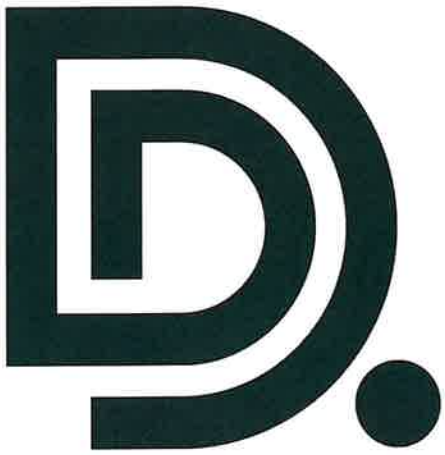

Service Standards Monitoring Report

TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

August 2022

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Service Standards 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 to remain in compliance with Title VI requirements. DDOT must submit the results of its monitoring program as well as documentation verifying the Transit Director's approval of the monitoring results to 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 2021 Title VI Program Plan (set for the three-year period of 2021 - 2023), 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, it's classified as a minority route.

DDOT has 37 fixed routes, of which, 35 are identified minority and low-income. DDOT monitored all routes during the morning peak (6:00 AM to 9:00 AM) for the month of August 2022. Table 1 below shows the length and classification of each route. The population of DDOT's service area is 89 percent minority and 11% low-income.

Table 1: DDOT Minority & Low-Income Route Classifications

Route			In Minority Block Group			In Low Income Block Group		
Route Number	Route Name	Total Length	Length	%	Is Minority	Length	%	Is Low-Income
1	Vernor	17.11	5.24	0.39	Yes	9.41	55.00%	Yes
2	Michigan	21.13	5.35	0.36	Yes	10.18	48.17%	Yes
3	Grand River	29.51	22.96	0.87	Yes	14.41	48.81%	Yes
4	Woodward	17.68	10.22	0.78	Yes	10.89	61.60%	Yes
5	Van Dyke	22.69	16.24	0.75	Yes	11.82	52.09%	Yes
6	Gratiot	21.07	16.9	0.81	Yes	11.49	54.53%	Yes
7	Seven Mile	39.84	38.14	0.99	Yes	14.21	35.66%	Yes
8	Warren	40.36	27.67	0.75	Yes	24.8	61.45%	Yes
9	Jefferson	14.89	8.78	0.61	Yes	5.76	38.72%	Yes
10	Greenfield	26.12	20.63	0.74	Yes	8.9	34.09%	Yes
11	Clairmont	30.05	26.87	0.97	Yes	16.36	54.44%	Yes
12	Conant	23.84	14.18	0.73	Yes	13.04	54.72%	Yes
13	Conner	16.13	13.42	0.94	Yes	8.17	50.67%	Yes
15	Chicago/Davison	25.86	25.86	1	Yes	13.42	51.89%	Yes
16	Dexter	37.66	29.45	0.81	Yes	20.98	55.70%	Yes
17	Eight Mile	48.3	27.54	0.78	Yes	17.54	36.32%	Yes
18	Fenkell	30.33	24.44	0.84	Yes	17.03	56.16%	Yes
19	Fort	16.8	7.48	0.5	Yes	11.2	66.66%	Yes
23	Hamilton/John R	22.22	11.71	0.71	Yes	15.34	69.05%	Yes
27	Joy Road	31.64	21.68	0.81	Yes	13.89	43.91%	Yes
29	Linwood	20	12.65	0.7	Yes	12.19	60.93%	Yes
30	Livernois	28.45	18.53	0.89	Yes	12.7	44.65%	Yes
31	Mack	22.19	13.71	0.79	Yes	12.62	56.85%	Yes
32	McNichols	48.37	42.02	0.96	Yes	16.65	34.42%	Yes
38	Plymouth	51.6	34.33	0.79	Yes	21.19	41.07%	Yes
39	Puritan	14.72	13.54	0.94	Yes	7.53	51.17%	Yes
40	Russell	27.93	19.88	0.77	Yes	14.9	53.33%	Yes
41	Schafer	27.63	14.79	0.56	Yes	13.8	49.95%	Yes
42	Mid-City Loop	12.68	9.58	0.84	Yes	7.98	62.96%	Yes
43	School Craft	33.84	30.35	0.95	Yes	13.28	39.23%	Yes
46	Southfield	24.96	17.91	0.67	Yes	7.33	29.36%	Yes
47	Tireman	23.52	20.11	0.99	Yes	16.52	70.23%	Yes
52	Chene	25.37	15.3	0.62	Yes	11.69	46.05%	Yes
54	Wyoming	31.09	17.55	0.6	Yes	17.06	54.88%	Yes
60	Evergreen	23.45	17.18	0.62	Yes	9.86	42.05%	Yes
67	Cadillac/Harper	25.71	20.19	0.84	Yes	13.48	52.43%	Yes
68	Chalmers	18.64	18.64	1	Yes	10.93	58.60%	Yes

Source: DDOT's Service Development and Planning Division

Service Standards Monitoring

Vehicle Load Monitoring

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

Analysis

DDOT's 2021-2023 Service Standard Policy states a standard vehicle load 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. For the purposes of this evaluation, weekday headways were calculated using morning peak service time. The weekday morning peak service period is 6:00 AM to 9:00 AM.

Table 2: Maximum Bus Load Standards

Average Passenger Capacities					
Vehicle Type	**Seated**	**Standing**	**Total**	**Maximum Load Factor**	**Maximum Load**
40' Standard	38	10	48	1.50	57
60' Standard	57	14	71	1.50	86

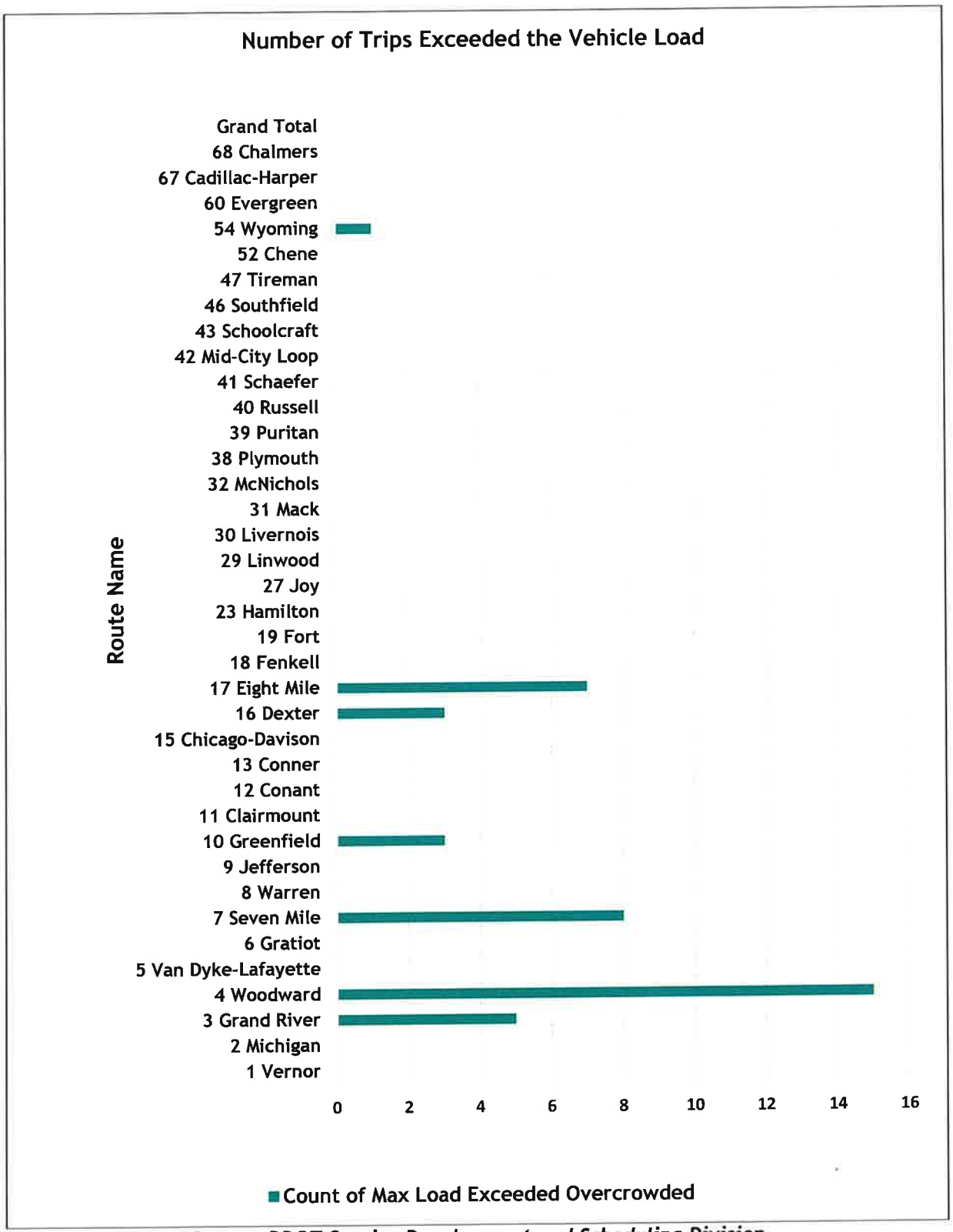
Source: New Flyer XD40 Bus Manual

For this evaluation, daily boarding by route and trip data was collected from DDOT's Service Development & Scheduling and Data & Reporting Divisions to examine the vehicle loads standard. 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.

Vehicle Load Monitoring Results:

Vehicle Load Monitoring was conducted for the period of August 1, 2022 to August 31, 2022, during the peak period of 6:00 AM to 9:00 AM. The maximum vehicle load for a 40-foot bus is limited to 57 passengers and a 60-foot bus is limited to 86 passengers. There was a grand total of 42 instances of overcrowding for a percentage of 2.4%. Chart 1 below, shows there were seven (7) routes that exceeded the maximum vehicle load during peak time. The routes were identified as 3-Grand River (5), 4-Woodward (15), 7-Seven Mile Road (8), 10-Greenfield (3), 16-Dexter (3), 17-Eight Mile Road (7), and 54-Wyoming (1).

Chart 1: Vehicle Loads for Minority Routes



Source: DDOT Service Development and Scheduling Division

Vehicle Headway Monitoring

Vehicle headway, as 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 is measured in minutes.

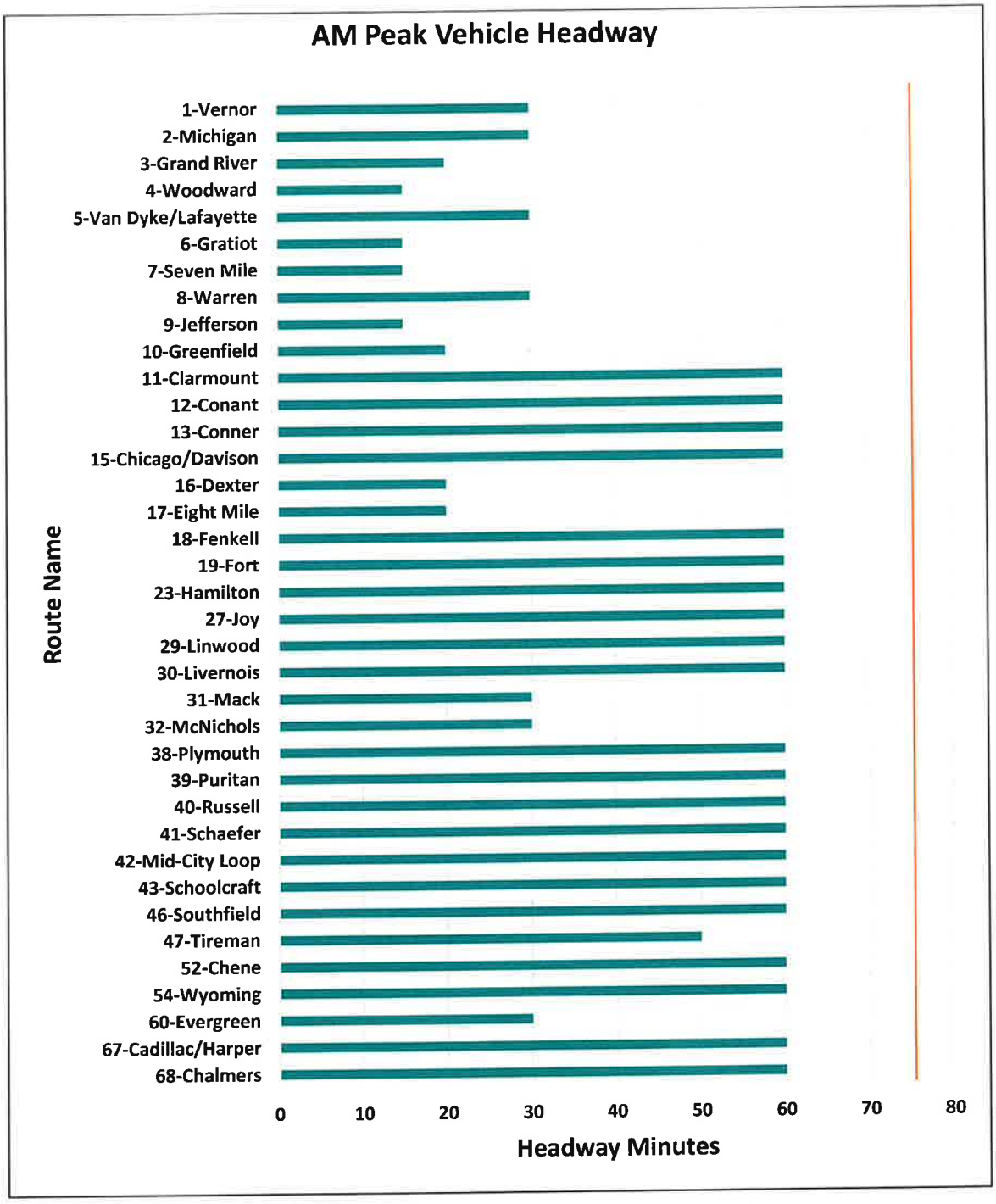
Analysis:

DDOT has adjusted its vehicle weekday headway standard from 45 minutes to a weekend headway of 75 minutes. For the purposes of this evaluation, weekday headways were calculated using morning peak service time.

Vehicle Headway Monitoring Results:

Chart 2 below shows the weekday morning peak headways for all minority routes. The average headway is 43 minutes for all routes. DDOT's Connect 10 Routes (1-Vernor, 2-Michigan, 3-Grand River, 4-Woodward, 5-Van Dyke/Lafayette, 6-Gratiot, 7-Seven Mile, 8-Warren, 9-Jefferson, and 10-Greenfield). The Connect Ten service provides 500 trips a week on ten routes across the entire city, with peak hour frequency of 15 minutes. The routes serve 60% of all DDOT riders. An additional six (6) routes (15-Chicago/Davison, 31-Mack, 16-Dexter, 32-McNichols, 54-Wyoming and 60-Evergreen) are all 30 minutes or less. The remaining 19 routes headway ranges between 45 and 60 minutes. All route headways were below the 75-minute headway standard.

Chart 2: AM Peak Vehicle Headway for Minority Routes



Source: DDOT Service Development and Scheduling Division

On-Time Performance Monitoring

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

Analysis:

DDOT's on-time performance is defined as arriving within 0-5 minutes of the scheduled published time, late is defined as arriving at a time point six minutes or longer after the published time. Running ahead of schedule is not considered acceptable schedule adherence. DDOT's on-time performance standard goal is 85% or better. Standards measured by AVL Data are as follows:

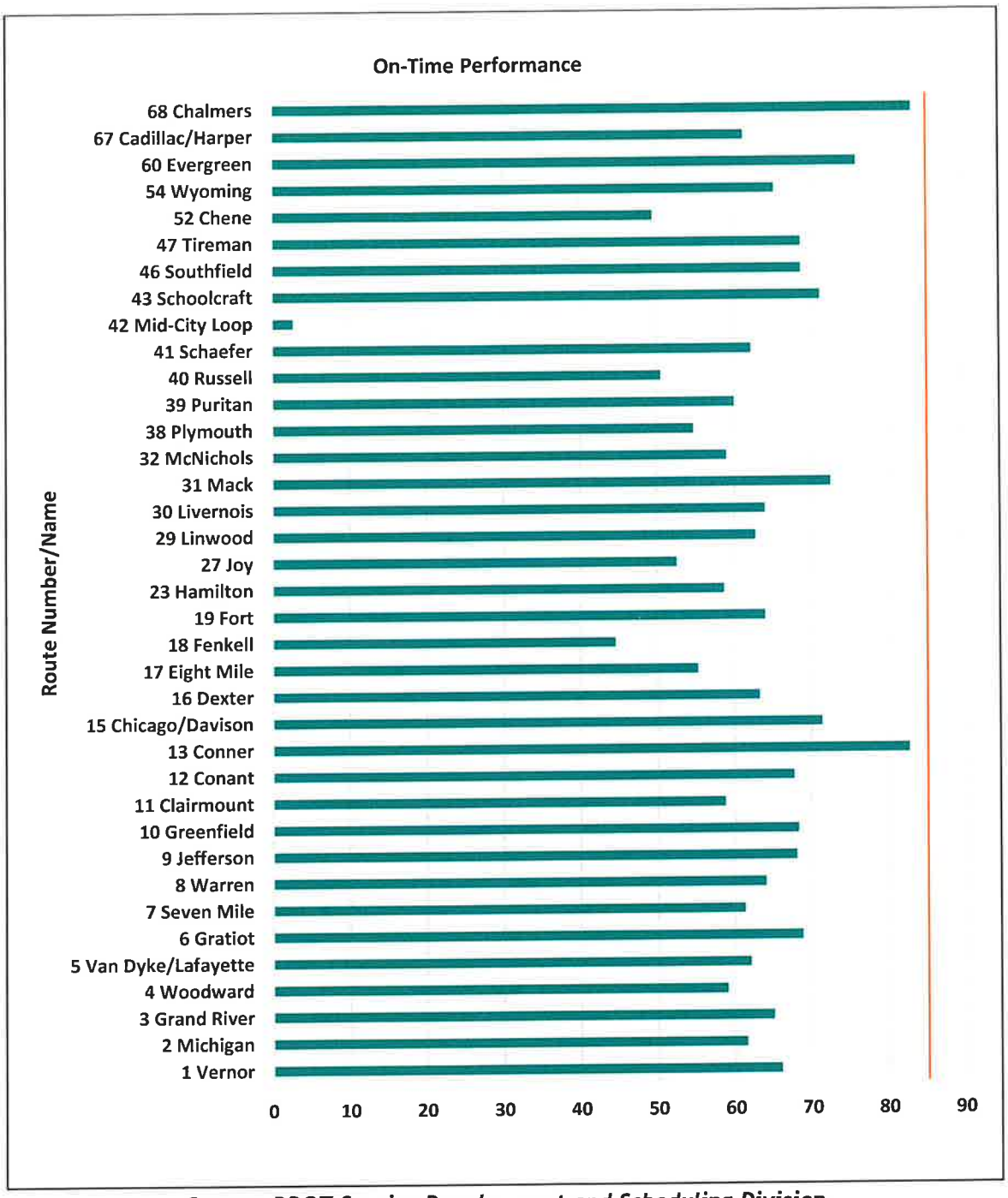
On-target:	85% or better
Needs Improvement:	75% to 84%
Fail:	75% or less

DDOT compared routes actual departure times against scheduled departure times. DDOT used Automatic Vehicle Locator (AVL) data, produced by DDOT's Data & Reporting Division Hastus system, to determine the weekday morning peak on-time performance percentage.

On-Time Performance Monitoring Results:

Chart 3 shows DDOT's average on-time performance is 64% for all routes. Routes that fall below the on-time performance standard for six (6) consecutive weeks shall be reviewed by DDOT's Service Development & Scheduling Division. The division will adjust running times for underperforming routes on the next quarterly schedule change. DDOT's next service change is scheduled for January 2023.

Chart 3: August 1, 2022 AM Peak On-Time Performance



Source: DDOT Service Development and Scheduling Division

Service Availability Monitoring

Standard service availability, as 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% of service area residents within one quarter mile of a bus stop and 95% for service area residents within one half 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 covers 95% of Detroit, giving DDOT a service availability coverage of 98%.

Service Availability Monitoring Results:

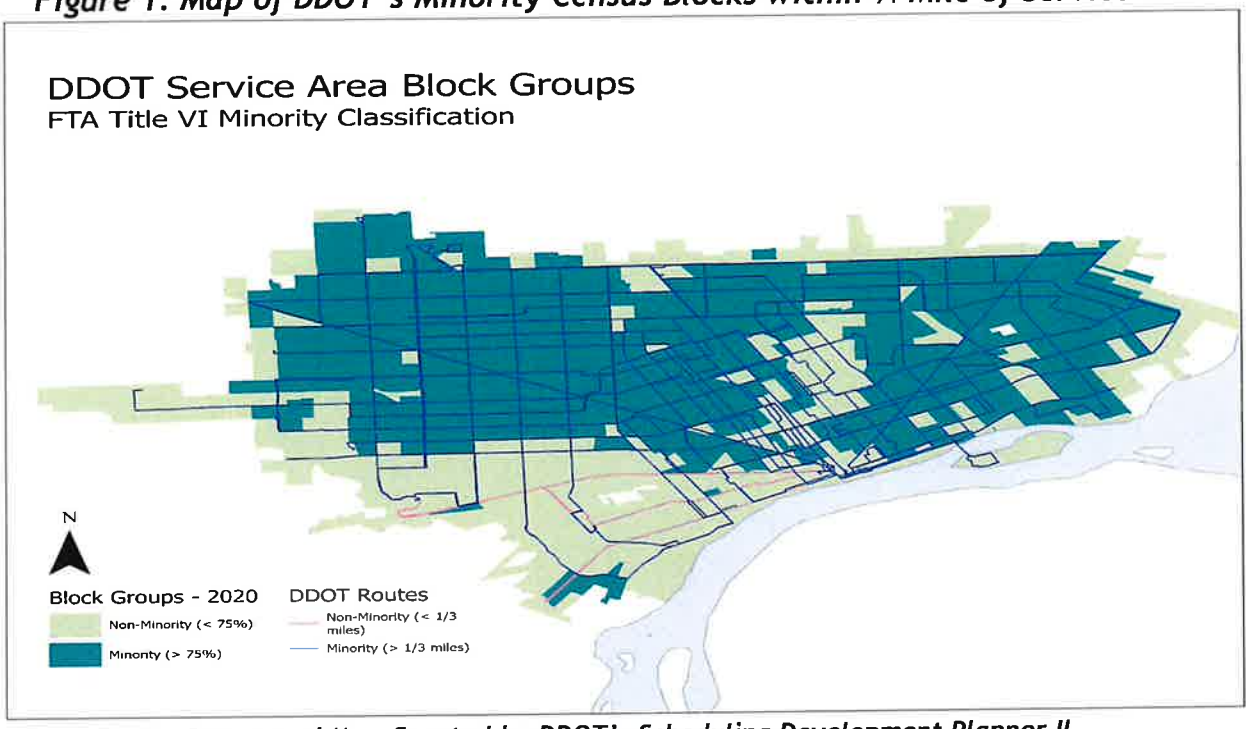
Table 3 below shows the percentage of minority and non-minority households served. The percentage of Minority households within one quarter mile of a bus stop is 89% the percentage of non-minority households within one quarter mile of a bus stop is 11%. The percentage of Minority households within a half-mile walk of a bus stop is 98% the percentage of non-minority households within one quarter mile of a bus stop is 2%. Figures 1 and 2 show the service availability of a bus stop within one quarter mile of DDOT's service area and a half mile for weekday all-day service.

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%

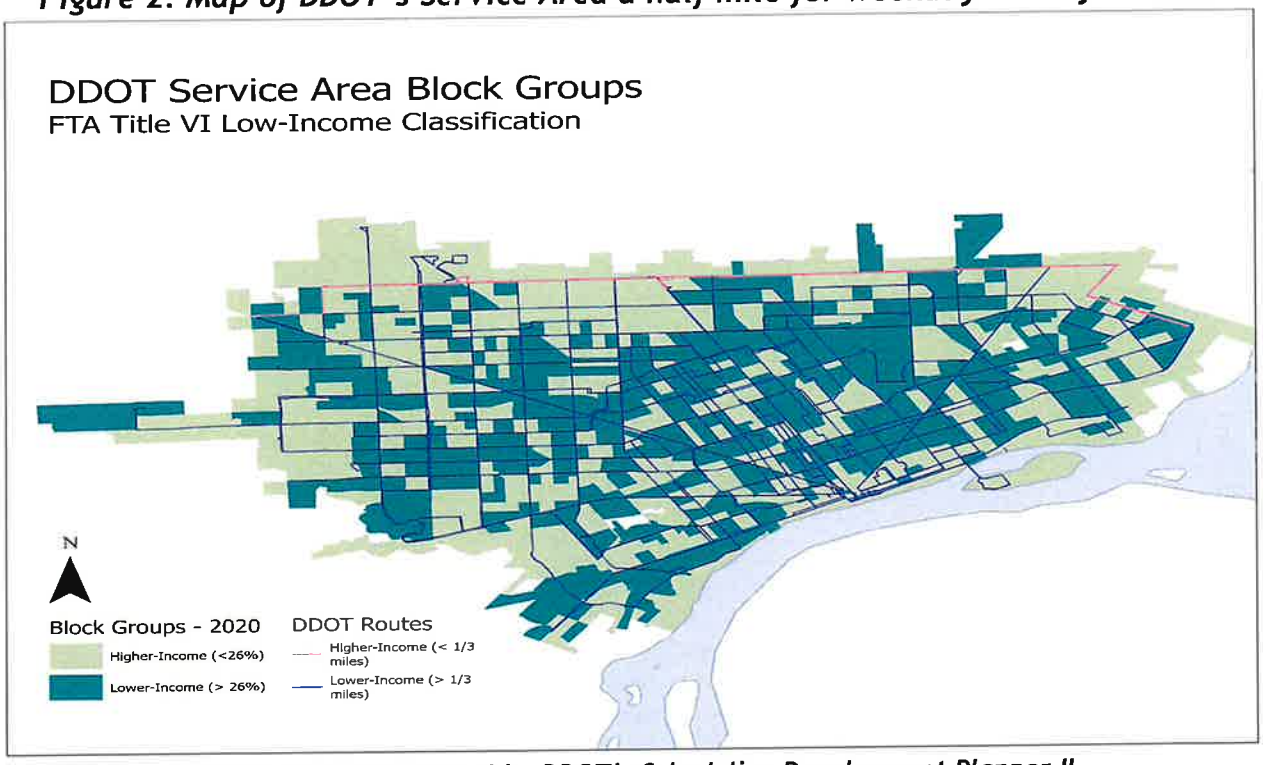
Source: 2020 U.S. Census Survey

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



Source and Map Created by DDOT's Scheduling Development Planner II

Figure 2: Map of DDOT's Service Area a half mile for weekday all-day service



Source and Map Created by DDOT's Scheduling Development Planner II

Service Standards Policies

Transit Amenities Monitoring

Transit amenities, as 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.

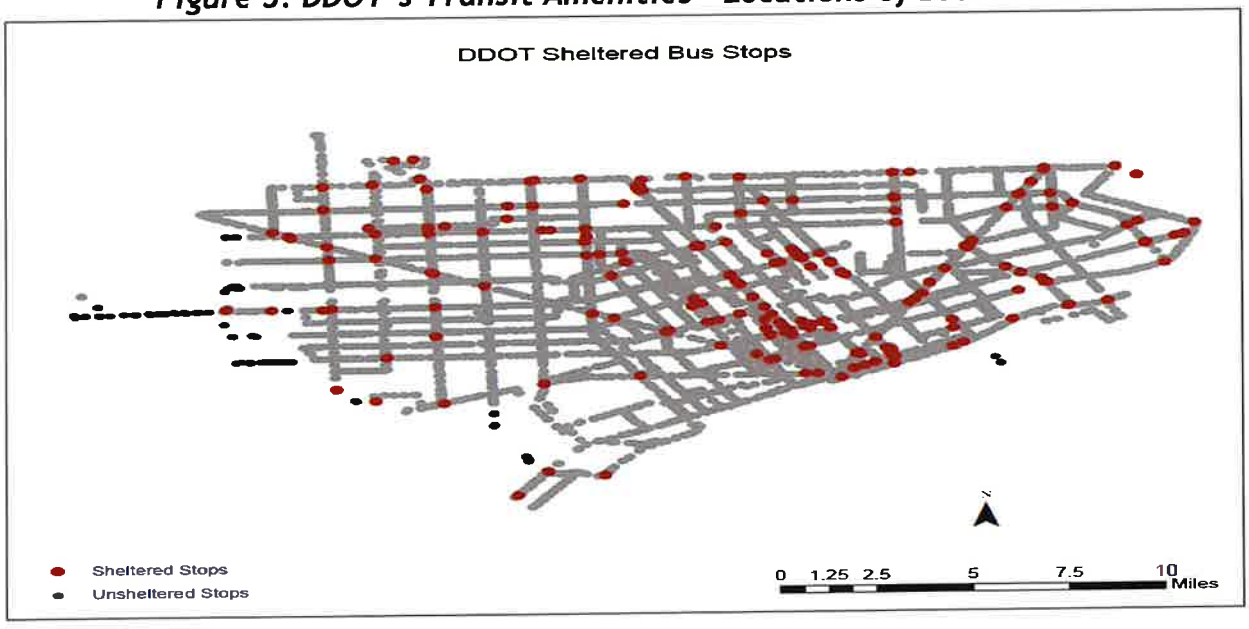
Analysis:

DDOT's policy states that bus shelters are distributed on a system-wide basis. The location of bus shelters is determined by factors such as level of service, stability of routes within the service network, site dimensions, 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 assists the City of Detroit General Services Department (GSD) with waste receptacles placement by providing high-ridership bus stop information.

Transit Amenities Monitoring Results:

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. All DDOT-owned bus shelters are located on minority bus routes. There are five (5) shelters on non-minority routes (1-Venor and 2-Michigan).

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



Source and Map: DDOT's Scheduling Development Planner II

Vehicle Assignment Monitoring

Vehicle Assignment, as 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.

Analysis:

DDOT is committed to maintaining a fleet until its buses reach their useful life age of 12 years. DDOT's fleet consists of 292 active vehicles, 40-foot buses and 60-foot buses of varying makes and models. Vehicles are evenly distributed between the Gilbert and Shoemaker operating terminals. Vehicles are not assigned to a specific route. Any vehicle type, old or new, may appear on any route at any time. However, articulated vehicles may be assigned to high ridership routes to reduce overcrowding when needed.

Table 4 lists vehicles by manufacturer, year, number of buses in fleet, and years in service. The Detroit Department of Transportation (DDOT) officially released four electric buses in revenue service. The Proterra electric buses will be incorporated into DDOT's fleet. The electric bus charging station is set up at the Shoemaker Terminal, on the east side of Detroit, electric buses will be assigned to routes based out of that terminal.

Table 4: DDOT's Vehicle Fleet Information

Manufacturer	Manufactured Year	Number of Buses	Years in Service
New Flyer	2010	48	12
Gillig	2012	45	10
New Flyer	2014	31	8
New Flyer	2015	49	7
New Flyer	2017	29	6
New Flyer	2018	30	5
New Flyer	2019	30	4
New Flyer	2020	26	3
Proterra	2022	4	<1
Average Age		292	7.42

DDOT's vehicle (bus) numbers refers to the make and model year. For this evaluation, the Daily Vehicle Assignment report was used to determine which vehicle was assigned to each weekday route.

Table 5: Daily Vehicle Assignment Monitoring By Route for August 1, 2022

Route Number	Route	Minority Route	Vehicle Number	Vehicle Number	Vehicle Number	Vehicle Number	Vehicle Number	Vehicle Number	Vehicle Number	Vehicle Number
1	Vernor	No	1419	1426	1513	1708	1804	2017	-	-
2	Michigan	No	1815	2013	-	-	-	-	-	-
3	Grand River	Yes	1420	1422	1430	1546	1547	-	-	-
4	Woodward	Yes	1201	1402	1703	1808	1823	-	-	-
5	Van Dyke	Yes	1419	1426	1513	1708	1804	2017	-	-
6	Gratiot	Yes	1014	1213	1217	1246	1400	1800	1900	1960
7	Seven Mile	Yes	1413	1414	1539	1548	1701	1706	1811	
8	Warren	Yes	1001	1401	1404	1409	1529	1542	1704	1707
9	Jefferson	Yes	1005	1210	1702	1709	2005	2006	-	-
10	Greenfield	Yes	1228	1524	1526	1825	1920	2023	-	-
11	Clairmont	Yes	1415	1525	-	-	-	-	-	-
12	Conant	Yes	1013	1802	-	-	-	-	-	-
13	Conner	Yes	1002	1908	2007	-	-	-	-	-
15	Chicago/Davison	Yes	1240	1525	-	-	-	-	-	-
16	Dexter	Yes	1424	1428	1535	1720	1818	1921	2020	2024
17	Eight Mile	Yes	1004	1020	1044	1410	1414	1429	1548/1706	1701/1711
18	Fenkell	Yes	1423	1716	-	-	-	-	-	-
19	Fort	Yes	1029	1405	1812	-	-	-	-	-
23	Hamilton/John R	Yes	1029	1405	1812	-	-	-	-	-
27	Joy Road	Yes	1046	1226	1816	1826	2015	-	-	-
29	Linwood	Yes	1226	1826	2015	-	-	-	-	-
30	Livernois	Yes	1418	1520	-	-	-	-	-	-
31	Mack	Yes	1012	1213	1724	1725	1725		-	-
32	McNichols	Yes	1015	1504	1514	1727	1807	1821	2019	-
38	Plymouth	Yes	1705	1905	-	-	-	-	-	-
39	Puritan	Yes	1242	-	-	-	-	-	-	-
40	Russell	Yes	1214	1412	-	-	-	-	-	-
41	Schaefer	Yes	1033	1234	-	-	-	-	-	-
42	Mid-City Loop	Yes	1802		-	-	-	-	-	-
43	School Craft	Yes	1532	1723	-	-	-	-	-	-
46	Southfield	Yes	1819	1920	-	-	-	-	-	-
47	Tireman	Yes	1425	-	-	-	-	-	-	-
52	Chene	Yes	1407	1508	1001	-	-	-	-	-
54	Wyoming	Yes	1031	-	-	-	-	-	-	-
60	Evergreen	Yes	1710	1715	1037	1233	-	-	-	-
67	Cadillac/Harper	Yes	1407	1508	1001	-	-	-	-	-
68	Chalmers	Yes	1908	2007	1002	-	-	-	-	-

Source: DDOT Service Development and Scheduling Division

Vehicle Assignment Results:

Vehicle Assignment Monitoring was conducted on August 1, 2022 during the peak period of 6:00 AM to 9:00 AM. Table 5 above shows the Daily Vehicle Assignment report revealed vehicles of all type and ages were placed on minority routes throughout DDOT's service area. The 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. Routes 19-Fort and 23-Hamilton/John R were utilized in an interline process. Coaches 1029, 1405 & 1812 are assigned on both routes during the same period. Route 42-Mid City Loop is a one-directional, clock-wise route that connects neighborhoods in the Wayne State University and Detroit Medical Center. This route begins and ends in Highland Park and only one coach is assigned to this route. Only one vehicle was assigned to 39-Puritan, 47-Tireman and 54-Wyoming routes during the peak period.

Summary of Monitoring Results

A summary of the results of each evaluation is shown in Table 6 below. 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

The FTA Circular Title VI Circular 4702.1B states, "Transit providers are required to monitor their service standards and policies and shall brief and obtain approval from the transit provider's policy-making officials, generally the Board of Directors or appropriate governing entity responsible for policy decisions regarding the results of the monitoring program."

DDOT's Office of Compliance assessed its service standards compared to service provided in August 2022. The assessment found that there was no disparate impact to minority populations in any of DDOT's current service standards and polices. This service standard monitoring report is submitted for your considerations, awareness, and approval.

I, the Detroit Department of Transportation Executive Director of Transit, hereby acknowledge the receipt and approve DDOT's 2022 Title VI Service Standards Monitoring Results Report.

C. M. Oglesby 12/21/22

C. Mikel Oglesby, Executive Director **Date**