Title VI Fixed Facility Equity Analysis
Kirk Division Battery Electric Bus Pilot

December 7, 2022
I have received, considered, and approve the MDOT Maryland Transit Administration’s Title VI Fixed Facility Analysis for the Kirk Division Battery Electric Bus Pilot Project, December 7, 2022.

Holly Arnold, Administrator
MDOT Maryland Transit Administration

Digitally signed by
Holly Arnold
Date: 2022.12.13

12/13/2022
Date
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1.0 Conclusion Summary

The Maryland Department of Transportation – Maryland Transit Administration (MDOT MTA) is in the process of converting its bus fleet to zero-emissions vehicles (ZEVs). This conversion is driven in part by the 2030 Greenhouse Gas Emissions Reduction Act\(^1\), a 2009 Maryland law that set a goal of reducing the state’s greenhouse gas emissions by fifty percent (50\%) by 2030, and partly by the Zero-Emission Bus Transition Act\(^2\), which set a goal to transition MDOT MTA’s fleet to 100 percent zero-emission buses.

In fiscal year 2019, the MDOT MTA was awarded a grant through the Federal Transit Administration’s Low or No Emission Vehicle Program to implement a battery-electric bus pilot program that will include seven buses and five charging units. This will provide a test for a small number of battery-electric buses for MDOT MTA to learn best practices.

To allow for charging of the seven-pilot battery-electric buses, some modifications must be made to the western side of the Kirk Division’s Transportation and Storage Building. Infrastructure modifications include a new utility pole, two underground power supply conduits, a transformer, a concrete pad, a new driveway and electrical cabinets.

In accordance with FTA Circular 4702.1B, an equity analysis has been performed to determine whether the proposed improvements disproportionately impact minority or low-income households. In performing the analysis, demographics of Baltimore City, the Kirk service area, defined as census block groups within a three-quarter mile (0.75-mi) radius of the Kirk Division, as well as the demographics of the Core Bus service area, defined by MDOT MTA as each census block group within a three-quarter mile (0.75-mi) radius of a core bus stop, were analyzed.

A summary of land-uses surrounding the Kirk Division is also provided. Most of the land-use surrounding the Kirk Division is industrial, with some commercial uses along 25\textsuperscript{th} Street, and residential uses located west and southwest of the Kirk Division.

The Title VI Facility Equity Analysis for Kirk Division took into consideration the planned facility improvements to accommodate the battery-electric bus pilot program and the potential impact to the surrounding community. The planned improvements related to the battery-electric bus pilot program are minimal, with no changes planned that would negatively affect the community, such as changes to traffic movement, employee counts or routes as a result of this project. Therefore, no findings of disparate impact to minority communities or disproportional burden to low-income households were found as related to the facility upgrade at the Kirk Division for the pilot battery-electric bus facility improvements.

\(^1\) S.B. 323. 2016 Legislative Session. 436\textsuperscript{th} General Assemb., (MD. 2016). mde.maryland.gov/GGRA
2.0 Title VI Fixed Facility Equity Analysis Requirements

2.1 Federal Requirements

The Federal Transit Administration (FTA) requires that entities receiving federal funds perform an analysis of impacts on minority and low-income communities stemming from improvements or changes made to fixed facilities such as bus depots, maintenance garages or operations centers. According to FTA Circular 4702.1B, the Title VI Analysis aims to ensure that the level and quality of public transportation service is provided in a non-discriminatory manner; promotes full and fair participation in public transportation decision-making without regard to race, color, or national origin; and ensures meaningful access to transit-related programs and activities by persons with limited English proficiency.

FTA's Title VI Requirements and Guidelines for Federal Transit Administration Recipients requires “Title VI equity analysis during the planning stage with regard to where a project is located or sited to ensure that location is selected, and modifications are made without regard to race, color or national origin.”

2.2 MDOT MTA Title VI

The Maryland Department of Transportation – Maryland Transit Administration (MDOT MTA) has published guidance on its Title VI procedures in the Maryland Transit Administration 2020-2023 Title VI Program document. For the Title VI Fixed Facility Equity Analysis MDOT MTA’s program definitions of minority and low-income communities were used.

3.0 MDOT MTA Zero-Emission Bus Pilot Project

3.1 Background

In 2009, former Maryland Governor Martin O’Malley signed into law the 2030 Greenhouse Gas Emissions Reduction Act³, which set a goal of reducing the state’s greenhouse gas emissions by fifty percent (50%) by 2030.

On May 30, 2021, Maryland’s Zero-Emission Bus Transition Act⁴ was enacted with the goal of transitioning MDOT MTA’s fleet to 100 percent zero-emission buses and to assist the state in reaching the goals set forth in the 2030 Greenhouse Gas Emissions Reduction Act. The Zero-Emission Bus Transition Act prohibits MDOT MTA from purchasing buses that are not zero-emission.

The MDOT MTA was awarded a grant through the FTA’s Low or No Emission Vehicle Program to implement a battery-electric bus pilot program in 2019. The pilot will include four 40-foot battery-electric buses, three articulated 60-foot battery-electric buses and five charging units that will provide an opportunity for MDOT MTA to learn best practices that can be put to use in the further implementation of battery-electric buses.

3.2 Zero-Emission Transition Sequencing

To meet the goal of transitioning fifty percent of MDOT MTAs fleet to ZEB by 2030 MDOT MTA has created a bus division transition plan. The sequence to transition divisions to BEB is based on a practical approach to meet the schedule. Preparing a division for the operational and charging upgrades required for BEB service, needs to be

timed with BEB procurement and delivery. Long lead items such as sizing the upgrade of power based on the fleet size, physical modifications to support BEB charging, and how those modifications will occur based on the age and physical configuration of the division, was taken into consideration. In addition, service blocks at each division, which is the group of daily assignments for an individual bus, were analyzed to ensure a BEB may complete its route before needing a charge. MDOT MTA has made an effort to avoid in route charging to avert service disruptions which inconvenience riders.

The Kirk Division is a new modern facility with bus schedules having relatively short service blocks. Both the new facility and short service blocks were factors making it easier to retrofit Kirk Division for BEB charging. The pilot is planned to include five charging units for the operation of four 40-foot and three 60-foot articulated BEB. The pilot is intended to cover at least four seasons of operation and any experience gained from the pilot will be incorporated into MDOT MTAs BEB design program.

Northwest Division is planned to be the second division to be retrofitted for BEBs. It is anticipated this division’s retrofit may be more complex due to physical space constraints. It is planned to transition thirty-five to fifty percent of the fleet to operate with BEB, since routes originating from Northwest have longer service blocks.

Eastern Division is planned to be a purpose-built division redesigned to accommodate a one hundred percent BEB fleet. Complete rebuild of Eastern Division will necessitate the longest lead time and will be the third division retrofitted for BEB. The site is large enough to accommodate the reconstruction without property acquisitions.

Bush Division the largest of MDOT MTAs divisions has been strategically de-prioritized due to a combination of challenges. They include geographic site constraints, buildings with historical significance, and soil contamination.
4.0 Baltimore City and Kirk Division Demographics

4.1 Baltimore City

Between 2016 and 2020, Baltimore City’s population fell by 18,726 residents, three percent (3%) (Figure 1).

Figure 1: Baltimore City Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>621,000</td>
</tr>
<tr>
<td>2017</td>
<td>619,796</td>
</tr>
<tr>
<td>2018</td>
<td>614,700</td>
</tr>
<tr>
<td>2019</td>
<td>609,032</td>
</tr>
<tr>
<td>2020</td>
<td>602,274</td>
</tr>
</tbody>
</table>

Source: 2016-20 American Community Survey, Table DP05

Conversely, the population of Census Block Group 908.001, where the Kirk Division is located, increased by 150 residents or nearly forty percent (40%) (Figure 2).

Figure 2: Kirk Division Census Block Group Population

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>379</td>
</tr>
<tr>
<td>2017</td>
<td>509</td>
</tr>
<tr>
<td>2018</td>
<td>491</td>
</tr>
<tr>
<td>2019</td>
<td>554</td>
</tr>
<tr>
<td>2020</td>
<td>529</td>
</tr>
</tbody>
</table>

Source: 2016-20 American Community Survey, Table DP05
As defined by the Maryland Transit Administration 2020-2023 Title VI Program, minority populations are the total population identifying as a race other than White and/or Hispanic. MDOT MTA uses the U.S. Census Bureau’s American Community Survey, Table B03002 to define minority status.

Between 2016 and 2020, the City’s minority population shrank by about 8,800 residents, or approximately one and one-half percent (1.5%) (Figure 3), a similar trend to the overall population decline of approximately three percent (3%). The total percent minority population in Baltimore City in 2020 was seventy and twenty-eight one hundredths percent (70.28%).

*Figure 3: Baltimore City Population by Race*

Source: American Community Survey 5-Year Estimates, Table DP05
The minority population in the Kirk Division census block group grew by 150 residents during the same period. The total percent minority population in the Kirk census block group in 2020 was nearly ninety-six percent (95.6%) as seen in Figure 4. About twenty-five percent (25%) higher minority population compared to the minority population of Baltimore City.

Source: American Community Survey 5-Year Estimates, Table DP05

4.2 Kirk Division Demographics

The demographic analysis in this report examines the populations living within MDOT MTA’s Core Bus service area compared to that of the Kirk Division service area. Core Bus service area includes all the census block groups within a three-quarter mile (0.75 mi) radius of Core Bus stops. The Kirk Division service area includes all of the census block groups within a three-quarter mile (0.75 mi) radius of the Kirk Division.

MDOT MTA defines a minority block group for Core Bus Service as one in which the minority population is greater than or equal to fifty-three and thirty-nine one hundredths percent (53.39%). Low-income is defined as households with a low-income percentage greater than or equal to thirty-six and forty-nine one hundredths percent (36.49%), for Core Bus Service. Low-income for Core Bus Service is defined as households with an annual household income less than or equal to $44,999.

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As seen in **Table 1** the Kirk service area has a higher minority population compared to the Core Bus service area and is above the fifty-three and thirty-nine one hundredths percent (53.39%) threshold. Low-income population is greater in the Kirk service area compared to the Core Bus service area and is also above the thirty-six and forty-nine one hundredths (36.49%) measure for low-income.

**Table 1** Minority, Low-income and No Vehicle Households

<table>
<thead>
<tr>
<th></th>
<th>Minority</th>
<th>% Minority</th>
<th>Low-income</th>
<th>% Low-income</th>
<th>No vehicle</th>
<th>% No vehicle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kirk service area</td>
<td>24,853</td>
<td>79.96%</td>
<td>7,042</td>
<td>57.41%</td>
<td>4,935</td>
<td>40.20%</td>
</tr>
<tr>
<td>Core Bus service area</td>
<td>904,326</td>
<td>50.42%</td>
<td>232,369</td>
<td>33.74%</td>
<td>107,826</td>
<td>15.66%</td>
</tr>
</tbody>
</table>

The MDOT MTA Title VI Program recognizes that Baltimore’s northeast and northwest corridors, which includes the Kirk Division, have the highest concentration of minority block groups within the service area. In addition, low-income block groups are noted to be concentrated in central Baltimore City, including Kirk Division.
Figure 5 displays minority population by census block group in the Kirk Division service area.

Figure 5: Minority Population Within 0.75-mile of Kirk Division

Source: 2019 American Community Survey, Table B03002
Figure 6 applies the Core Bus service area minority population threshold of fifty-three and thirty-nine one hundredths percent (53.39%) to the Kirk Division service area, to identify block groups which are above or below the fifty-three and thirty-nine one hundredths percent (53.39%) threshold.

Figure 6: Kirk Minority Population Compared to Core Bus Service Area

Source: 2019 American Community Survey, Table B03002
Figure 7 displays low-income households by census block group in the Kirk Division service area.

Source: 2019 American Community Survey, Table B17010
Figure 8 compares the Core Bus service area low-income threshold of thirty-six and forty-nine one hundredths percent (36.49%) to the Kirk Division service area by block group.

Figure 8: Kirk Low-income Households Compared to Core Bus Service Area

Source: 2019 American Community Survey, Table B17010
Within a three-quarter mile (0.75-mi) radius of the Kirk Division, approximately forty percent (40.2%) of households do not have access to a motor vehicle (Figure 9).

*Figure 9: Vehicle Ownership Within 0.75-mile of Kirk Division*

Source: 2019 American Community Survey, Table B25044
Figure 10 shows Kirk Division census block groups where vehicle ownership is less than fifteen and six one hundredths percent (15.6%), the average rate within the Core Bus service area.

*Figure 10: Kirk Vehicle Ownership Compared to Core Bus Service Area*

Source: 2019 American Community Survey, Table B25044
5.0 Existing Conditions

5.1 Facility summary

The Kirk Division Transportation and Storage Building is located in northeast Baltimore and is bounded by Homewood Avenue to the northwest, Bonaparte Avenue to the northeast, Kirk Avenue to the southeast, and an alley and automotive repair facility to the southwest (Figure 11). The Transportation and Storage Building is where the planned pilot battery electric bus charging will occur. This facility underwent a $148 million renovation that was completed in 2021 and saw the replacement of the original facility, which was constructed in 1947. An environmental assessment of the renovation was performed, and a Finding of No Significant Impact was issued in April 2011. The new facility is completely enclosed, with buses entering the building where maintenance, fueling and washing is performed, and exiting upon completion. Dispatch, operator support, and training also take place at this facility. The new facility design has limited bus storage on a surface lot. The Kirk Division Maintenance Building is located across the street from the Transportation and Storage Building on Kirk Avenue.

Figure 11: Satellite Image of Kirk Transportation and Storage Facility

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5.2 Adjacent land-use

The adjacent land use to the Kirk Division Transportation and Storage Building includes a mix of industrial, commercial, and residential use (Figure 12). A commercial corridor stretches north of the site on either side of East 25th Street. Kirk Avenue, a portion of Bonaparte Avenue and Curtain Avenue are primarily industrial use. The area northeast of Homewood Avenue is residential use, as is the area to the southeast. The land-uses adjacent to the Kirk Division Transportation and Storage Building are primarily commercial and industrial, except for the small portion of residential along Homewood Avenue.

Figure 12: Land Use
6.0 Proposed Improvements

The planned facility improvements for the pilot battery electric bus charging will occur in the northwest corner of the Transportation and Storage Building. Figure 13 is a schematic plan of the exterior modifications to support the necessary charging and infrastructure for the pilot battery electric bus initiative.

The proposed improvements identified by number in the sketch (Figure 13) include:
1. A utility pole installed by BGE within the Homewood Avenue right-of-way
2. Underground power supply conduit connecting power from the BGE pole to the transformer
3. Transformer
4. Concrete pad, where transformer will be placed
5. Underground power supply conduit connecting the transformer to the electrical cabinet
6. Exterior of building mounted electrical cabinet to feed the interior charging stations

New Driveway – for vehicle access to maintain the transformer. Existing fence and gate will be closed at all times other than when vehicle access is needed.

Figure 13: Proposed Facility Improvements

Kirk Division
Transportation & Storage Bld.
Figure 14 is looking north towards the far corner of the Transportation and Storage Building where the upgrades are planned adjacent to the building.

Figure 14 East Side of Building Facing North

In the foreground of Figure 15 is the location for the planned improvements. The elevation at the face of the building is slightly lower than Homewood Avenue. The elevation change will act as a screen for the transformer.

Figure 15 Area of Planned Improvements
**Figure 16** is taken from Homewood Avenue looking north, with the Transportation and Storage Building located to the left. Two automotive repair businesses are located on the right of the image across the street from the MDOT MTA property. The new BGE utility pole will be located to the right of the existing streetlight, in the Homewood Avenue right of way.

*Figure 16 Homewood Avenue at Walpart Avenue*

### 7.0 Public Involvement

The MTA Title VI Program 2020-2023 document provides guidance on public outreach initiatives and states that projects warranting public participation efforts may include “a proposed service change, an ongoing or comprehensive planning initiative, or a general effort to obtain feedback on service from riders or prospective riders.”

Public outreach was not warranted for this project, as the improvements do not change the facility’s existing footprint, and are not anticipated to create additional, noise, traffic, or other burdens for the surrounding community.

### 8.0 Equity Analysis Findings

The Title VI Equity Analysis for Kirk Division took into consideration the planned facility improvements to accommodate the battery electric bus pilot program and the potential impact to the surrounding community. The planned improvements related to the battery electric bus pilot program are minimal, with no changes planned that would negatively affect the community, such as changes to traffic movement, employee counts or routes as a result of this project. In addition to the scale and siting of the improvements, this equity analysis took into account the surrounding land-uses, which are mostly industrial and commercial. The nearest residential use is located more than 200 feet away from the improvements off of Homewood Avenue, ensuring a reasonable buffer between the improvements and the nearest residences. Therefore, no findings of disparate impact to minority communities or disproportional burden to low-income households were found as related to the facility upgrade at the Kirk Division for the pilot battery electric bus facility improvements.