Loudoun County Transit

Title VI Service Equity Report

Fiscal Year 2018 Service Changes for Implementation July 2017

June 6, 2017

Prepared by:
Loudoun County Department of Transportation & Capital Infrastructure

with assistance from:
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Executive Summary

During Loudoun County’s budget process for Fiscal Year 2018 (FY 18), the Department of Management and Budget directed the Department of Transportation and Capital Infrastructure (DTCI) to reduce its transit budget request by approximately $814,000 to accommodate a transition in funding from gas tax revenue to general tax revenue. The approved FY 18 budget will go into effect July 1, 2017. As a means of meeting this budget reduction, DTCI evaluated operating costs ridership and overlapping bus service for routes on all service types: Local Fixed Route, Metro Connection, and Premium Long-Haul Commuter. Nine routes were identified for reconfiguration or elimination: Route 57 (Village At Leesburg), Route 62 (Ashburn Connector), Route 80 (Sugarland Run), Route 85 (Dulles South Express), Route 89X (Telos to Wiehle-Reston East), Route 86 (Ashburn Shuttle), Run 86 Mid-day (CFC/AN/Telos Shuttle), Run 102E (Telos/AN/CFC to Crystal City/Pentagon), and Run 800D Shadow (Friday Mid-day Overflow Bus and Dulles South & Brambleton Service).

The Federal Transit Administration (FTA) requires all transit providers that are located in an urbanized area of 200,000 or more people and operate 50 or more fixed route vehicles in peak service, to conduct a Title VI equity analysis prior to implementing fare changes or major service changes. The Federal statute for Title VI provides that “no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” Additionally, the FTA requires the integration of environmental justice principals into recipient’s public transportation decision-making process. Loudoun County is a recipient of FTA funds, in the form of a Transportation Infrastructure Finance and Innovation Act (TIFIA) loan for Metrorail expansion, and meets the thresholds for population and peak service operations.

When planning for Major Service Changes, DTCI must consider potential adverse effects. Loudoun County government is committed to providing high quality service to the public and holds among its values – treating all people equally and without prejudice. The Disparate Impact and Disproportionate Burden Policies adopted by Loudoun County establish statistical thresholds for comparing the impacts borne by minority populations and low-income households to those within the service area overall. These policies, which can be found on Page 3, were developed through a public decision-making process and were approved by the Board of Supervisors on June 7, 2016. Through conscientious evaluation, DTCI’s program goals avoid, minimize or mitigate adverse impacts where practicable.

Using the Major Service Change, Disparate Impact, and Disproportionate Burden Policies, DTCI concluded that the planned service changes for FY 18 do not result in a disparate impact or disproportionate burden to minority populations or low-income households. This conclusion is demonstrated in the Service Equity Analysis beginning on Page 11. The Service Equity Analysis compares the percentage of minority populations impacted by a Major Service Change to the Disparate Impact Threshold and compares the percentage of low-income households impacted by a Major Service Change to the Disproportionate Burden Threshold. Supplementing and supporting the Service Equity Analysis are descriptions of all bus routes planned for service changes, demographic maps, data sources, and methodology.
Data used in the service equity analysis came from the latest American Community Survey five-year estimates from 2011 to 2015. Demographic information for the service population was obtained from census blocks within one-quarter mile of bus stops or within three miles of park & ride lots. Maps of the routes overlaid on demographic information of the service area are provided for each Major Service Change planned for FY 18.

In accordance with FTA requirements and Loudoun County’s 2017-2020 Title VI Program for transit services, DTCI evaluated the nine bus routes that are planned to be modified or eliminated. Three Local Fixed-Route bus routes are planned to be restructured, resulting in a beneficial Major Service Change to Route 62 Ashburn Connector. Two Metrorail Connection routes will be eliminated, which both are considered as adverse Major Service Changes. The four Premium Long-Haul Commuter Bus Routes and Runs that are being eliminated are also considered adverse Major Service Changes. Descriptions of each route and the proposed changes begin on Page 7.

With the exception of the elimination of Route 85 Dulles Express, most of the passengers affected by these route eliminations will be able to continue using the system by driving to a different Park & Ride Lot. Route 85 however is the only route serving Stone Springs Hospital. Eliminating Route 85 would also eliminate the only Loudoun County paratransit service in the southern part of the County.

Table 1 represents the change in weekly revenue miles and weekly revenue hours for each proposed service change. Service changes that meet the criteria for Major Service Changes were further analyzed for their impact on minority and low-income populations. Any change in service that adds or eliminates more than 25% of the route’s weekly revenue miles or weekly revenue hours is considered a Major Service Change.
Table 1. FY 18 Service Changes

<table>
<thead>
<tr>
<th>Bus Route</th>
<th>Route Name</th>
<th>Type of Change</th>
<th>EXISTING</th>
<th>SCHEDULED</th>
<th>MAJOR SERVICE CHANGE TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Weekly</td>
<td>Weekly</td>
<td>Change in Revenue Miles</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Revenue</td>
<td>Revenue</td>
<td>Change in Revenue Hours</td>
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<td></td>
<td></td>
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<td>Miles</td>
<td>Hours</td>
<td>Required</td>
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<tr>
<td>57</td>
<td>Village At Leesburg</td>
<td>R</td>
<td>727.2</td>
<td>71</td>
<td>-8.9% 0.0% No</td>
</tr>
<tr>
<td>62</td>
<td>Ashburn Connector</td>
<td>R</td>
<td>951</td>
<td>60.4</td>
<td>26.5% 0.0% Yes</td>
</tr>
<tr>
<td>80</td>
<td>Sugarland Run</td>
<td>R</td>
<td>876</td>
<td>60</td>
<td>-3.6% 0.0% No</td>
</tr>
<tr>
<td>85</td>
<td>Dulles South Express</td>
<td>E</td>
<td>1580</td>
<td>76.9</td>
<td>-100% -100% Yes</td>
</tr>
<tr>
<td>89X</td>
<td>Telos to Wiehle-Reston East</td>
<td>E</td>
<td>3967</td>
<td>51.4</td>
<td>-100% -100% Yes</td>
</tr>
<tr>
<td>86</td>
<td>Ashburn Shuttle</td>
<td>E</td>
<td>954.14</td>
<td>34</td>
<td>-100% * -100% * Yes</td>
</tr>
<tr>
<td></td>
<td>Run 86 Mid-day CFC/AN/Telos Shuttle</td>
<td>E</td>
<td>57.5</td>
<td>11.25</td>
<td>-100% * -100% * Yes</td>
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<tr>
<td></td>
<td>Run 102E (5:12 AM) Telos/AN/CFC to Crystal City/ Pentagon</td>
<td>E</td>
<td>202</td>
<td>5.9</td>
<td>-100% -100% Yes</td>
</tr>
<tr>
<td></td>
<td>Run 800D Shadow</td>
<td>E</td>
<td>42.5</td>
<td>1.73</td>
<td>-100.0% -100.0% Yes</td>
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</tbody>
</table>

R = Reconfigure; E = Eliminate
* - free shuttle service does not generate fare revenue

Board of Supervisors’ Approval of Service Equity Analysis

In accordance with the Federal Transit Administration Circular 4702.1B, upon completion of a service or fare equity analysis, the transit provider shall brief its appropriate governing entity responsible for policy decisions regarding the service and/or fare change(s) and the associated equity impacts. The transit provider shall submit documentation with the Title VI Program as evidence of the consideration, awareness, and approval of the analysis.

Loudoun County Transit is managed by Loudoun County’s Department of Transportation and Capital Infrastructure (DTCI). The Loudoun County Board of Supervisors (Board) is the governing entity responsible for policy decisions regarding transit services. On June 6, 2017, DTCI presented the results of the service equity analysis to the Board at their regular business meeting. Documentation of the Board’s consideration, awareness, and approval of the analysis is provided in Figure 1.
At a business meeting of the Board of Supervisors of Loudoun County, Virginia, held in the County Government Center, Board of Supervisors Meeting Room, 1 Harrison Street, S.E., Leesburg, Virginia, on Tuesday, June 6, 2017 at 5:00 p.m.

IN RE: Title VI Service Equity Analysis for FY 2018 Transit Service Changes (Countywide)

Vice Chairman Buona moved that the Board of Supervisors acknowledge their awareness and consideration of the Service Equity Analysis for the FY 2018 Transit Service Changes, and approve the Service Equity Analysis presented within the June 6, 2017, Board of Supervisors Business Meeting Action Item.

Seconded by Supervisor Umstattl.

Voting on the Motion: Supervisors Buona, Letourneau, Meyer, Randall, Umstattl, and Volpe – Yes; None – No; Supervisors Baffington, Higgins, and Saines - Absent for the Vote.

A COPY TESTE:

[Signature]

DEPUTY CLERK TO THE LOUDOUN COUNTY
BOARD OF SUPERVISORS

(Item 6, Title VI Service Equity Analysis for FY 2018 Transit Service Changes)
Introduction
Loudoun County’s Department of Transportation & Capital Infrastructure with technical support from Foursquare Integrated Transportation Planning has prepared this Title VI Service Equity Report for the bus service changes planned to go into effect July 1, 2017 (Fiscal Year 2018). While this report provides the general public, the Loudoun County Board of Supervisors, and the Federal Transit Administration with general information about the scheduled service changes, the intention of this report is to analyze the service equity implications of Major Service Changes. Service equity, in this context, relates to ensuring that the level and quality of public transportation service is provided in a nondiscriminatory manner without regard to race, color or national origin.

The sections of this report provide Background Information with an overview of the regulatory requirement to consider adverse impacts of or burdens associated with service changes; the Loudoun County Transit Title VI Policies that define what levels of service modifications are classified as Major Service Changes and how to determine when a Disparate Impact or Disproportionate Burden are created; a description of the Proposed FY 2018 Service Changes with an overview of why the service changes are necessary; the Service Area Demographics with route maps relative to minority populations and low-income households; a Summary of Adverse and Beneficial Service Changes – Local Fixed-Route Bus and Premium Long-Haul Commuter Bus; and the Analytical Framework with data sources and methodology.

Background Information
In December 2014, Loudoun County accepted a low-interest loan of $195 million through the U.S. Department of Transportation’s Transportation Infrastructure Finance and Innovation Act (TIFIA). TIFIA funding is being used to help finance the County’s share of construction costs for the Dulles Corridor Metrorail Phase 2 project, which extends the Silver Line Metro into Loudoun County.

The Federal Transit Administration (FTA) requires all recipients of federal funding to ensure that their programs, policies and activities comply with U.S. Department of Transportation’s regulations under Title VI of the Civil Rights Act of 1964. FTA Circular 4702.1B, Title VI Requirements and Guidelines for Federal Transit Administration Recipients, specifies that all transit providers located in an urbanized area of 200,000 or more people and operating 50 or more fixed route vehicles in peak service, must conduct a Title VI equity analysis prior to implementing fare changes or service changes, including elimination of routes, creation of new routes, or modification to alignments, headways, or span of service of existing routes. The equity analysis is used to determine whether the proposed service change creates a disparate impact on minority populations or whether low-income households will bear a disproportion burden from the service change. According to the 2010 U.S. Census, the Washington, DC – VA – MD Urbanize Area extends into the eastern portion of Loudoun County. Loudoun County Transit meets the FTA criteria for requiring equity analyses.
In summary, the FTA Circular states that the analysis should include:

- A statement of the agency’s “major service change” policy and corresponding numerical standards along with a threshold for determining whether a major service change results in a “disparate impact” to minority populations or a “disproportionate burden” to low-income communities, as well as how the public was engaged in developing those policies across all transit modes.
- A clear explanation of how the proposed service change meets or exceeds the operator’s Major Service Change Policy.
- A description of the public engagement process for setting the Major Service Change Policy.
- Inclusion of a copy of the operator’s Board of Directors meeting minutes or a resolution demonstrating the Board of Supervisor’s consideration, awareness, and approval of the major service change policy, disparate impact policy, and disproportionate burden policy.
- An analysis that takes into effect any adverse effects related to a major service change. Demonstration that the operator has analyzed service between the existing and proposed service, and has considered the degree of adverse effects when planning service changes.
- Description of data and methodology used in service equity analysis.
- Overlay maps and tables showing how the proposed service changes would impact minority and low-income populations. If a disparate impact is found, the operator will clearly demonstrate substantial legitimate justification for the proposed service change and analysis of alternatives for disparate impacts or that they have sought to avoid, minimize, or mitigate the impacts of a finding of disproportionate burden.

A finding of disparate impacts or disproportionate burden does not mean necessarily that the service change cannot go into effect. If adverse impacts are found, the transit provider is obligated to analyze alternatives that would serve the same legitimate objectives but with less impact. In accordance with FTA guidelines, the transit provider shall provide a meaningful opportunity for public comment on any proposed mitigation measures, including the less discriminatory alternatives that may be available.

The results of the service equity analysis (and fare equity analyses if applicable) are to be included with Loudoun County’s Title VI Program along with evidence that the Loudoun County Board of Supervisors considered, was aware of, and approved the analysis. Loudoun County is currently required to update and submit its Title VI Program to the Federal Transit Administration at least every three years. This *Loudoun County Transit Title VI Service Equity Report for July 2017 Service Changes* will need to be included with the next triennial Title VI Program update, which is due to the FTA on December 1, 2019.
Loudoun County Transit Title VI Policies

In accordance with the Federal Transit Administration’s Title VI Requirements and Guidelines for Federal Transit Administration Recipients, Circular FTA C 4702.1B, dated October 1, 2012, and the Loudoun County 2017-2020 Title VI Program, approved by the Board of Supervisors on October 20, 2016, Loudoun County has established the following policies to evaluate service changes and their impact on minority and low-income populations.

Major Service Change Policy

The Major Service Change Policy establishes numerical standards used for comparing between the existing and proposed service in order to determine whether the change or modification exceeds the set threshold for which a Service Equity Analysis or Fare Equity Analysis must be conducted.

Loudoun County Transit’s (LCT) Title VI Program, defines a major service change as:

- Adding or eliminating a bus route.
- Any change in service on any individual bus route that would add or eliminate more than 25% of the route’s weekly revenue miles (the number of miles a bus operates while carrying paying passengers).
- Any change in service on any individual bus route that would add or eliminate more than 25% of the route’s weekly revenue hours (the number of hours a bus operates while carrying paying passengers).

Disparate Impact Policy

Disparate Impact refers to a facially neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin. Loudoun County has established a threshold for determining whether adverse effects that occur in the context of major service changes are borne disproportionately by minority populations.

For service reductions, a disparate impact occurs when the average fare or service change affects minority riders 15 percent or greater than non-minority riders. Loudoun County Transit applies the disparate impact policy uniformly to all major service changes, regardless of mode. These policies will be reviewed on a cumulative basis.

Datasets and techniques used to determine the percentages of minority and non-minority riders impacted by a service change are described on Page 16 within the Analytical Framework portion of the section on Service Equity Analysis for Major Service Changes.

Disproportionate Burden Policy

Disproportionate Burden refers to a neutral policy or practice that disproportionately affects low-income populations more than non-low-income populations. Loudoun County has established a threshold for determining whether adverse effects that occur in the context of major service changes are borne disproportionately by low-income populations.
For service reductions, a disproportionate burden occurs when the average fare or service change affects low-income riders 15 percent or greater than non-low-income riders. Loudoun County Transit applies the disproportionate burden policy uniformly to all major service changes, regardless of mode. These policies will be reviewed on a cumulative basis.

Datasets and techniques used to determine the percentages of low-income and non-low-income riders impacted by a service change are described on Page 16 within the Analytical Framework portion of the section on Service Equity Analysis for Major Service Changes.

**Public Engagement and Board of Supervisors’ Approval of Policies**

The established definitions and policies for Major Service Change, Disparate Impact, and Disproportionate Burden were developed through a public engagement process that took place from April 15, 2016, through May 16, 2016. LCT’s Title VI policy outreach efforts were implemented in coordination with the county’s public outreach for the update of the 2017-2022 Transit Development Plan. These outreach efforts included:

- Pop-Up Events (2);
- Public Workshops (5); and
- Online Outreach (with opportunities for submitting comments via email, paper mail, or online form).

On June 7, 2016, the Loudoun County Board of Supervisors approved (9-0) the Title VI policies for a Major Service Change, Disparate Impact, and Disproportionate Burden. Figure 2 is a copy of the Board of Supervisors’ vote of approval of the Major Service Change Policy, Disparate Impact Policy, and Disproportional Burden Policy.
At a business meeting of the Board of Supervisors of Loudoun County, Virginia, held in the County Government Center, Board of Supervisors’ Meeting Room, 1 Harrison Street, S.E., Leesburg, Virginia, on Tuesday, June 7, 2016 at 5:00 p.m.

IN RE: Title VI Policies for Transit Service (Countywide)

Vice Chairman Buona moved that the Board of Supervisors approve the Title VI policies for a major service change, disparate impact, and disproportional burden as shown on Attachment 1 to the June 7, 2016 Action Item.

Seconded by Supervisor Meyer.

Voting on the Motion: Supervisors Buffington, Buona, Higgins, Letourneau, Meyer, Randall, Saines, Umstattd and Volpe – Yes; None – No.

A COPY TESTE:

[Signature]
DEPUTY CLERK TO THE LOUDOUN COUNTY BOARD OF SUPERVISORS

(Item #7, Title VI Policies for Transit Service)
Proposed FY 2018 Service Changes

During the Loudoun County budget process for Fiscal Year 2018 (FY 18), the Department of Management and Budget directed the Department of Transportation & Capital Infrastructure (DTCI) to reduce the transit budget request by approximately $814,000. This budget reduction was intended to accommodate a transition from gas tax funding to general tax revenue funding. The approved FY 18 budget will go into effect July 1, 2017.

As a means of meeting this budget reduction, DTCI evaluated operating costs, ridership, and overlapping service for all service types: Local Fixed-Route Bus, Metro Connection, and Premium Long-Haul Commuter. Nine routes were identified for reconfiguration or elimination: Routes 57, 62, 80, 85, 86, 86 mid-day, 89X, 102E, and 800D Shadow. A description of each route is provided below, after the results of the Major Service Change test.

Determination of Major Service Change

In compliance with Loudoun County’s 2017-2020 Title VI Program, each route proposed for reconfiguration or elimination was evaluated against the numerical thresholds established in the Major Service Change Policy. Service Changes that qualify as a Major Service Change were further analyzed for Service Equity impacts.

In accordance with the Major Service Change Policy, any route elimination or reduction of more than 25% of the route’s revenue miles or revenue hours was considered as a Major Service Change. All service changes that met or exceeded the Major Service Change Policy were further analyzed for their impact on minority and low-income populations. Both beneficial and adverse impacts of the service change were evaluated.

Table 1 lists all routes planned for service changes for FY 18. The table provides a comparison of the existing weekly revenue miles and weekly revenue hours versus the scheduled miles and hours as a result of the route’s reconfiguration or elimination.
Route Descriptions & Planned Service Changes

A description of each route that is planned to be eliminated or modified is provided along with a summary of the scheduled modification. Route changes that meet the classification of Major Service Change are underlined and the respective service equity analysis follows in the next section.

**Route 57 (Village At Leesburg)** operates Monday through Friday, 7 AM – 7 PM, and Saturday, 10 AM – 9 PM, within the Town of Leesburg between the downtown (Loudoun County Government Center, Market Street) and the southeast limits of town (Wegmans, Village at Leesburg).

Due to the opening of a new segment of Russell Branch Parkway between Battlefield Parkway and the Village at Leesburg, the bus will no longer have to make a U-turn on Russell Branch Parkway at Village Market Boulevard SE. Instead, the bus can now continue northwest on Russell Branch Parkway SE, turn right on Battlefield Parkway, and left on Potomac Station Drive. While this service change reduces the number of weekly revenue miles, it is considered an improvement to the route and does not impact the number of weekly revenue hours. The reduction in revenue miles is below the threshold for a Major

### Table 1. FY 18 Service Changes

<table>
<thead>
<tr>
<th>Bus Route</th>
<th>Route Name</th>
<th>Type of Change</th>
<th>EXISTING</th>
<th>SCHEDULED</th>
<th>MAJOR SERVICE CHANGE TEST</th>
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</thead>
<tbody>
<tr>
<td><strong>Local</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>57</td>
<td>Village At Leesburg</td>
<td>R</td>
<td>727.2</td>
<td>662.4</td>
<td>-8.9% 0.0% No</td>
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<tr>
<td>62</td>
<td>Ashburn Connector</td>
<td>R</td>
<td>951</td>
<td>1203</td>
<td>26.5% 0.0% Yes</td>
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<td><strong>Local</strong></td>
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<tr>
<td>80</td>
<td>Sugarland Run</td>
<td>R</td>
<td>876</td>
<td>844.8</td>
<td>-3.6% 0.0% No</td>
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<tr>
<td>85</td>
<td>Dulles South Express</td>
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<td>1580</td>
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<td>-100% -100% Yes</td>
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<tr>
<td>89X</td>
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<tr>
<td><strong>Metrorail</strong></td>
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<td></td>
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<tr>
<td>86</td>
<td>Ashburn Shuttle</td>
<td>E</td>
<td>954.14</td>
<td>0</td>
<td>-100%* -100%* Yes</td>
</tr>
<tr>
<td>Run 86 Mid-day</td>
<td>CFC/AN/Telos Shuttle</td>
<td>E</td>
<td>57.5*</td>
<td>0</td>
<td>-100%* -100%* Yes</td>
</tr>
<tr>
<td>Run 102E (5:12 AM)</td>
<td>Telos/AN/CFC to Crystal City/ Pentagon</td>
<td>E</td>
<td>202</td>
<td>0</td>
<td>-100% -100% Yes</td>
</tr>
<tr>
<td>Run 800D</td>
<td>Shadow Friday 2nd Mid-day Bus and DS &amp; Brmbltn. Service</td>
<td>E</td>
<td>42.5</td>
<td>0</td>
<td>-100.0% -100.0% Yes</td>
</tr>
</tbody>
</table>

R = Reconfigure; E = Eliminate
* - free shuttle service does not generate fare revenue
Service Change; therefore, the route modification was not further analyzed for adverse effects related to disparate impacts or disproportionate burden.

**Route 62 (Ashburn Connector)** operates Monday through Friday, 7 AM – 7 PM, within the Ashburn community with connecting service to the hub at One Loudoun.

A newly opened section of Gloucester Parkway, between Loudoun County Parkway and VA Route 28, provides an avenue for the Route 62 (Ashburn Connector) to connect to the Local Fixed Route hub located at Dulles Town Center. Additionally, the new route configuration allows the Route 62 to utilize an existing bus shelter near Ashburn Village. The two southbound bus stops on Marblehead Drive will be eliminated; however, the bus will continue to pick-up passengers as it travels northbound on Marblehead Drive. The increase in weekly revenue miles is considered an improvement to the route and does not impact the number of weekly revenue hours. The increase in weekly revenue miles exceeds the Major Service Change threshold. These route modifications were further analyzed for adverse effects related to disparate impacts and disproportionate burden in the Service Equity Analysis section of this report. A summary of the analysis can be found on Page 13.

**Route 80 (Sugarland Run)** operates Monday through Friday, 7 AM – 7 PM, within the Sterling community with connecting service to Fairfax County Connector.

Currently, this route drives south down Providence Village Drive to William Watters House and then makes a U-turn, returning north on Providence Village Drive, thus covering Providence Village Drive twice within 5 minutes. The modification will take the bus south on Providence Village Drive to William Watters House as before; however, now the bus will pass the Sterling Community Center- on the way back to E. Holly Street. This service change is considered as an improvement to the route. The revenue hours will remain unchanged, and the modification will result in a slight reduction of revenue miles. This decrease in weekly revenue miles does not meet the threshold for a Major Service Change. Therefore, the route modification was not further analyzed for adverse effects related to disparate impacts or disproportionate burden.

**Route 85 (Dulles South Express)** provided Monday through Friday, AM & PM peak, express service from Dulles South Park & Ride Lot to East Gate Park & Ride Lot (88X) and provided mid-day connections from Wiehle-Reston East Metro Station to the East Gate and Stone Ridge Park & Ride Lots as well as other locations around South Riding. Route 85 is the only transit route that serves Stone Springs Hospital, connecting the hospital to Wiehle Reston-East.

In terms of ridership numbers, Route 85 has been an underperforming route for the 24 months that it has been in service and is proposed to be eliminated. The route was restructured at the beginning of FY 2017, but the redesign did not improve ridership significantly. Currently, this is the only local fixed-route service
operating in the southern part of the County. The elimination of this route is considered a Major Service Change. The elimination of this route was further analyzed for adverse effects related to disparate impacts and disproportionate burden in the Service Equity Analysis section of this report. A summary of the analysis can be found on Page 15.

**Route 86 (Ashburn Shuttle)** provided AM & PM peak, free shuttle service Monday through Friday to alleviate parking deficiencies at the Dulles North Transit Center (DNTC). Route 86 picked up passengers from locations in Ashburn Farm and Ashburn Village and took riders to the DNTC where they could board the Premium Long-Haul Commuter buses into DC.

**Run 86 Mid-day (CFC/AN/Telos Shuttle)** provided a free, mid-day shuttle Monday through Friday that operated as a single trip in one-direction from the Dulles North Transit Center (DNTC) to the Christian Fellowship Church (CFC), Ashburn North (AN), and Telos Park & Ride Lots. It met the Run 800D mid-day Premium Long-Haul Commuter Bus from DC arriving at the DNTC around 2 P.M. and shuttled passengers to the other three eastern Loudoun Park & Ride Lots.

This route and mid-day run are proposed to be eliminated. With the addition of the Christian Fellowship Church and Ashburn North Park & Ride Lots, overcrowding at the DNTC Park & Ride Lot is no longer an issue. Passengers planning to use the mid-day return trip from DC/Northern Virginia may continue to do so from the DNTC. The elimination of this route and run are considered as Major Service Changes and each was evaluated for adverse effects related to disparate impacts and disproportionate burden in the Service Equity Analysis section of this report. Summaries of the analyses can be found on Page 15.

**Route 89X (INOVA Loudoun/Telos to Wiehle-Reston East)** provided weekday AM & PM peak, express options from INOVA Loudoun Hospital and Telos Park & Ride Lot to the Wiehle-Reston East Metro Station. The route was designed to provide an option for residents who want to access Metrorail. This Metro Connection service was provided by the local fixed-route bus contractor and has been an underperforming route since its July 2014 inception.

This route is scheduled to be eliminated. Passengers can connect to the INOVA Loudoun Hospital utilizing Route 70 and can also connect, at the Dulles Town Center hub, with free transfers to peak express and other existing transit routes to the Wiehle-Reston East Metro station. The elimination of this route is considered a Major Service Change. Adverse effects related to disparate impacts and disproportionate burden were further analyzed in the Service Equity Analysis section of this report. Summaries of the analyses can be found on Page 13.

**Run 102E, 5:12 AM (Telos/AN/CFC to Crystal City/Pentagon)** provided a single trip, one-direction run Monday through Friday from the Telos, Ashburn North, and Christian Fellowship Church Park & Ride Lots to the Pentagon and Crystal City.
This route, which is better classified as a run, is scheduled to be eliminated. Run 102E was created to reduce overcrowding at the Dulles North Transit Center by providing an additional option for service to the Pentagon from a park and ride with available capacity. Service from Telos, Ashburn North, and Christian Fellowship Church Park & Ride Lots will continue to be served by other runs, just at different times. Service to the Pentagon and Crystal City around that time will continue to be provided from the Dulles South and Dulles North Park & Ride Lots. The elimination of this run is considered a Major Service Change. Adverse effects related to disparate impacts and disproportionate burden were further analyzed in the Service Equity Analysis section of this report. Summaries of the analyses can be found on Page 15.

**Run 800D Shadow (Friday Mid-day Overflow Bus Service and Dulles South & Brambleton Service)** provided a single-trip, one-direction, mid-day, Friday only, additional bus to support the 800D for early departure from Washington D.C. The 800D Shadow also enabled continuing service to the Dulles South and Brambleton Park & Ride Lots on Friday afternoons. This bus followed the 800D Run through pick-up points in Washington DC and Northern Virginia to help alleviate overcrowding on the mid-day bus. Both buses were scheduled to arrive at the Dulles North Transit Center (DNTC), where passengers could switch buses as needed to continue on to the Brambleton and Dulles South Park & Ride Lots.

This run is scheduled to be eliminated, which would eliminate Friday mid-day service to Brambleton and Dulles South Park & Ride Lots. The Friday mid-day service will continue to serve DNTC, Leesburg, Harmony and Purcellville, and there are no changes scheduled for the weekday Mid-day 800D run to DNTC. The elimination of this run is considered a Major Service Change. Adverse effects related to disparate impacts and disproportionate burden were further analyzed in the Service Equity Analysis section of this report. Summaries of the analysis can be found on Page 15.

**Justification Based on Ridership**

The identified routes and runs were selected for service eliminations based on low ridership numbers, operating costs, and overlapping and future planned services in Fiscal Year 2019. The route eliminations have not been put through a public comment process. While there are several metrics that could be used to further determine route performance, staff used ridership as the basis for identifying which routes to recommend for elimination. By selecting routes with low ridership, the fewest number of customers would be impacted. Staff anticipates that riders of these eliminated routes will transfer to other routes in the area. Thus, a significant reduction in revenue as a result of these service reductions is not anticipated. It is important to note that the elimination of Route 85 (Dulles South Express), which is the only Local Fixed-Route Bus service operating in the southern part of the County, would also cancel the associated paratransit service operated by Loudoun County Transit. However, Virginia Regional Transit (VRT), Loudoun’s rural transit provider, is expected to provide paratransit/on-demand service for this area.
Service Equity Analysis for Major Service Changes

When planning for Major Service Changes, Loudoun County Transit must consider potential adverse effects. The Disparate Impact Policy and Disproportionate Burden Policy establish a statistical threshold for comparing the impacts borne by minority and low-income populations to the overall service population.

This section of the report provides the substance of the service equity analysis. Beginning with the service area demographics, which are the basis of the Disparate Impact and Disproportionate Burden statistical thresholds, the report then provides summaries of the service populations affected by each Major Service Change. The technical data resources used for the analysis and the procedural methods implemented to determine the beneficial and adversarial impacts are described in the Analytical Framework. The analysis is based on block-level Census demographic data and therefore does not represent ridership directly. Bus route maps overlaid on U.S. Census blocks for affected minority and low-income populations are provided at the end of the report.

Service Area Demographics

Based on U.S. Census Bureau American Community Survey (ACS) five-year estimates from 2011 to 2015, measured at the Census Block Group level, and georeferenced bus stop data provided by Loudoun County’s Office of Mapping and Geographic Information, the following thresholds for assessing Major Service Change impacts were determined for each service type. Route 62 (Ashburn Connector), Route 85 (Dulles South Express), Route 86 (Ashburn Shuttle), and Route 89X (INOVA Loudoun/Telos to Wiehle-Reston East) are considered Local Fixed-Route Bus routes. Route 86 Mid-day (CFC/AN/Telos Shuttle), Run 102E, 5:12 AM (Telos to Crystal City), and Run 800D Shadow (Friday Mid-day Overflow Bus Service and Dulles South & Brambleton Shuttle) are considered Premium Long-Haul Commuter Bus routes.

Local Fixed-Route Bus

Minority populations comprised approximately 44.5 percent of the Loudoun County Transit (LCT) Local Fixed-Route Bus service area population (comprised of all Census Block Groups within one-quarter of a mile of local fixed-route bus stops). After applying LCT’s Disparate Impact policy, the threshold for a Disparate Impact is 59.5 percent (44.5 percent system-wide plus 15 percent) for adverse changes and 29.5 percent (44.5 percent system-wide minus 15 percent) for beneficial changes.

Low-income households comprised approximately 18.3 percent of the households in the LCT Local Fixed-Route Bus service area (comprised of all Census Block Groups within one-quarter of a mile of local fixed-route bus stops). After applying LCT’s Disproportionate Burden policy, the threshold for a Disproportionate Burden is 33.3 percent (18.3 percent plus 15 percent) for adverse changes and 3.3 percent (18.3 percent minus 15 percent) for beneficial changes.

The population and impact thresholds for assessing Disparate Impact and Disproportionate Burden for Local Fixed-Route Bus routes are provided in Table 2.
**Table 2 Loudoun County Transit Local Fixed-Route Bus Minority and Low-Income Populations (2011-2015 ACS)**

<table>
<thead>
<tr>
<th>Disparate Impact</th>
<th>Minority Population</th>
<th>Percent Minority</th>
<th>Adverse Disparate Impact Threshold</th>
<th>Beneficial Disparate Impact Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Area Population</td>
<td>222,474</td>
<td>98,907</td>
<td>44.5%</td>
<td>59.5%</td>
</tr>
<tr>
<td>Low-Income Households</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Area Households</td>
<td>72,510</td>
<td>13,327</td>
<td>18.3%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Low-Income Households</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Premium Long-Haul Commuter Bus**

Minority populations comprised approximately 42.3 percent of the Loudoun County Transit (LCT) Premium Long-Haul Commuter Bus service area population (comprised of all Census Block Groups within three miles of Commuter Bus Park & Ride stops in Loudoun County). After applying LCT’s Disparate Impact policy, the threshold for a Premium Long-Haul Commuter Bus Disparate Impact is 57.3 percent (42.3 percent system-wide plus 15 percent) for adverse changes and 27.3 percent (42.3 percent system-wide minus 15 percent) for beneficial changes.

Low-income households comprised approximately 15.1 percent of the households in the LCT Premium Long-Haul Commuter Bus service area (comprised of all Census Block Groups within three miles of Commuter Bus Park & Ride stops in Loudoun County). After applying LCT’s Disproportionate Burden policy, the threshold for a Premium Long-Haul Commuter Bus Disproportionate Burden is 30.1 percent (15.1 percent plus 15 percent) for adverse changes and 0.1 percent (15.1 percent minus 15 percent) for beneficial changes.

The population and impact thresholds for assessing Disparate Impact and Disproportionate Burden for Premium Long-Haul Commuter Bus routes are provided in **Table 3**.
### Table 3 | Loudoun County Transit Premium Long-Haul Commuter Bus Minority and Low-Income Populations (2011-2015 ACS)

<table>
<thead>
<tr>
<th>Disparate Impact</th>
<th>Minority Population</th>
<th>Percent Minority</th>
<th>Adverse Disparate Impact Threshold</th>
<th>Beneficial Disparate Impact Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Area Population</td>
<td>303,512</td>
<td>128,298</td>
<td>42.3%</td>
<td>57.3%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disproportionate Burden</th>
<th>Low-Income Households</th>
<th>Percent Low-Income Households</th>
<th>Adverse Disparate Impact Threshold</th>
<th>Beneficial Disparate Impact Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Area Households</td>
<td>97,581</td>
<td>14,732</td>
<td>15.1%</td>
<td>30.1%</td>
</tr>
</tbody>
</table>

### Summary of Adverse and Beneficial Service Changes – Local Fixed-Route Bus

To determine whether this package of Local Fixed-Route Bus changes complies with the Loudoun County Transit Title VI policies, aggregated percentages of minority and low-income populations were determined for all adverse Local Fixed-Route Bus changes, as well as the beneficial service change on Route 62. **Overall, this package of Local Fixed-Route Bus service changes has no disparate impact on minority populations or disproportionate burden on low-income households currently served by these routes.**

### Adverse Service Changes

**Table 4** breaks down the number and percent of minority population residing in Census Block Groups within one-quarter mile of each Local Fixed-Route Bus stop on the routes experiencing an *adverse* Major Service Change. When compared to the disparate impact threshold for adverse changes (59.5 percent and higher), neither the individual routes nor the aggregate affected population met the criteria for potential disparate impact.

| TABLE 4 Disparate Impact - Summary of Adverse Local Fixed-Route Bus Service Changes |
|----------------------------------|-------------------------------|----------------|---------|----------------|-----------------------------------|
| Route               | Adverse or Beneficial? | Service Area Population | Service Area Minority Population | Percent Minority Population |
| Route 85            | Adverse                     | 27,020                   | 14,148              | 52.4%            |
| Route 86            | Adverse                     | 19,976                   | 7,952               | 39.8%            |
| Route 89x           | Adverse                     | 10,618                   | 5,065               | 47.7%            |
| **SUBTOTAL**        |                              | **57,614**               | **27,165**          | **47.1%**        |
| Disparate Impact Threshold for Adverse Changes |                  |                            |                     | 59.5%            |
| Does this package of changes meet the Disparate Impact Threshold? |                  |                            |                     | No                             |
Table 5 breaks down the number and percent of low-income households residing in Census Block Groups within one-quarter mile of each Local Fixed-Route Bus stop on the routes experiencing an adverse major service change. When compared to the disproportionate burden threshold for adverse changes (33.3 percent and higher), neither the individual routes nor the aggregate affected households met the criteria for potential disproportionate burden.

**Table 5 Disproportionate Burden - Summary of Adverse Service Changes**

<table>
<thead>
<tr>
<th>Route</th>
<th>Adverse or Beneficial?</th>
<th>Service Area Households</th>
<th>Service Area Low-Income Households</th>
<th>Percent Low-Income Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 85</td>
<td>Adverse</td>
<td>8,375</td>
<td>989</td>
<td>11.8%</td>
</tr>
<tr>
<td>Route 86</td>
<td>Adverse</td>
<td>6,367</td>
<td>961</td>
<td>15.1%</td>
</tr>
<tr>
<td>Route 89x</td>
<td>Adverse</td>
<td>3,652</td>
<td>660</td>
<td>18.1%</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td>18,394</td>
<td>2,610</td>
<td>14.2%</td>
</tr>
</tbody>
</table>

Disproportionate Burden Threshold for Adverse Changes: 33.3%

Does this package of changes meet the Disproportionate Burden Threshold? No

**Beneficial Service Changes**

Table 6 breaks down the number and percent of minority population residing in Census Block Groups within one-quarter mile of each Local Fixed-Route bus stop on the route experiencing a beneficial major service change. When compared to the disparate impact threshold for beneficial changes (29.5 percent and lower), no disparate impact was found.

**Table 6 | Disparate Impact - Summary of Beneficial Local Fixed-Route Bus Service Changes**

<table>
<thead>
<tr>
<th>Route</th>
<th>Adverse or Beneficial?</th>
<th>Service Area Population</th>
<th>Service Area Minority Population</th>
<th>Percent Minority Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 62</td>
<td>Beneficial</td>
<td>14,629</td>
<td>6,259</td>
<td>42.8%</td>
</tr>
</tbody>
</table>

Disparate Impact Threshold for Beneficial Changes: 29.5%

Does this package of changes meet the Disparate Impact Threshold? No

Table 7 breaks down the number and percent of low-income households residing in Census Block Groups within one-quarter mile of each Local Fixed-Route bus stop on the route experiencing a beneficial major service change. When compared to the disproportionate burden threshold for beneficial changes (3.3% and below), no disproportionate burden was found.

**Table 7 | Disproportionate Burden - Summary of Beneficial Local Fixed-Route Bus Service Changes**

<table>
<thead>
<tr>
<th>Route</th>
<th>Adverse or Beneficial?</th>
<th>Service Area Households</th>
<th>Service Area Low-Income Households</th>
<th>Percent Low-Income Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Route 62</td>
<td>Beneficial</td>
<td>5,594</td>
<td>983</td>
<td>17.6%</td>
</tr>
</tbody>
</table>

Disproportionate Burden Threshold for Beneficial Changes: 3.3%

Does this package of changes meet the Disproportionate Burden Threshold? No
Local Fixed-Route Bus Service Restoration as Additional Funds become available

The Department of Transportation & Capital Infrastructure has selected these routes to be eliminated based on the number of riders using the service. However, if additional funding were to become available and once the Silver Line Metro extension into Loudoun County is complete, DTCI would reconsider restoring Route 89X to provide express service between INOVA Loudoun Hospital and the Wiehle-Reston East Metro Station.

Summary of Adverse and Beneficial Service Changes – Premium Long-Haul Commuter Bus

To determine whether this package of changes complies with Loudoun County Transit’s Title VI policies, aggregated percentages of minority and low-income populations were determined for the three adverse Premium Long-Haul Commuter Bus changes. Overall, these Premium Long-Haul Commuter Bus service changes have no disparate impact on minority populations or disproportionate burden on low-income households currently served by these routes.

Adverse Service Changes

Table 8 breaks down the number and percent of minority population residing in Census Block Groups within three miles of each Park & Ride Lot on Premium Long-Haul Commuter routes experiencing a Major Service Change. When compared to the disparate impact threshold for adverse changes (57.3 percent and higher), no route met the criteria for potential disparate impact.

<table>
<thead>
<tr>
<th>Route</th>
<th>Adverse or Beneficial?</th>
<th>Service Area Population</th>
<th>Service Area Minority Population</th>
<th>Percent Minority Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run 102E (5:12 AM)</td>
<td>Adverse</td>
<td>169,253</td>
<td>77,109</td>
<td>45.6%</td>
</tr>
<tr>
<td>Run 86 Mid-day</td>
<td>Adverse</td>
<td>171,066</td>
<td>78,260</td>
<td>42.6%</td>
</tr>
<tr>
<td>Run 800D Shadow</td>
<td>Adverse</td>
<td>123,679</td>
<td>63,842</td>
<td>51.6%</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td><strong>463,998</strong></td>
<td><strong>219,211</strong></td>
<td><strong>47.2%</strong></td>
</tr>
<tr>
<td><strong>Disproportionate Burden Threshold for Adverse Changes</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>57.3%</strong></td>
</tr>
<tr>
<td><strong>Does this package of changes meet the Disproportionate Burden Threshold?</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>No</strong></td>
</tr>
</tbody>
</table>

Table 9 breaks down the number and percent of low-income households residing in Census Block Groups within three miles of each Park & Ride Lot on Premium Long-Haul Commuter routes experiencing a Major Service Change. When compared to the disproportionate burden threshold for adverse changes (30.1 percent and higher), no route met the criteria for a potential disproportionate burden.
TABLE 9 | DISPROPORTIONATE BURDEN - SUMMARY OF ADVERSE PREMIUM LONG-HAUL COMMUTER BUS SERVICE CHANGES

<table>
<thead>
<tr>
<th>Route</th>
<th>Adverse or Beneficial?</th>
<th>Service Area Households</th>
<th>Service Area Low-Income Households</th>
<th>Percent Low-Income Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run 102E (5:12 AM)</td>
<td>Adverse</td>
<td>55,730</td>
<td>8,502</td>
<td>15.3%</td>
</tr>
<tr>
<td>Run 86 Mid-day</td>
<td>Adverse</td>
<td>56,288</td>
<td>8,822</td>
<td>15.7%</td>
</tr>
<tr>
<td>Run 800D Shadow</td>
<td>Adverse</td>
<td>39,098</td>
<td>5,231</td>
<td>13.4%</td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td></td>
<td>151,116</td>
<td>22,555</td>
<td>14.9%</td>
</tr>
</tbody>
</table>

Does this package of changes meet the Disparate Impact Threshold? No

Disparate Impact Threshold for Adverse Changes 30.1%

Premium Long-Haul Commuter Service Restoration as Additional Funds become available

The Department of Transportation & Capital Infrastructure has selected these routes to be eliminated based on the number of riders using the service. Alternative routes are available for passengers of Run 102E and the 86 Midday Run. However, if additional funding were to become available, DTCI would reconsider resorting the mid-day Friday overflow bus, Run 800D Shadow.

Analytical Framework

This section describes in detail the sources of data and the procedural methods used in the analysis. The end of this section contains the service area maps with demographic information showing minority and low-income Census block groups.

Datasets and Techniques Used in Analysis

For this analysis, the primary data source was the U.S. Census Bureau American Community Survey (ACS) five-year estimates from 2011 to 2015, measured at the Census Block Group level. Geographic data provided by Loudoun County’s Office of Mapping and Geographic Information was also used to determine the service areas within Loudoun County for the entire Loudoun County Transit (LCT) Bus network, as well as the service areas of the current route alignments that have planned service changes.

For the Disparate Impact analysis, the primary ACS table utilized was Table B03002, “Hispanic or Latino Origin by Race.” This table identifies all minority and non-minority populations within a block group, including Hispanic or Latino. To determine minority population for the LCT Bus service area, total population estimates and minority population estimates (total population minus non-Hispanic White population) for Census Block Groups were used along with bus stop point data and route line data within Geographic Information System (GIS) software.

For the Disproportionate Burden analysis, the primary ACS table utilized was Table B19001, “Household Income in the Past 12 Months (In 2015 Inflation-Adjusted Dollars).” This table provides an aggregate of households reporting incomes under half of the Area Median Income, which includes all income
categories under $50,000. To determine low-income households for the LCT Bus service area, Census Block Groups with household incomes below $50,000 were used along with bus stop point data within Geographic Information System (GIS) software.

The same LCT service areas were evaluated for both the Disparate Impact analysis and Disproportionate Burden analysis. Using GIS, a one-quarter mile buffer was placed around each Local Fixed-Route Bus stop; the resulting area was considered as the Local Fixed-Route Bus service area. The Premium Long-Haul Commuter Bus service area was defined by a three-mile buffer around park & ride lots serving the route. Census Block Groups contained either partially or wholly within those service areas were used as part of the calculation.

**Analytical Methodology**

Loudoun County Transit used the procedures noted below to conduct this service equity analysis.

1. All proposed changes were examined to see if they met the Loudoun County Transit’s definition of a Major Service Change.
2. For routes that qualified as Major Service Changes, each route was categorized by whether the change was considered as an adverse change or a beneficial change for the population currently served by the route. Loudoun County Transit (LCT) considers modifications such as route discontinuation, truncating or eliminating a route segment, rerouting an existing route, headway increases, and reduction of service span to be service changes that may have an adverse effect. LCT considers the degree of adverse effects, and analyzed those effects, when planning service changes. A beneficial change would have positive impacts on those within the service area of the route, such as the addition of new service, an increase in frequency, or an increase in span of an existing service.
3. Using geo-referenced point data and Census Block data, the service area population and the total number of households were determined for all current Local Fixed-Route Bus service area and current Premium Long-Haul Commuter Bus Service Area.
   a. Local Fixed-Route Bus: For this analysis, LCT’s Local Fixed-Route Bus service area was defined by a one-quarter mile buffer around every LCT Local Fixed-Route Bus stop, including any diversions, i.e., any variations from the trunk line, even if the route only makes that variation trip a small number of times. Total population and households, as well as minority populations and low-income households, were then determined for the Local Fixed-Route Bus Service Area.
   b. Premium Long-Haul Commuter Bus: For this analysis, LCT’s Premium Long-Haul Commuter Bus Service area was defined as a three-mile buffer around every LCT Commuter Bus Park & Ride stop (all Commuter Bus stops in Loudoun County are also Park & Ride Lots). Total population and households, as well as minority populations and low-income households, were then determined for the Premium Long-Haul Commuter Bus Service area.
Next, the populations and households affected by the Major Service Change were determined by the same means used to calculate the totals as described in Step 3, except that the calculation was focused on the specific route rather than the service type (Local Fixed-Route Bus or Premium Long-Haul Commuter Bus) generally.

For each of the adverse and beneficial changes, totals were then found for minority populations and low-income households impacted by each of the identified major service changes.

Based on the definitions of disparate impact and disproportionate burden, explained above, the overall thresholds were determined as follows:

a. Disparate Impact Threshold for adverse changes: Loudoun County Transit’s service area percentage of population that is minority, plus 15 percent.

b. Disparate Impact Threshold for beneficial changes: Loudoun County Transit’s service area percentage of population that is minority, minus 15 percent.

c. Disproportionate Burden Threshold for adverse changes: Loudoun County Transit’s service area percentage of households that earn less than half of the area median income, plus 15 percent.

d. Disproportionate Burden Threshold for beneficial changes: Loudoun County Transit’s service area percent of households that earn less than half of the area median income, minus 15 percent.

Finally, for the adverse and for the beneficial changes separately, the aggregated percent of minority populations and the aggregated percent of low-income households were compared to the appropriate Disparate Impact / Disproportionate Burden thresholds in order to determine if a statistical disparate impact or disproportionate burden had occurred.

Overlay Maps with Service Changes and Demographic Data

Route maps for each Major Service Change have been overlain on population demographics for the service area and are provided in Figures 3 through 16. Separate maps are provided to illustrate minority populations and low-income populations based on Census blocks.
FIGURE 3 | PROPOSED ROUTE 62 (ASHBURN CONNECTOR) MODIFICATION - MINORITY
FIGURE 4 | PROPOSED ROUTE 62 (ASHBURN CONNECTOR) MODIFICATION - LOW-INCOME
FIGURE 6 | PROPOSED ROUTE 85 (DULLES SOUTH EXPRESS) ELIMINATION - LOW-INCOME
FIGURE 7 | PROPOSED ROUTE 86 (ASHBURN SHUTTLE) ELIMINATION - MINORITY
FIGURE 8 | PROPOSED ROUTE 86 (ASHBURN SHUTTLE) ELIMINATION - LOW-INCOME
Note: The graphic line connecting park and ride lots is not intended to represent the actual left and right turning movements of the bus between park and ride lots. This bus meets the mid-day long-haul commuter bus from DC/Northern Virginia at the Dulles North Transit Center. It does not follow a fixed route. If there are no passengers going to one of the three park & ride lots that the shuttle serves, it does not go to that lot.
Note: The straight line connecting park and ride lots is not intended to represent the actual left and right turning movements of the bus between park and ride lots. This bus meets the mid-day long-haul commuter bus from DC/Northern Virginia at the Dulles North Transit Center. It does not follow a fixed route. If there are no passengers going to one of the three park & ride lots that the shuttle serves, it does not go to that lot.
FIGURE 11 | PROPOSED ROUTE 89X (TELOS TO WIEHLE-RESTON EAST) ELIMINATION - MINORITY

Proposed Route 89x Elimination

Route 89x
- Proposed Eliminated Route
- Current Service
- Route 89x Bus Stops
- Proposed Service Elimination

Local Service

Percent Minority

Below 44.5% (Service Area Average)
44.5% and Above
FIGURE 12 | PROPOSED ROUTE 89X (TELOS TO WIEHLE-RESTON EAST) ELIMINATION - LOW-INCOME
FIGURE 13 | PROPOSED RUN 102E, 5:12 AM (TELOS/AN/CFC TO CRYSTAL CITY/PENTAGON) ELIMINATION - MINORITY
Note: The straight line connecting park and ride lots is not intended to represent the actual left and right turning movements of the bus between park and ride lots. Passenger pick-up for this AM run only occurs at the park and ride lots.
FIGURE 15 | PROPOSED RUN 800D SHADOW (FRIDAY MIDDAY OVERFLOW BUS AND DULLES SOUTH & BRAMBLETON SHUTTLE) ELIMINATION - MINORITY

Note: The graphical line connecting park & ride lots is not intended to represent the actual left and right turning movements of the bus between park & ride lots. This bus took the Friday mid-day long-haul commuters from the Dulles North Transit Center to the Brambleton and Dulles South Park & Ride Lots. It did not follow a fixed route. If there were no passengers going to one of the two park & ride lots that the shuttle served, it would not go to that lot. This bus also provided overflow capacity on Fridays for the 800D mid-day run. The 800D mid-day run will continue to operate with one bus, providing service from DC/Northern Virginia to the Dulles North Transit Center, Leesburg and Harmony Park & Ride Lots.
Note: The graphical line connecting park & ride lots is not intended to represent the actual left and right turning movements of the bus between park & ride lots. This bus took the Friday mid-day long-haul commuters from the Dulles North Transit Center to the Brambleton and Dulles South Park & Ride Lots. It did not follow a fixed route. If there were no passengers going to one of the two park & ride lots that the shuttle served, it would not go to that lot. This bus also provided overflow capacity on Fridays for the 800D mid-day run. The 800D mid-day run will continue to operate with one bus, providing service from DC/Northern Virginia to the Dulles North Transit Center, Leesburg and Harmony Park & Ride Lots.