



# MEMORANDUM

DATE: March 2, 2022  
TO: ATC Board of Directors  
FROM: Martin Barna, Director of Planning & Marketing  
SUBJECT: **FTA Title VI Standards & Monitoring Results**

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## Introduction

The following memorandum presents the findings of an initial review of ATC/DASH fixed-route bus service and passenger amenities based on the proposed “DASH Title VI Service Standards & Policies”, which were presented to the ATC Board on February 9, 2022 and will be considered for adoption on March 9, 2022. The findings in this memo are intended to provide additional information about the proposed Title VI Service Standards & Policies to help inform any feedback from the ATC Board, community groups, or members of the public.

As outlined in Title VI Circular 4702.1B and Environmental Justice Circular 4703.1, the Federal Transit Administration (FTA) requires that all fixed route transit providers establish and monitor a set of service standards and policies that can be used to measure system performance and ensure that transit services are being provided in a fair and equitable manner. These standards apply to all DASH bus service and passenger facilities.

For a full summary of the monitoring process methodology and data requirements, please review DASH Title VI Service Standards & Policies document.

**Based on the findings summarized by this memo, DASH staff finds no instances in which fixed-route services or passenger amenities are being provided in an unfair or inequitable manner.**

## Title VI Service Standards

In accordance with FTA Title VI requirements, ATC/DASH shall regularly monitor the performance of its bus routes relative to system-wide service standards for the following indicators to ensure that minority and non-minority routes are being operated in a fair and equitable manner:

- Vehicle Load;
- Vehicle Headways;
- On-Time Performance; and
- Service Availability

Any significant service deficiencies identified through this process must be evaluated further to determine the extent to which minorities are affected. If the negative effect on minority persons is proportionally higher than the effect on non-minority persons, additional steps may be necessary to address or mitigate any impacts that might result from the discrepancy.

## Route Categories

In order to develop appropriate service standards for the different types of routes, each DASH bus line is classified with a route category and as a “minority” or “non-minority” route. These classifications are used to identify appropriate service standards for each route category and to compare the operating characteristics of “minority” routes to “non-minority” routes to ensure that service is being provided in an equitable manner.

A summary of the route categories and “minority” classifications are provided in Tables 1 and 2 below. Maps depicting the route categories and classifications are included in Appendix A.

**Table 1 – DASH Route Classifications**

| <b>Route Category</b> | <b>Minority</b> | <b>Non-Minority</b> | <b>Total</b> | <b>Percent</b> |
|-----------------------|-----------------|---------------------|--------------|----------------|
| Frequent              | 2               | 1                   | 3            | 27%            |
| Local                 | 2               | 2                   | 4            | 36%            |
| Commuter              | 1               | 2                   | 3            | 27%            |
| Trolley               | 0               | 1                   | 1            | 9%             |
| <b>Total</b>          | <b>5</b>        | <b>6</b>            | <b>11</b>    | <b>100%</b>    |
| <i>Percent</i>        | <i>45%</i>      | <i>55%</i>          | <i>100%</i>  |                |

**Table 2 – DASH Route Classifications by Route**

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| <b>Route</b> | <b>Name</b>                                             | <b>Route Category</b> | <b>Minority Route?</b> |
|--------------|---------------------------------------------------------|-----------------------|------------------------|
| 30           | Van Dorn Metro - Braddock Road Metro via Duke Street    | Local                 | Minority               |
| 31           | NVCC-Braddock Road Metro via King Street                | Frequent              | Non-Minority           |
| 32           | Landmark Mall - King Street Metro via Eisenhower Avenue | Local                 | Minority               |
| 33           | Potomac Yard - King Street Metro via Del Ray            | Local                 | Non-Minority           |
| 34           | Braddock Road Metro - Lee Center via City Hall          | Local                 | Non-Minority           |
| 35           | Van Dorn Metro - Pentagon via West End                  | Frequent              | Minority               |
| 36A/B        | Mark Center - Potomac Yard via Shirlington              | Frequent              | Minority               |
| 102          | Mark Center - King Street Metro via Seminary Road       | Commuter              | Minority               |
| 103          | Braddock Road Metro - Pentagon via Parkfairfax          | Commuter              | Non-Minority           |
| 104          | Braddock Road Metro - Pentagon via Parkfairfax          | Commuter              | Non-Minority           |
| KST          | King Street Trolley                                     | Trolley               | Non-Minority           |

## Systemwide Service Standards

The following sections outline the four primary service indicators that will be used to monitor ATC/DASH bus lines. Each standard is set based on the route categories listed above and compares the performance of minority routes against those of non-minority routes to ensure that DASH service is being operated in an equitable manner.

The ridership, schedule, and on-time performance data included below is based on system performance during November and December 2021. These months were selected as a representative sample of system performance in light of COVID recovery trends and the introduction of the New DASH Network and fare-free operations in September 2021. For purposes of this analysis, weekday “peak” periods are generally defined as 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM.

For more information on the standards included below and the FTA requirements for monitoring, please review the “DASH Title VI Service Standards & Policies” document.

## Vehicle Loads

Vehicle loads are generally shown as a ratio of passengers to the total number of seats on the vehicle. A vehicle load of 0.5 indicates that half of the available seats are occupied. A vehicle load of 1.2 indicates that all available seats are occupied, and that there is an excess of passengers who are likely having to stand in the aisle. Vehicle load factors are typically measured as the maximum or “peak” vehicle load on a given trip and the average of multiple trips on the same route or group of routes.

A full summary of the peak load factors by route category is provided in Table 3 below.

**Table 3 – DASH Peak Load Factor by Route Category & Time Period**

| Route Designations (Line #'s)  | Average Peak Load Factor (Max Load/Seated Capacity) |                    |         |
|--------------------------------|-----------------------------------------------------|--------------------|---------|
|                                | Weekday (Peak)                                      | Weekday (Off-Peak) | Weekend |
|                                |                                                     |                    |         |
| Frequent (Standard)            | 1.2                                                 | 1.0                | 1.0     |
| Minority Routes (35, 36A/B)    | 0.3                                                 | 0.2                | 0.2     |
| Non-Minority Routes (31)       | 0.2                                                 | 0.2                | 0.2     |
|                                |                                                     |                    |         |
|                                |                                                     |                    |         |
| Local (Standard)               | 1.2                                                 | 1.0                | 1.0     |
| Minority Routes (30, 32)       | 0.2                                                 | 0.3                | 0.3     |
| Non-Minority Routes (33, 34)   | 0.2                                                 | 0.2                | 0.2     |
|                                |                                                     |                    |         |
|                                |                                                     |                    |         |
| Commuter (Standard)            | 1.0                                                 | 1.0                | -       |
| Minority Routes (102)          | 0.2                                                 | 0.2                | -       |
| Non-Minority Routes (103, 104) | 0.1                                                 | -                  | -       |
|                                |                                                     |                    |         |
|                                |                                                     |                    |         |
| Trolley (Standard)*            | 1.5                                                 | 1.5                | 1.5     |
| Minority Routes (N/A)          | -                                                   | -                  | -       |
| Non-Minority Routes (KST)*     | 0.6                                                 | 0.5                | 0.7     |
|                                |                                                     |                    |         |

\*Trolley does not typically operate during AM peak periods or on weekends before 11:00 AM.

The peak vehicle load data shows that no routes are operating near the peak load factor standards of 1.0 or above. This is likely due to the reduced ridership that has occurred during the COVID pandemic. In most cases, the “minority” routes have slightly higher peak load factors than the “non-minority” counterparts due to their higher ridership, but none of the minority routes are in danger of frequent overcrowding.

## Vehicle Headways

Vehicle headways measure the average amount of time (in minutes) between scheduled trips in the same direction on the same route. For example, the frequent routes shown below are scheduled to run every 15 minutes or better all day, seven days per week.

A full summary of the vehicle headways by route category is provided in Table 4 below.

**Table 4 – Vehicle Headways by Route Category & Time Period**

| Route Designations (Line #'s)         | Vehicle Headways (minutes between scheduled trips) |                    |         |
|---------------------------------------|----------------------------------------------------|--------------------|---------|
|                                       | Weekday (Peak)                                     | Weekday (Off-Peak) | Weekend |
| Frequent (Standard)                   | 15                                                 | 15                 | 15      |
| <i>Minority Routes (35, 36A/B)</i>    | 10-15                                              | 10-15              | 15      |
| <i>Non-Minority Routes (31)</i>       | 10                                                 | 15                 | 15      |
|                                       |                                                    |                    |         |
|                                       |                                                    |                    |         |
| Local (Standard)                      | 30                                                 | 60                 | 60      |
| <i>Minority Routes (30, 32)</i>       | 10-30                                              | 30-60              | 30-60   |
| <i>Non-Minority Routes (33, 34)</i>   | 30                                                 | 30-60              | 30-60   |
|                                       |                                                    |                    |         |
|                                       |                                                    |                    |         |
| Commuter (Standard)                   | 30                                                 | 60                 | -       |
| <i>Minority Routes (102)</i>          | 30                                                 | 60                 | -       |
| <i>Non-Minority Routes (103, 104)</i> | 30                                                 | -                  | -       |
|                                       |                                                    |                    |         |
|                                       |                                                    |                    |         |
| Trolley (Standard)*                   | 15                                                 | 15                 | 15      |
| <i>Minority Routes (N/A)</i>          | -                                                  | -                  | -       |
| <i>Non-Minority Routes (KST)*</i>     | 15                                                 | 15                 | 15      |
|                                       |                                                    |                    |         |

\*Trolley does not typically operate during AM peak periods or on weekends before 11:00 AM.

The vehicle headway data that is summarized above shows that all routes are currently meeting or exceeding the designated headway standards for their respective route categories. For the “Frequent” and “Local” route categories, the minority routes are operating with equivalent or better headways than the non-minority routes in the same category.

## On-Time Performance

On-Time performance measures the percentage of times across an entire trip or route that a bus arrives at a timepoint “on-time”. DASH defines “on-time” as no more than one minute prior to the scheduled arrival time and no more than five minutes late.

A full summary of on-time performance by route category is provided in Table 5 below.

**Table 5 – On-Time Performance Standards by Route Category & Time Period**

| Route Designations (Line #'s)         | On-Time Performance (%) |                    |         |
|---------------------------------------|-------------------------|--------------------|---------|
|                                       | Weekday (Peak)          | Weekday (Off-Peak) | Weekend |
| Frequent (Standard)                   | 85.0%                   | 85.0%              | 85.0%   |
| <i>Minority Routes (35, 36A/B)</i>    | 83.6%                   | 87.0%              | 87.4%   |
| <i>Non-Minority Routes (31)</i>       | 86.4%                   | 86.6%              | 80.3%   |
|                                       |                         |                    |         |
| Local (Standard)                      | 85.0%                   | 85.0%              | 85.0%   |
| <i>Minority Routes (30, 32)</i>       | 90.3%                   | 94.0%              | 88.5%   |
| <i>Non-Minority Routes (33, 34)</i>   | 90.4%                   | 94.1%              | 89.5%   |
|                                       |                         |                    |         |
| Commuter (Standard)                   | 85.0%                   | 85.0%              | -       |
| <i>Minority Routes (102)</i>          | 82.8%                   | 93.8%              | -       |
| <i>Non-Minority Routes (103, 104)</i> | 86.7%                   | -                  | -       |
|                                       |                         |                    |         |
| Trolley (Standard)*                   | 85.0%                   | 85.0%              | 85.0%   |
| <i>Minority Routes (N/A)</i>          | -                       | -                  | -       |
| <i>Non-Minority Routes (KST)*</i>     | 93.0%                   | 95.1%              | 91.4%   |
|                                       |                         |                    |         |

\*Trolley does not typically operate during AM peak periods or on weekends before 11:00 AM.

Based on the on-time percentage data provided above, most routes and route categories meet or exceed the 85 percent standard for on-time performance. Several routes fall below the 85 percent threshold for parts of the day, but none are consistently unreliable for the entire weekday or throughout the entire week. Most of the “minority” routes are running on time the same amount of time or more than the “non-minority” routes in their route categories.

The main exception to this is the frequent, minority route category, which has two routes that are only shown to operate “on-time” 84 percent of the time, compared to an 87 percent on-time performance for frequent, non-minority routes. The reason for this is that Line 35, which operates the most service of any route in the DASH system, runs on a “headway management” schedule in which buses do not have a public-facing schedule and are permitted to run early or late, as needed, to maintain consistent 10-minute headways. DASH will also monitor Line 102 on-time performance during weekday peaks to determine if any schedule adjustments are needed to improve reliability.

## Service Availability

The ATC/DASH approach to service availability is shaped largely by the Alexandria Transit Vision Plan ([www.dashbus.com/transitvision](http://www.dashbus.com/transitvision)). One of the key statistics that was used during the development of the Alexandria Transit Vision Plan was the percentages of city residents who live within ¼ mile of a bus stop with “frequent” bus service, and the percentage within ¼ mile of a bus stop with any bus service. This metric was also calculated for percentages of minority residents, low-income residents, senior residents and jobs. These percentages help to measure the availability of bus service - and the availability of useful, frequent, all-day service – to city residents.

A summary of Service Availability for each the demographic groups noted above is included as Table 6. Note that these values include both DASH and Metrobus routes within the City of Alexandria to accurately capture the degree to which residents are effectively served by public transit.

**Table 6 – Transit Service Availability for the City of Alexandria**

|                               | <b>Total within 1/4 mile of frequent bus service</b> | <b>% within 1/4 mile of frequent bus service</b> | <b>Total within 1/4 mile of any bus service</b> | <b>% within 1/4 mile of any bus service</b> |
|-------------------------------|------------------------------------------------------|--------------------------------------------------|-------------------------------------------------|---------------------------------------------|
| <b><i>System Standard</i></b> | -                                                    | <b>&gt;50%</b>                                   | -                                               | <b>&gt;90%</b>                              |
| All Residents                 | 114,150                                              | 73%                                              | 148,492                                         | 95%                                         |
| Minority                      | 13,046                                               | 81%                                              | 15,499                                          | 96%                                         |
| Low Income                    | 55,654                                               | 78%                                              | 68,389                                          | 96%                                         |
| Seniors (65 years+)           | 12,252                                               | 69%                                              | 16,639                                          | 94%                                         |
| Jobs                          | 55,518                                               | 73%                                              | 71,984                                          | 95%                                         |

The Service Availability data provided above shows that the City of Alexandria’s bus network does an exceptional job of providing frequent service to a large percentage of the community, particularly minority and low-income households. Nearly 3 out of every 4 city residents lives within close proximity of a bus stop with “frequent” service (15 minutes or better, all-day, seven days per week), while 95 percent of all residents have access to bus service. In terms of low income and minority communities, roughly 4 out of every 5 individuals are served by the frequent bus network, while 96% have access to any bus service. Prior to the launch of the City’s New DASH Network, fewer than 30 percent of residents had access to frequent, all-day service, including less than 25 percent of minority residents. These statistics demonstrate that the new bus network has significantly increased the number of residents with access to frequent, useful bus service while maintaining baseline service availability for the vast majority of city residents.

## Systemwide Service Policies

The following section is intended to provide insights into current vehicle assignment and passenger amenity distribution practices to ensure that they are not resulting in discrimination on the basis of race, color or national origin. Based on these maps and analyses, no discriminatory practices have been identified in the assignment of vehicles or the distribution of passenger amenities.

### *Vehicle Assignment*

The ATC/DASH bus fleet is comprised of roughly 100 buses in active revenue service. The DASH fleet operates out of the DASH William B. Hurd Maintenance & Operations Administration Facility, which is located at 3000 Business Center Drive in Alexandria, Virginia. The current fleet includes a mix of buses of varying lengths and propulsion types, which are shown in Table 7.

**Table 7 – Active DASH Bus Fleet (2022)**

| Vehicle ID's              | Year | Make             | Type         | Length | # of Vehicles |
|---------------------------|------|------------------|--------------|--------|---------------|
| 200-206                   | 2011 | Gillig           | Hybrid       | 35'    | 7             |
| 300-302                   | 2011 | Gillig           | Hybrid       | 40'    | 3             |
| 400-404                   | 2011 | Gillig (Trolley) | Hybrid       | 29'    | 5             |
| 207-211                   | 2012 | Gillig           | Hybrid       | 35'    | 5             |
| 303-307                   | 2012 | Gillig           | Hybrid       | 40'    | 5             |
| 212-216                   | 2014 | Gillig           | Hybrid       | 35'    | 5             |
| 308-309                   | 2014 | Gillig           | Hybrid       | 40'    | 2             |
| 217-229                   | 2015 | Gillig           | Hybrid       | 35'    | 13            |
| 405                       | 2015 | Gillig (Trolley) | Hybrid       | 35'    | 1             |
| 230-233                   | 2017 | Gillig           | Hybrid       | 35'    | 4             |
| 310-311                   | 2017 | Gillig           | Hybrid       | 40'    | 2             |
| 501-514                   | 2018 | Gillig           | Clean Diesel | 35'    | 14            |
| 515-527                   | 2019 | New Flyer        | Clean Diesel | 35'    | 13            |
| 528-530                   | 2020 | New Flyer        | Clean Diesel | 35'    | 3             |
| 701-705                   | 2020 | New Flyer        | Clean Diesel | 40'    | 5             |
| 801-803                   | 2020 | New Flyer        | Electric     | 40'    | 3             |
| 804-806                   | 2021 | Proterra         | Electric     | 40'    | 3             |
| 807-810                   | 2021 | Proterra         | Electric     | 40'    | 4             |
| 901-904                   | 2021 | New Flyer        | Electric     | 60'    | 4             |
| <b>TOTAL ACTIVE FLEET</b> |      |                  |              |        | <b>101</b>    |

Vehicle Assignment refers to the process by which transit vehicles are assigned to routes for revenue service. A summary of the ATC/DASH Vehicle Assignment Process is included below:

- DASH Operations staff typically assign buses at random, based on fleet availability at the time when a bus is scheduled to pull out. In most instances, whichever bus is most accessible or near the front of the garage is used for pullout.

- DASH employs a significant amount of “interlining”, which is a vehicle blocking strategy whereby a single bus and operator will rotate through multiple routes during the course of the day to maximize operating cost efficiency. In addition to lowering operating costs, this approach also results in buses being rotated through the system in a more fair and equitable manner.
- Exceptions to these vehicle assignment policies are employed for several routes with increased ridership or specific operating or branding constraints. Examples include:
  - Dispatchers typically avoid assigning the larger, 40- and 60-foot buses to routes that operate on narrow streets or tight turns, including those on Lines 36A/B, 103 and 104;
  - Dispatchers try to assign these larger buses to routes with higher ridership that may be more susceptible to overcrowding. These high-ridership routes include Lines 30 and 35 in West Alexandria, which has a higher percentage of low income and minority residents than the rest of the service area.
  - The King Street Trolley service is also operated with a dedicated sub-fleet of six buses that have been equipped with a custom livery package that emulates historic trolley design features. These trolley buses are used exclusively on the King Street Trolley.

ATC/DASH maintains extremely high safety standards and closely monitors the age and condition of its vehicles to determine when repairs are needed and when the buses are due for replacement. Buses are typically replaced at the end of their useful 12-year lifespan in accordance with the ATC/DASH Fleet Replacement Plan. DASH has a comprehensive Preventive Maintenance (PM) program which outlines regular maintenance procedures that are performed to ensure a high level of vehicle reliability.

The oldest vehicles in the active DASH revenue fleet date were manufactured in 2011, and the newest were delivered in 2021. The average age of the fleet is 5.7 years old, which is less than half of the typical 12-year lifespan. Based on a random sampling of bus utilization from December 2021, the average age of the buses used on minority routes is 5.5 years, while the average age of the buses used on non-minority routes is 5.8 years. This finding indicates that buses are being used in a fair and a equitable manner.

## Transit Amenities

The City of Alexandria provides a wide array of transit amenities such as bus shelters, benches, trash cans, lighting, and real-time bus arrival displays. These amenities are distributed throughout the service area based on ridership data, staff analysis, funding opportunities, development conditions and customer requests. General policies for the distribution of bus shelters, benches, trash cans, lighting fixtures and posted schedule information are outlined below. ATC/DASH and City staff monitor the locations of all transit amenities to ensure that they are distributed equitably.

**Table 8 – City of Alexandria Bus Amenities in Minority Areas**

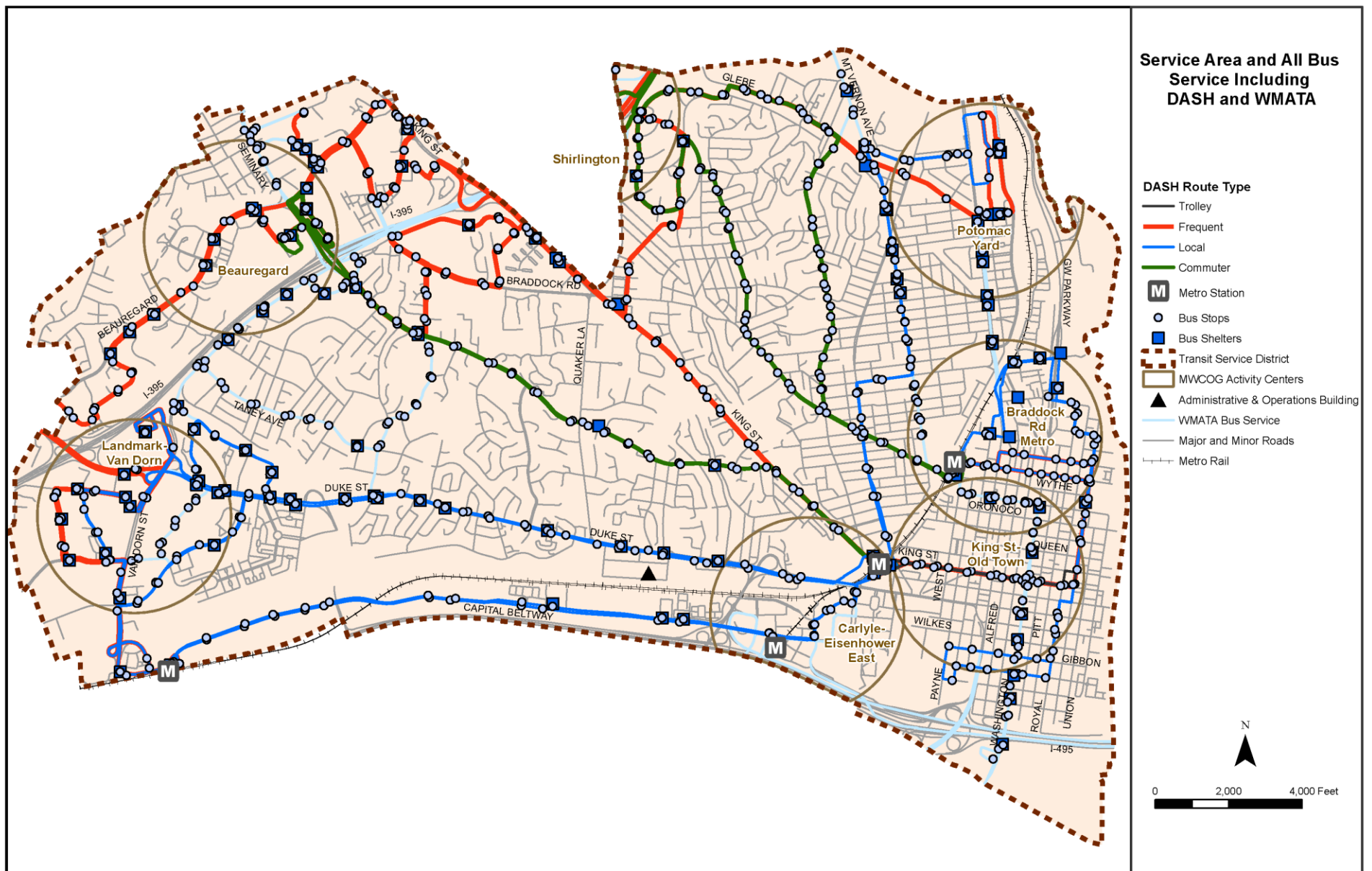
|                        | Minority Areas | Non-Minority Areas | Totals     | % in Minority Areas |
|------------------------|----------------|--------------------|------------|---------------------|
| Bus Shelters           | 49             | 69                 | 118        | 42%                 |
| Benches                | 60             | 98                 | 158        | 38%                 |
| Trash Cans             | 93             | 142                | 235        | 40%                 |
| Real-Time Display      | 30             | 32                 | 62         | 48%                 |
| <b>Total Bus Stops</b> | <b>308</b>     | <b>525</b>         | <b>833</b> | <b>37%</b>          |

As shown in Table 8, roughly 37 percent of bus stops are in census block groups that are below the citywide average minority percentage. By comparison, 42 percent of bus shelters are located in minority communities. Similarly, 48 percent of real-time information displays have been deployed to areas with higher concentrations of minority populations. Additional maps depicting the locations of passenger amenities are provided in Appendix A. These maps and tables indicate that passenger amenities are distributed in an equitable manner.

## **Appendix A**

### Title VI Demographic & Service Profile Maps

Figure A1 – City of Alexandria Bus Service & Passenger Amenities



**Figure A2 – DASH “Minority” Route Classifications & Minority Populations**

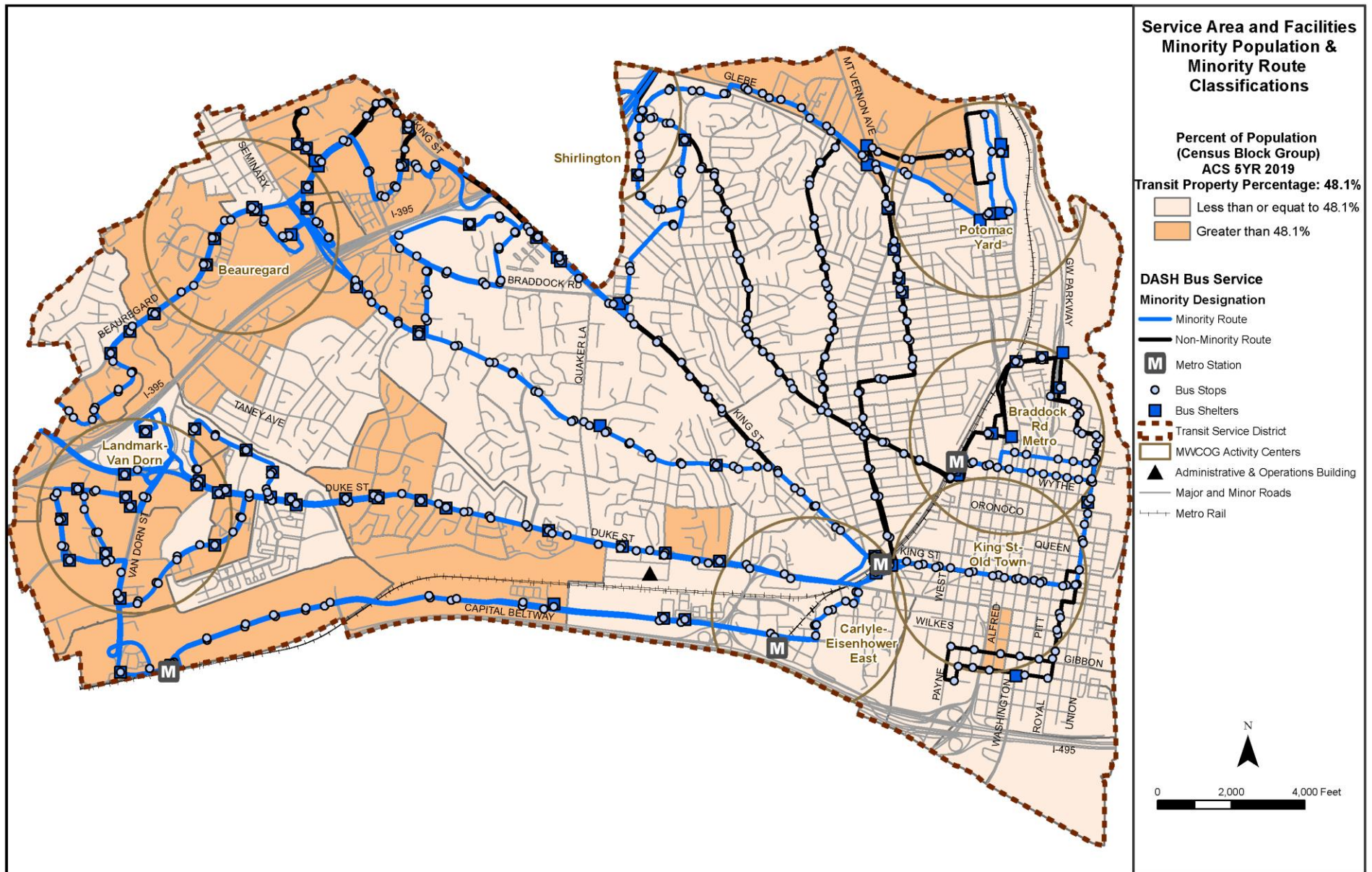
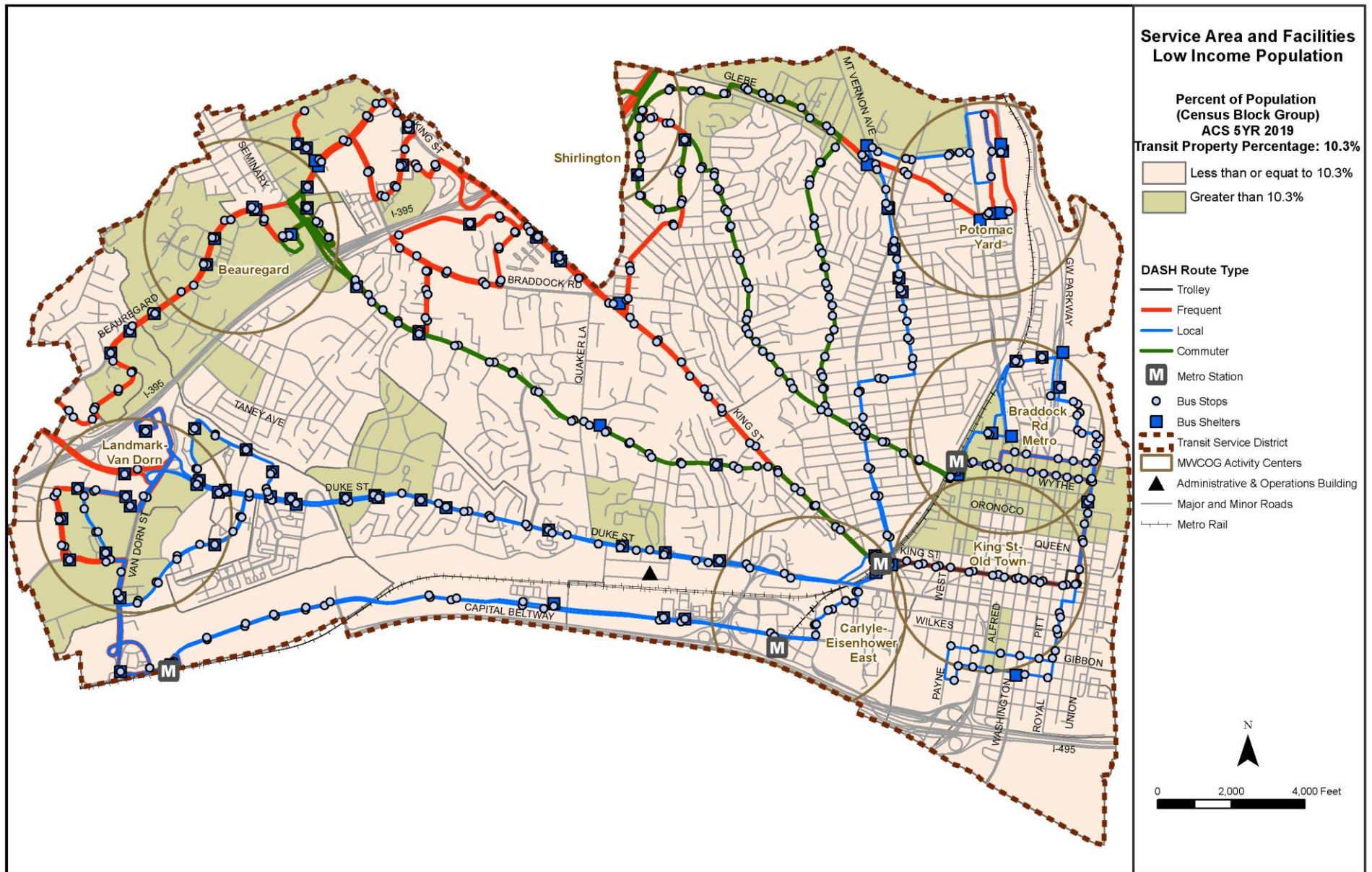
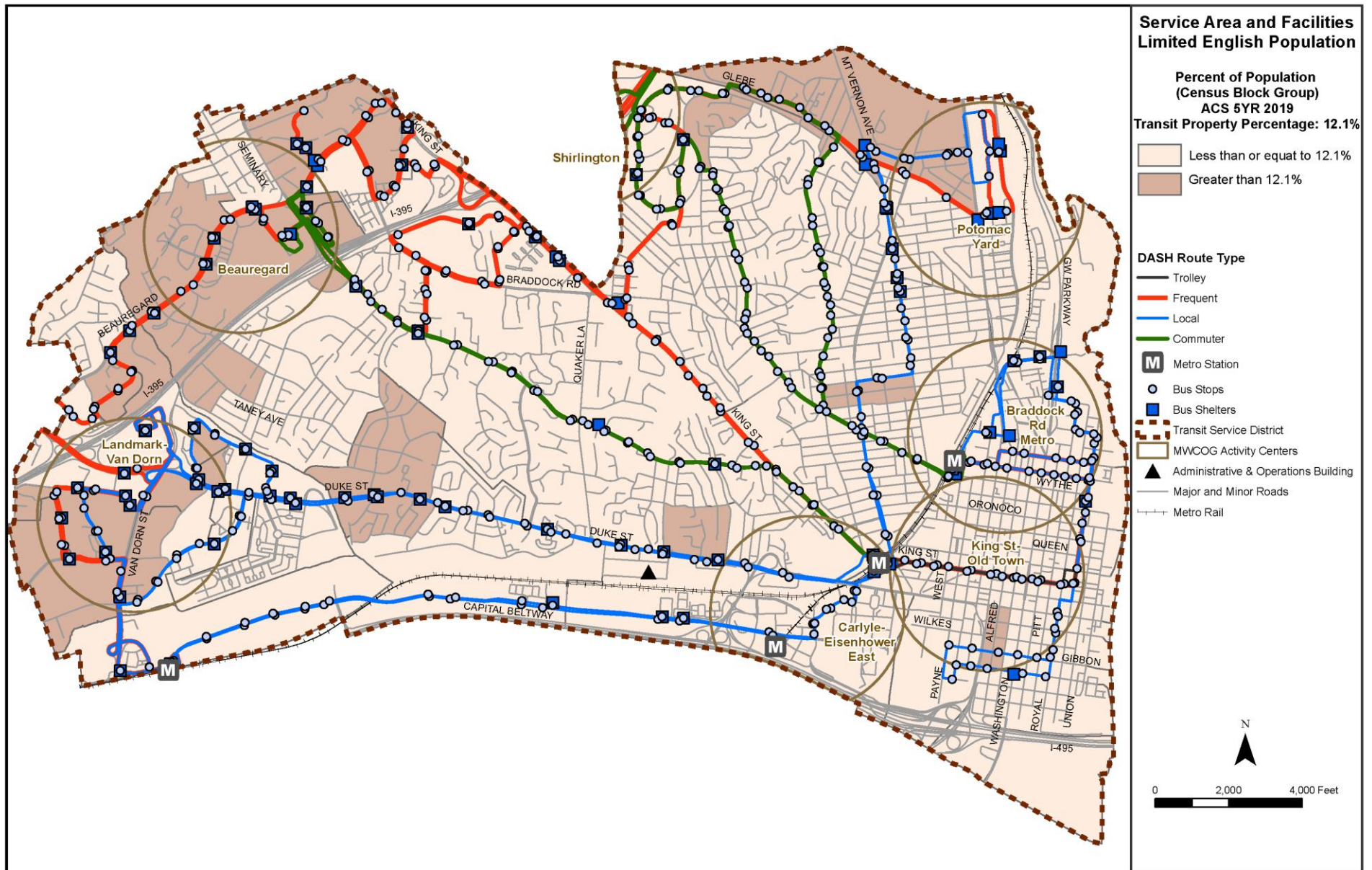


Figure A3 –Low Income Populations & DASH Bus Service



**Figure A4 –Limited English Proficiency (LEP) Populations & DASH Bus Service**



**Figure A5 – City of Alexandria Bus Passenger Amenities & Minority Populations**

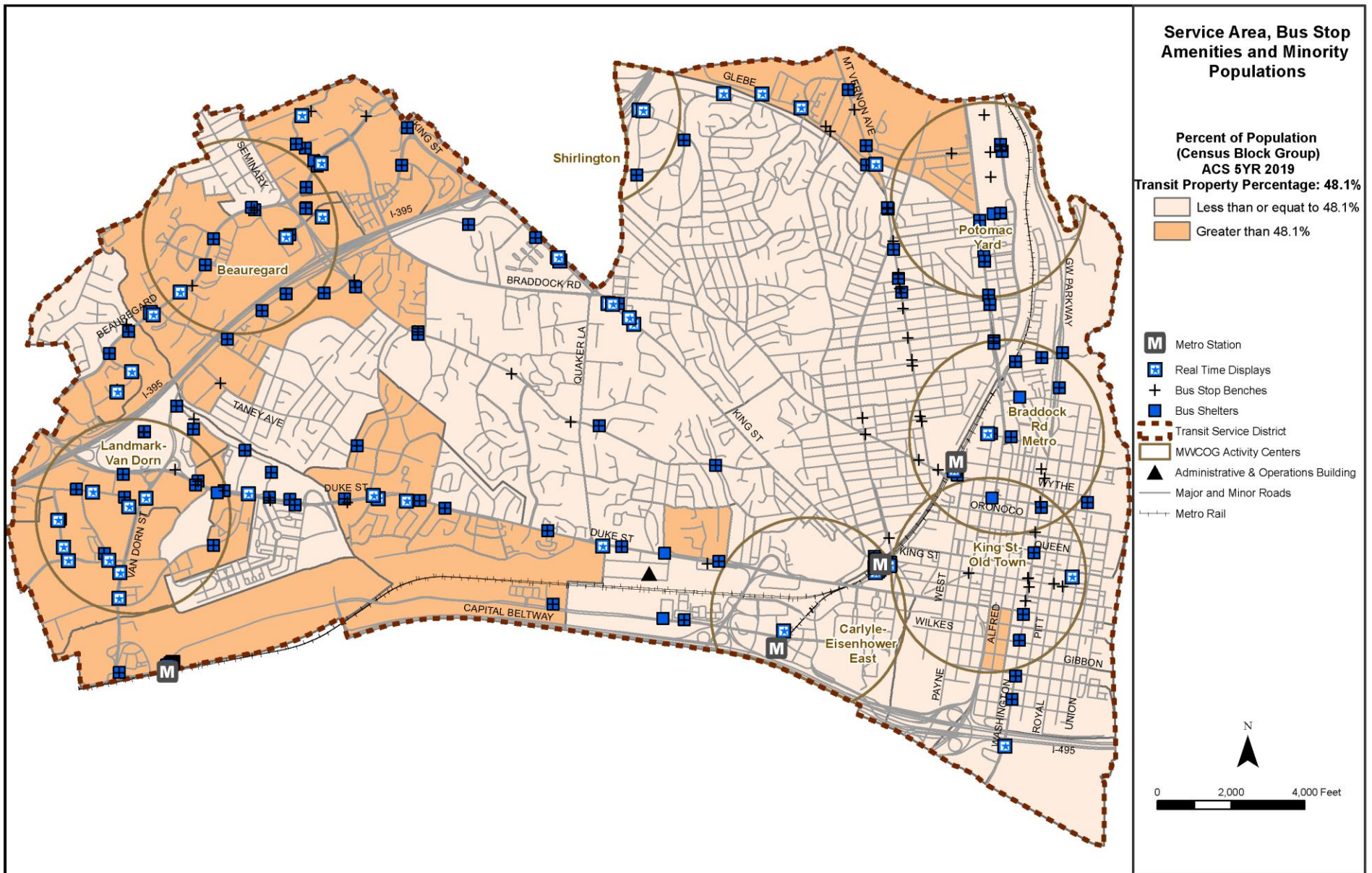


Figure A6 – City of Alexandria Bus Passenger Amenities & Low-Income Populations

