13.71	61.77%	Yes	12.62	56.85%	Yes
32	McNichols	48.37	42.02	86.88%	Yes	16.65	34.42%	Yes
38	Plymouth	51.60	34.33	66.53%	Yes	21.19	41.07%	Yes
39	Puritan	14.72	13.54	91.96%	Yes	7.53	51.17%	Yes
40	Russell	27.93	19.88	71.16%	Yes	14.90	53.33%	Yes
41	Schaefer	27.63	14.79	53.53%	Yes	13.80	49.95%	Yes
42	Mid-City Loop	12.68	9.58	75.52%	Yes	7.98	62.96%	Yes
43	Schoolcraft	33.85	30.35	89.68%	Yes	13.28	39.23%	Yes
46	Southfield	24.96	17.91	71.75%	Yes	7.33	29.36%	No
47	Tireman	23.52	20.11	85.52%	Yes	16.52	70.23%	Yes
52	Chene	25.37	15.30	60.29%	Yes	11.69	46.05%	Yes
54	Wyoming	31.09	17.55	56.44%	Yes	17.06	54.88%	Yes
60	Evergreen	23.45	17.18	73.29%	Yes	9.86	42.05%	Yes
67	Cadillac-Harper	25.71	20.19	78.50%	Yes	13.48	52.43%	Yes
68	Chalmers	18.64	18.64	99.98%	Yes	10.93	58.60%	Yes
80	Villages Direct	18.48	9.67	52.32%	Yes	11.30	61.16%	Yes
89	Southwest Direct	17.65	9.36	53.02%	Yes	10.37	58.72%	Yes
92	Rosedale Express	14.85	14.85	99.99%	Yes	8.37	56.34%	Yes
95	Ryan Express	13.77	9.72	70.54%	Yes	8.17	59.34%	Yes
96	Joy Express	13.61	13.61	100.00%	Yes	6.93	50.95%	Yes

# Service Standard Monitoring

## Vehicle Load Monitoring

Vehicle load defined by FTA Circular 4702.1B, is the ratio of passengers to the total number of seats on a vehicle.

### Analysis

DDOT's 2018-2020 Service Standard Policy, states a standard vehicle loads factor of 1.25, not to exceed 1.50 on a regular basis. Table 2 below shows passenger capacities for buses as the average maximum number of persons seated and standing during a weekday. The maximum load factors represent the maximum achievable capacity, and are calculated by dividing the total seated and standing capacity by the seated capacity of the vehicle. If overcrowding is determined, DDOT will add service at the next available opportunity pending the availability of vehicles and operators.

*Table 2: Maximum Bus Load Standards*

Vehicle Type	Seated	Standing	Total	Standard Load Factor	Maximum Load Factor
40' Standard Bus	38	10	48	1.25	1.50
60' Standard Bus	57	14	71	1.25	1.50

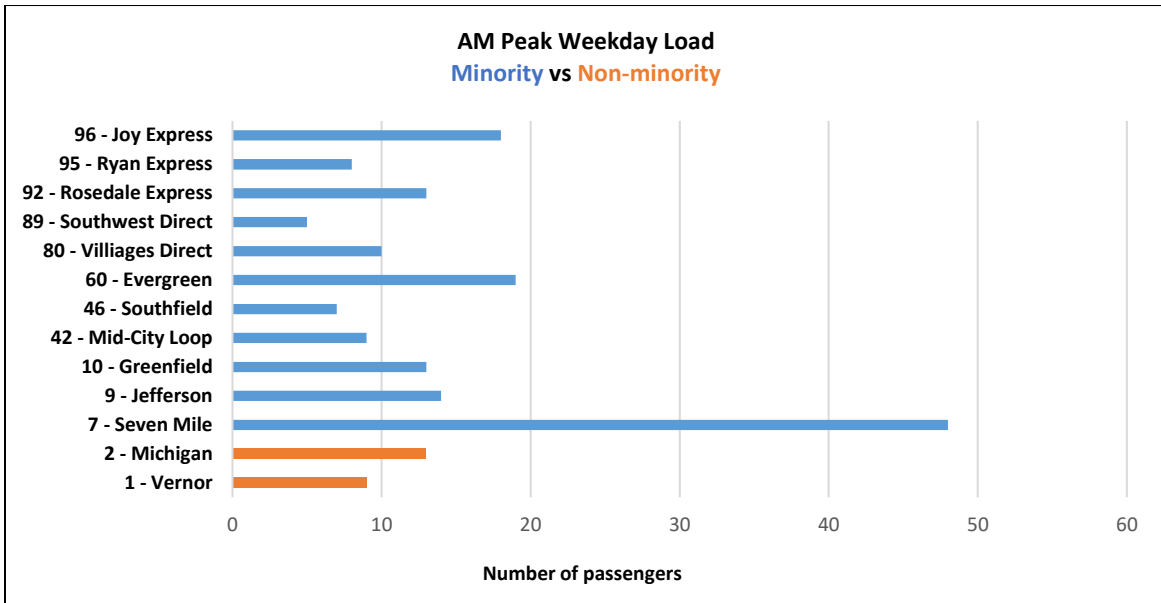
The evaluation of the sampled routes used data collected by DDOT's Service Development Data Collection Division throughout the month of October 2019 to examine vehicle loads. Loads on Saturday and Sunday were excluded from the analysis since ridership is generally lower than weekday ridership and weekend overloads are rare.

DDOT does not distinguish load standards for peak versus off-peak times. Therefore, DDOT compared minority routes with non-minority routes to evaluate vehicle load for each sample routes. Graph 1 below shows the breakdown of vehicle loads for the sampled minority and non-minority routes.

### Vehicle Load Monitoring Results:

The average vehicle loads for the sampled routes during morning peak were met. No routes exceeded the vehicle load standard of 1.25 or total seat capacity of 48 for 40 feet buses or 71 for 60 feet buses during October 2019. **Based on this analysis, no potential for disparate impact to minority populations was identified for the vehicle load standard.**

*Graph 1: Vehicle Loads for Minority and Non-minority Routes*



## Vehicle Headway

*Vehicle headway defined by FTA Circular 4702.1B, is the amount of time between two vehicles traveling in the same direction on a given line or combination of lines and are measured in minutes.*

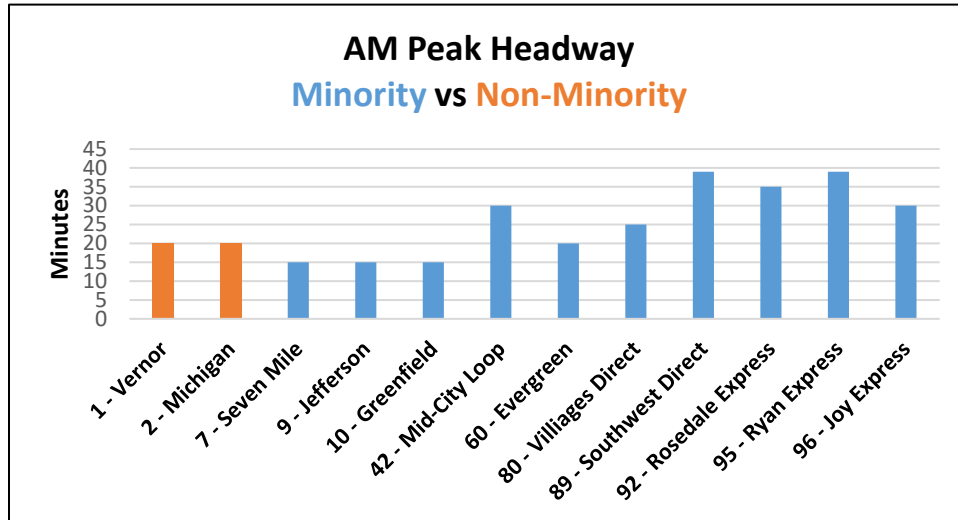
### Analysis:

DDOT’s vehicle headway standard for weekday morning and afternoon peak period is every 45 minutes or less. For the purposes of this evaluation peak headways were calculated using a.m. peak service level. The time period of 6:00 a.m. to 9:00 a.m. was used for weekday morning peak. The current printed schedule information was used as the baseline for this analysis.

### Vehicle Headway Results:

Graph 2 below shows the morning weekday peak headway for the sampled minority and non-minority routes. The average headway for all sampled minority and non-minority routes are 29 minutes. However, the headway for the two non-minority routes (Vernor and Michigan) had an average of 20 minutes while three minority routes had a headway of 15 minutes. These routes are ConnectTen routes that provide 24/7 service which a peak hour frequency of at least 15 minutes. All route headways was below the 45 minute headway standard. **Based on this analysis, no disparate impact to minority populations was identified for the vehicle headway standard.**

Graph 2 Headways for Minority and Non-Minority Routes AM Weekday



## On-Time Performance

On-time performance defined by FTA Circular 4702.1B is a measure of runs completed as scheduled.

### Analysis:

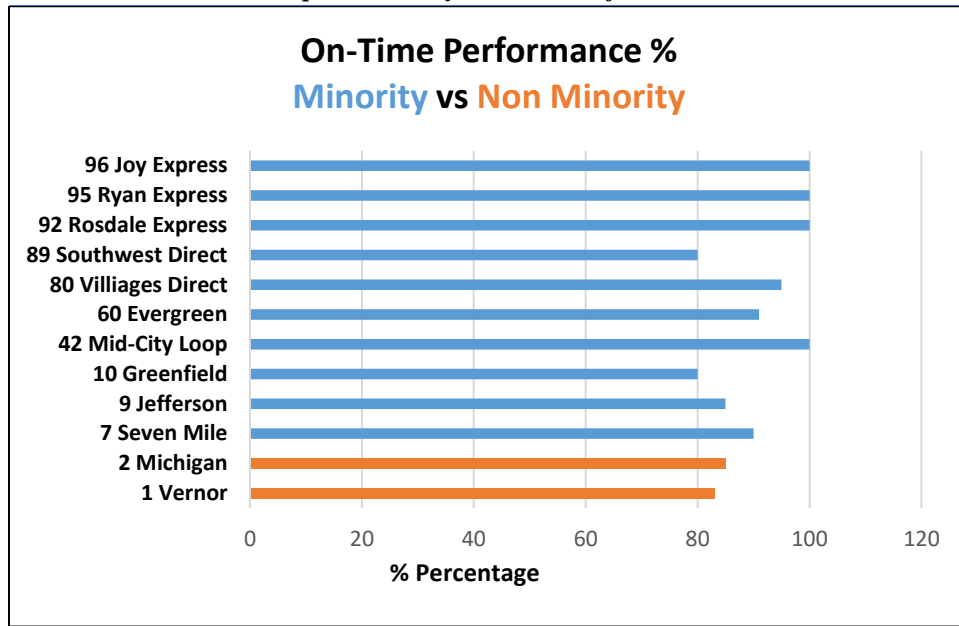
DDOT's on-time performance is defined as 0-5 minutes late, while late is defined as arriving at a time point six minutes or more after the published time. Running ahead of schedule is not considered acceptable schedule adherence. DDOT's on-time performance standard is 85 percent or better.

The analysis of bus service used morning peak weekday on-time performance data collected by DDOT's spot check sampling method. The sampling of fixed-route service was a visual field based audits conducted by DDOT Compliance Division, Regulatory Compliance Officers, throughout the month of October 2019. The recorded time points was compiled into an Excel spreadsheet where the route was compared to the published service schedule for the route monitored.

### On-Time Performance Results:

Graph 3 below shows the data compiled consist of 607 observations that showed the sampled routes averaged 91% on-time performance. Minority routes were on time 92% of the time compared to 84% on-time performance for non-minority routes. Of the 12 routes sampled, three were found performing below on-time performance standard. Overall the on-time performance was met for all sampled routes. **Based on this analysis, no disparate impact to minority populations was identified for the on-time performance standard.**

Graph 3 Weekday On-Time Performance



## Service Availability

Standard service availability is defined by FTA Circular 4702.1B, is a general measure of the distribution of routes within a transit provider's service area.

### Analysis:

DDOT's standard is to ensure service availability for 80 percent of service area residents within ¼ mile of a bus stop and 95 percent for service area residents within ½ mile of a bus stop with weekday all-day service.

A quarter mile buffer was created around each bus stop which covers 80% of Detroit, giving DDOT a service availability coverage of 85%. A half mile buffer was also created around each bus stop which covered 95% of Detroit, giving DDOT a service availability coverage of 98%.

### Service Availability Results:

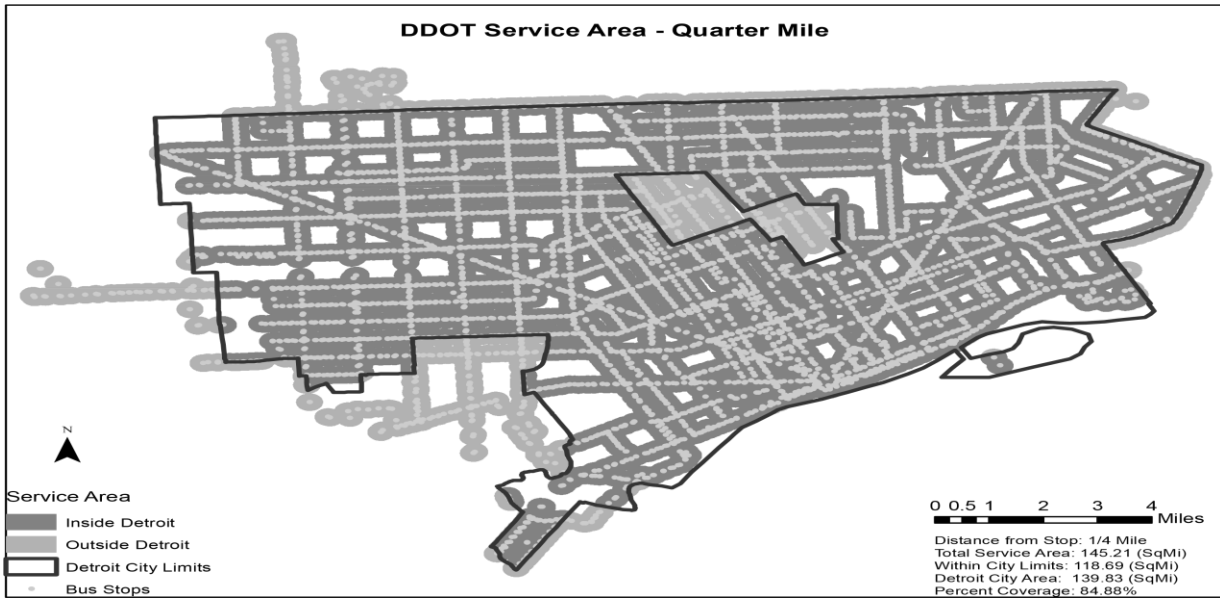
Table 3 below shows the percentage of minority and non-minority households served. The percentage of minority households within a ¼ mile of a bus stop is 89%. The percentage of non-minority households within a ½ mile walk of bus stop was 98%. Figures 1 and 2 show the service availability of a bus stop within ¼ mile of DDOT's service area and a ½ mile for weekday all-day service. **Based on this analysis, no disparate impact to minority populations was identified for the service availability standard.**

**Table 3 Service Availability Standard**

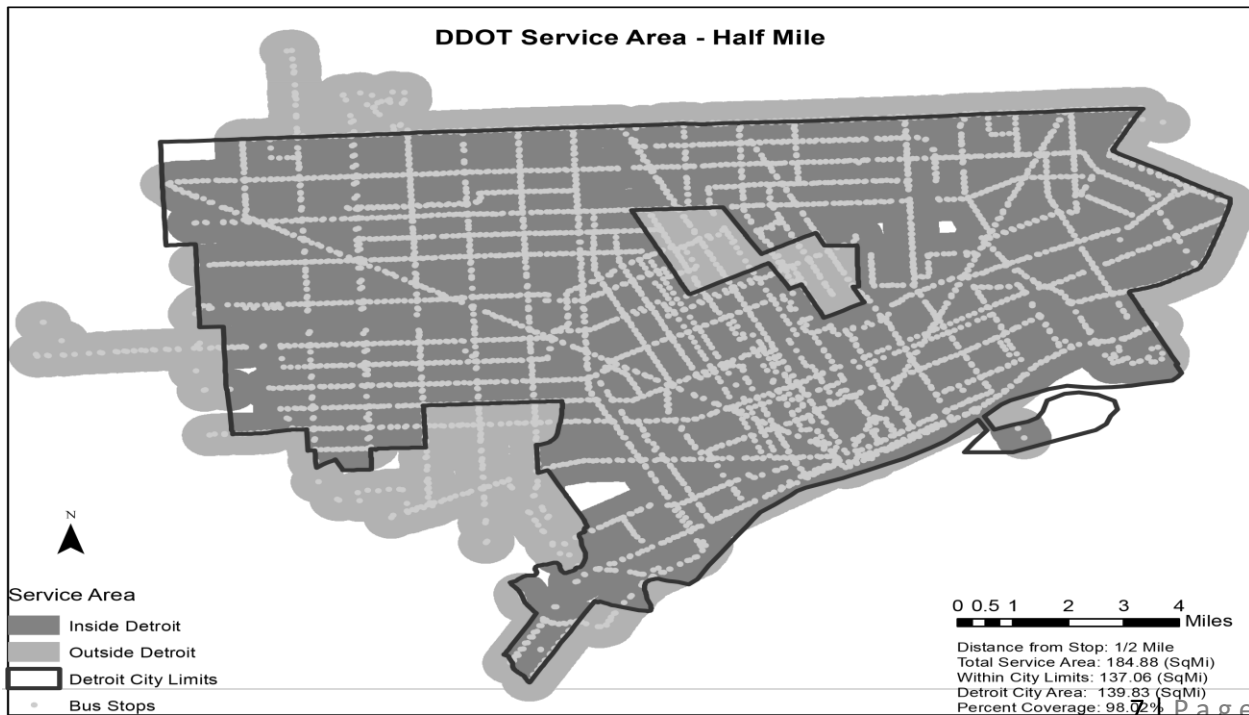
Service Availability Standard	Minority	Non-minority
Within ¼ mile of a bus stop	89%	11%
Within ½ mile of a bus stop with Weekday all day service	98%	2%
Service Area Population	80%	20%

Source: 2010 U.S. Census Survey

**Figure 1 Map of DDOT's Minority Census Blocks within ¼ Mile of Service Area**



**Figure 2 Map of DDOT's Minority Census Blocks within ½ Mile of Service Area**





# Service Standard Policies

## Transit Amenities

*Transit amenities are defined by FTA Circular 4702.1B, refer to items of comfort, convenience, and safety that are available to the general riding public. These include bus shelters, bus stop benches, and trash receptacles.*

### Analysis:

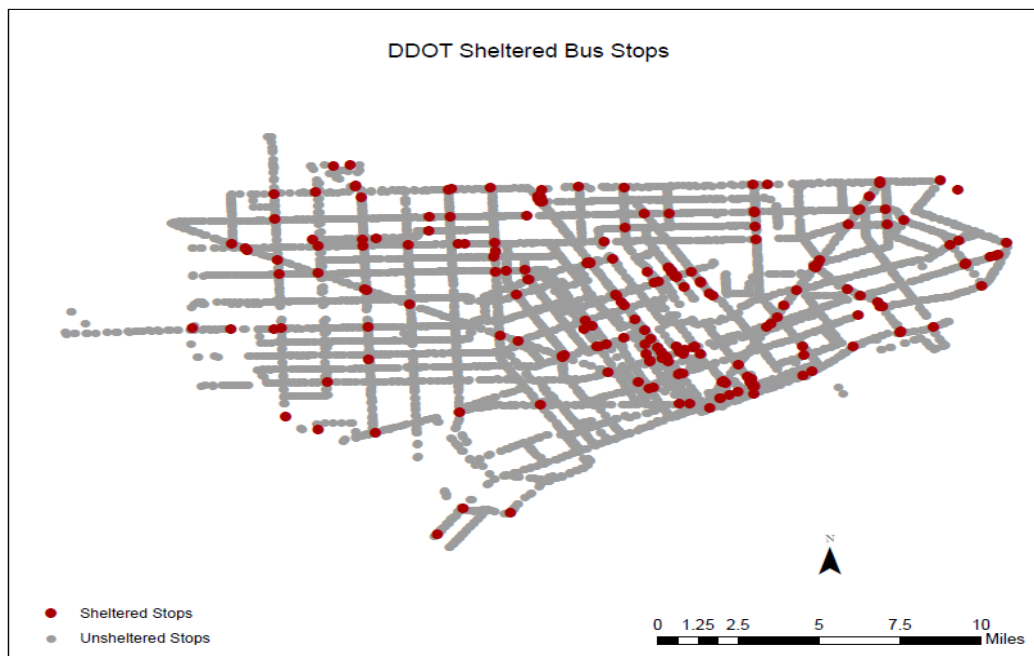
DDOT's policy states that bus shelters are distributed on a system-wide basis. The location of bus shelters are determined by factors such as level of service, stability of routes within service network, site dimensions and pavement characteristics, position of route, transfer points, stops shared by multiple routes, proximity to major destinations, distribution of shelters on route, legacy shelters and shelter requests from customers and the community.

DDOT owns 168 shelters of the 208 shelters within the service area. All other shelters are owned by neighboring cities and business organizations. DDOT does not have a seating (bench) program or an active program for on-street customer information. DDOT assist the City of Detroit Department of Public Works (DPW) with waste receptacles placement by providing high-ridership bus stops information.

### Transit Amenities Results:

DDOT's staff worked within its jurisdiction to distribute shelters to match the distribution of minority Census tracts. The map below (Figure 3) shows the locations of bus shelters, relative to the location of bus routes and the locations of minority and non-minority populations. There are 58 bus shelters on minority bus routes versus 7 bus shelters on non-minority bus routes. **Based on this analysis, no disparate impact to minority populations was identified for the transit amenities standard.**

*Figure 3 DDOT's Transit Amenities - Locations of Bus Shelters*



## Vehicle Assignment

*Vehicle Assignment is defined by FTA Circular 4702.1B, refers to the process by which transit vehicles are placed into service in depots and on routes throughout the transit provider's system.*

### **Standard:**

DDOT is committed to maintaining a fleet until it reaches its useful life age of 12 years. DDOT's vehicle fleet consists of 291 of two different types, 40-foot buses and 60-foot buses of varying ages. All vehicles are assigned to two operating facilities and are split between the facilities in roughly even proportions. Vehicles are not assigned to specific routes or vehicle types to specific routes. Any vehicle type, old or new, may appear on any route at any time. Table 4 below list vehicle fleet manufacturer, year, number of buses in fleet and years in service.

*Table 4 DDOT's Vehicle Fleet Information*

Manufacturer	Manufactured Year	Number of Buses	Years in Service
New Flyer	2004	32	16
New Flyer	2004	29	14
New Flyer	2004	16	14
Gillig	2010	48	4
New Flyer	2012	45	6
New Flyer	2014	31	4
New Flyer	2015	49	3
New Flyer	2017	29	2
New Flyer	2018	30	1
New Flyer	2019	30	<1

The monitoring is intended to evaluate the quality of service provided to customers. This evaluation used bus age as a general indicator of the quality of the riding experience. To determine what vehicle type was assigned to each weekday trip during October 2019, DDOT's Compliance Division used a field based audit to collect the data. The Regulatory Compliance Officers visually tracked the bus number on each sampled route. The bus number provided the make, model and age of a coach.

### **Vehicle Assignment Results:**

Table 5 shows the average age of the sampled minority and non-minority route buses. Non-minority routes has an average age of three years old. While the average age for the minority routes buses was seven years of age. In September 2018, DDOT launched an upgraded services on ten of the most heavily used routes under a new brand called ConnectTen. ConnectTen service provides peak hour frequency of 15 minutes, 24/7 service and free Wi-Fi on all ConnectTen buses. The non-minority routes have buses that are an average of three years old to ensure the availability

of Wi-Fi service. DDOT installed Wi-Fi on 120 buses within the fleet. The review of daily vehicle assignments also showed vehicles of all ages were placed on minority and non-minority routes for various trips throughout DDOT’s service area. **Based on this analysis, no disparate impact to minority populations was identified for the vehicle assignment standard.**

*Table 5 DDOT Vehicle Assignment by Route Sample Results*

Route	Minority Route	Bus#	Bus#	Bus#	Bus#	Bus#	Average Age Assigned
1	No	1825	1518	1826	1722	1526	3
2	No	1425	1713	1525	1820	1816	3
7	Yes	1019	1406	1407	1513	1401	5
9	Yes	1404	1700	1215	1900	4114	5
10	Yes	1815	1826	1821	1525	1041	3
42	Yes	1210	4141	No Service	No Service	No Service	9
60	Yes	1536	4169	1519	1048	1420	6
80	Yes	4144	4207	No Service	No Service	No Service	10
89	Yes	1920	1231	No Service	No Service	No Service	4
92	Yes	4207	1025	No Service	No Service	No Service	8
95	Yes	4220	1505	No Service	No Service	No Service	7
96	Yes	1230	1232	No Service	No Service	No Service	7

## Summary of Results

A summary of the results of each evaluation is shown in Table 6. No disparate impacts to minority populations were identified in these evaluations.

*Table 6 Summary of Results*

Standard	Minority Results
Vehicle Load	No Disparate Impact
Vehicle Headways	No Disparate Impact
On-Time Performance	No Disparate Impact
Service Availability	No Disparate Impact
Transit Amenities	No Disparate Impact
Vehicle Assignment	No Disparate Impact

## Service Standards Monitoring Results Executive Approval

FTA requires transit providers that operate 50 or more fixed route vehicles in peak service and are located in urbanized areas (UZA) of 200,000 or more people, or that otherwise meet the threshold defined in FTA Circular 4702.1B, to monitor their service standards and policies.

Service standards and policies provide the framework for monitoring and assessment of service to compare service provided in areas with a percentage of minority populations that exceeds the percentage of minority populations in the service area to service provided in areas with a percentage of minority populations that is below the percentage of minority population in the service area.

The regulation also states, "Transit providers shall brief and obtain approval from the transit providers' policy-making officials, generally the Board of Directors or appropriate governing entity responsible for policy decisions regarding the results of the monitoring program".

DDOT conducted an assessment of its service standards compared to service provided in October 2019. The assessment found that there was no disparate impact to minority populations in any of DDOT's current service standards and policies. This service standard monitoring report is submitted for your consideration, awareness, and approval.

I, the Detroit Department of Transportation Director, hereby acknowledge the receipt and approve DDOT's 2019 Title VI Service Standards Monitoring Results Report.

  
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Angelica Jones, Interim Director

11-4-2019  
\_\_\_\_\_  
Date