



Loudoun County Transit Title VI Service Equity Analysis

Fiscal Years 2020 - 2021 COVID-19
Reductions and
Fiscal Year 2022 Metro Connection
Proposed Options

May 2021

Prepared by:

Loudoun County Transit

with assistance from:



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EXECUTIVE SUMMARY

Introduction

Loudoun County Transit (LCT) has compiled this Title VI Service Equity Analysis to evaluate temporary service changes that were necessary in response to the impacts of the COVID-19 pandemic, but that have been in place for a year and thus require a service equity analysis at this time. This Service Equity Analysis also evaluates proposed service changes for new and modified Metro Connection routes planned to serve the new Metrorail Silver Line Phase II stations in Loudoun County, which are anticipated to begin revenue service as early as Winter 2022 (FY22).

LCT operated the following transit services prior to the onset of the COVID-19 pandemic:

- Nine local bus routes.
- Fourteen Metro Connection routes that provided limited stop bus service between Loudoun County and the West Falls Church and Wiehle-Reston East Metrorail stations.
- Two Commuter Bus service areas providing a total of 53 morning and 58 evening “runs” that operated in the peak periods only between 10 park and ride lots in Loudoun County and bus stops in downtown Washington, D.C., and/or Arlington County.

Service Changes in Response to COVID-19

When the Governor of Virginia imposed health and safety restrictions in response to the COVID-19 pandemic, Loudoun County Transit responded to the dramatic drop in ridership and concerns about passenger/driver interactions by implementing the following service and fare changes:

- Ceasing the collection of fares on all types of transit services. Fare collection has since resumed on all services following the installation of protective barriers for the bus drivers on the entire bus fleet.
- Reducing operations on all Metro Connection bus service through route elimination and reduced trip frequencies.
- Ceasing the operation of all Commuter Bus services. Limited Commuter Bus service began during Summer 2020 at a reduced frequency and from a consolidated set of park and ride lots within the service area.

These changes were envisioned to be temporary and therefore no Title VI analysis was completed at the time of implementation. However, given the persistence of the COVID-19 pandemic and the incremental return of demand for peak commuter transit service, LCT recognizes the need to adapt service going forward. To address changes to Local Bus, Metro Connection, and Commuter Bus service, which have already been implemented due to the COVID-19 pandemic, this Service Equity Analysis compares “pre-COVID” service (prior to the COVID-19 pandemic in March 2020) to “current” service as it exists now (as of May 2021).

Metro Connection Proposed Restructured Service

LCT has also recognized the need to redesign Metro Connection service to serve the Metrorail Silver Line extension to Loudoun County, which is now scheduled to open in early 2022. To address changes to Metro Connection service, a subsequent section of the report profiles options that are proposed to start when rail service begins in Loudoun County. This report includes options for ten new routes: Ashburn Farm, Ashburn Village, Brambleton, Broadlands, George Washington University, Leesburg, Moorefield, Potomac Falls, South Riding, and Stone Ridge.

Findings and Conclusions

This Service Equity Analysis evaluated Loudoun County Transit implemented service changes in response to the COVID-19 pandemic, as well as proposed service to the expanded Metrorail Silver Line into Loudoun County. A summary of overall findings is listed below:

- Local Bus route alignment changes to Routes 57 and 81 did not qualify as major service changes, and thus were not analyzed for disparate impact or disproportionate burden.
- There were no findings of disparate impact or disproportionate burden associated with Metro Connection changes to existing service, which were implemented across multiple routes in response to COVID-19.
- After a review of Metro Connection options for restructured service (each route option in isolation), several options showed the potential for disparate impact or disproportionate burden under the category of service improvement. LCT also analyzed the potential for disparate impact and disproportionate burden associated with the discontinuation of (and lack of a replacement service for) three stops, as well as the addition of entirely new stops. This analysis found a potential disparate impact as a result of the removal of the stops, and a potential disproportionate burden as a result of the addition of new stops. LCT will review these findings while developing a service plan, evaluating selected route alignments for potential impacts in comparison to system-wide service.
- There were no findings of disparate impact or disproportionate burden associated with Commuter Bus changes to existing service, which were implemented across multiple service areas in response to COVID-19.

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 equity impacts of the service and/or fare change(s). The transit provider shall submit documentation with the Title VI Program as evidence of the consideration, awareness, and approval of the analysis.

The Loudoun County Board of Supervisors (Board) is the governing entity responsible for policy decisions regarding LCT transit services. On July 20, 2021, DTCL 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**.

Figure 1: Board of Supervisors Approval of Service Equity Analysis



Loudoun County, Virginia

www.loudoun.gov

Office of the County Administrator

1 Harrison Street, S.E., 5th Floor, P.O. Box 7000, Leesburg, VA 20177-7000

Telephone (703) 777-0200 • Fax (703) 777-0325

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 St., S.E., Leesburg, Virginia, on Tuesday, July 20, 2021, at 5:00 p.m.

IN RE: Fiscal Years 2020-2021 Title VI (Six) Service Equity Report for Loudoun County Transit (Countywide)

Chair Randall moved that the Board of Supervisors acknowledge their awareness and consideration of the Title VI (Six) Service Equity Analysis for the Fiscal Years 2020-2021 service changes by approving the Service Equity Analysis presented in the July 20, 2021, Board of Supervisors Business Meeting Action Item.

Seconded by Supervisor Letourneau.

Voting on the Motion: Supervisors Briskman, Buffington, Glass, Kershner, Letourneau, Randall, Saines, Turner, and Umstattd – Yes; None – No.

COPY TESTE:

DEPUTY CLERK TO THE LOUDOUN COUNTY
BOARD OF SUPERVISORS

INTRODUCTION

Overview of Service Changes

This service change package under analysis in this document includes both new routes developed to serve the new Metrorail Silver Line Phase II stations planned for opening in early 2022 and the “temporary” COVID-19 pandemic induced service changes that have exceeded 12 months in duration. Federal Transit Administration Circular FTA C 4702.1B states that “temporary” service changes lasting longer than 12 months are considered permanent and that a Service Equity Analysis must be conducted if the change qualifies as a major service change.

Prior to the onset of the COVID-19 pandemic, LCT operated the following services:

- Nine Local Bus routes.
- Fourteen Metro Connection routes that provided limited stop bus service between Loudoun County and the West Falls Church and Wiehle-Reston East Metrorail stations.
- Two Commuter Bus service areas providing a total of 53 morning and 58 evening “runs” that operated in the peak periods only between 10 park and ride lots in Loudoun County and bus stops in downtown Washington, D.C., and/or Arlington County.

When the Governor of Virginia imposed health and safety restrictions in response to the COVID-19 pandemic, Loudoun County Transit responded to the 95 percent drop in ridership and concerns about passenger/driver interactions by implementing the following service and fare changes:

- Ceasing the collection of fares on all types of transit services. Fare collection has since resumed on all services following the installation of protective barriers for the bus drivers on the entire bus fleet.
- Reducing operations on all Metro Connection bus service through route elimination and reduced trip frequencies.
- Ceasing the operation of all Commuter Bus services. Limited Commuter Bus service began during Summer 2020 at a reduced frequency and from a consolidated set of park and ride lots within the service area.

These changes were envisioned to be temporary and therefore no Title VI analysis was completed at the time of implementation. However, given the persistence of the COVID-19 pandemic and the incremental return of demand for peak commuter transit service, LCT recognizes the need to adapt service going forward. As such, with respect to these changes, this Service Equity Analysis compares “pre-COVID” service (prior to the COVID-19 pandemic in March 2020) to “current” service as it exists now (May 2021).

Additionally, this Service Equity Analysis evaluates a proposed redesign of the Metro Connection system aimed at serving the Metrorail Silver Line extension into Loudoun County. Metrorail is scheduled to open in early 2022. This section of the report profiles options for Metro Connection service proposed in ten distinct service areas against thresholds for disparate impact and disproportionate burden.

Service Equity Analysis Components

The FTA C 4702.1B states that a Service Equity 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 changes meet or exceed 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.

In examining for potential disparate impacts, disproportionate burdens, and adverse effects, this analysis evaluates proposed changes to Local Bus, Metro Connection, and Commuter Bus services.

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 2020-2023 Title VI Program, Loudoun County has established the following policies to evaluate service changes and their impact on minority populations.

Major Service Change Policy

The Loudoun County Transit Title VI Program defines a major service change as:

- Any change that adds or eliminates a bus route.
- Any change in service on any individual bus route that would add or eliminate 20 percent or more 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 20 percent or more of the route’s weekly revenue hours (the number of hours a bus operates while carrying paying passengers).
- Any change in service on any individual bus route that would add or eliminate 15 percent or more of the average daily ridership.

To supplement the major service change policy, any change to fares or fare media qualifies for a fare equity analysis.

Exemptions

The major service change thresholds exclude any changes to service that are caused by the following:

- Initiation of temporary services that will be in effect for less than one year.
- Discontinuance of temporary or demonstration services that were in effect for eighteen months or less.
- Natural or catastrophic disasters that may force the suspension of transit service for public safety or technical events.
- Temporary route detours, meaning any short-term change to a route caused by road construction, routine road maintenance, road closures, emergency road conditions, fiscal crisis, civil demonstrations, or any uncontrollable circumstance.

Disparate Impact Policy

Disparate impact refers to a facially¹ neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin. Loudoun County Transit's Disparate Impact Policy is:

A disparate impact occurs when the difference between the percentage of minority populations in the service area affected by a proposed fare or service change is five percent or greater than the average percentage of minority populations across the system-wide service area. Impacts will be reviewed on a cumulative basis.

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 Transit's Disproportionate Burden Policy is:

A disproportionate burden occurs when the difference between the percentage of low-income households in the service area affected by a proposed fare or service change is five percent or greater than the average percentage of low-income households across the system-wide service area. Impacts will be reviewed on a cumulative basis.

Public Engagement and Board of Supervisors' Approval of Policies

As part of the development of its most recent Title VI Program update, Loudoun County Transit updated its policies with regard to major service changes, disparate impacts, and disproportionate burdens. These policies were reviewed by the public through an outreach effort that included a stakeholder meeting with representatives from community-based organizations and an opportunity to comment on proposed policies via the Loudoun County website.

Ultimately, the policies were finalized and approved by the Loudoun County Board of Supervisors. The official Board of Supervisors approval of these policies is shown in **Figure 2**.

¹ A facially neutral practice is one that does not appear to be discriminatory on its face against a particular group.

Figure 2: Board of Supervisors Approval of Major Service Change, Disparate Impact, and Disproportionate Burden Policies



Loudoun County, Virginia

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Office of the County Administrator

1 Harrison Street, S.E., 5th Floor, P.O. Box 7000, Leesburg, VA 20177-7000

Telephone (703) 777-0200 • Fax (703) 777-0325

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 St., S.E., Leesburg, Virginia, on Tuesday December 3, 2019 at 5:00 p.m.

IN RE: Loudoun County Transit 2020-2023 Title VI (Six) Program (Countywide):

Vice Chairman Buona moved that the Board of Supervisors acknowledge their awareness and consideration of the Loudoun County Transit 2020-2023 Title VI Program, and approve the 2020-2023 Program as presented within in the December 3, 2019, Board of Supervisors Business Meeting Action Item.

Vice Chairman Buona further moved that the Board of Supervisors acknowledge their awareness and consideration of the results of the monitoring program of service standards and polices, and approve the Monitoring Results as presented within the Loudoun County Transit 2020-2023 Title VI Program included in the December 3, 2019, Board of Supervisors Business Meeting Action Item.

Vice Chairman Buona further moved that the Board of Supervisors acknowledge their awareness and consideration of the Major Service Change Policy, the Disparate Impact Policy, and the Disproportionate Burden Policy as presented within the Loudoun County Transit 2020-2023 Title VI Program included in the December 3, 2019, Board of Supervisors Business meeting Action Item.

Seconded by Supervisor Volpe.

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

COPY TESTE:


DEPUTY CLERK FOR THE LOUDOUN
COUNTY BOARD OF SUPERVISORS

Item 11 Loudoun County Transit 2020-2023 Title VI (Six) Program

EXPLANATION OF IMPLEMENTED AND PROPOSED SERVICE CHANGES

Sorted into the Local Bus, Metro Connection (changes to existing service), Metro Connection (proposed restructured service), and Commuter Bus service categories, this section lists all implemented and proposed service changes. A comparison of the change in revenue miles and revenue hours along with ridership are used to determine if the change qualifies as a Major Service Change that warrants an analysis of potential disparate impacts for minority populations or disproportionate burden for low-income households.

Local Bus

Changes to Local Bus service occurred for Route 57 due to temporary road construction and for Route 81 due to the expiration of the lease for the Broad Run Farms Park and Ride Lot. Both changes affect route alignments; neither route's level of service has changed. **Table 1** details each route's change in terms of weekly revenue miles and hours and ridership. Neither route adjustment resulted in a change to revenue miles or hours by 20 percent, or a change in ridership by 15 percent. Thus, given that neither route's change qualifies as a major service change, no Local Bus (non-Metro Connection) Service Equity Analysis has been included in this document.

Table 1: Local Bus Service Changes

Route Number	Route Description	Change Description	FY 20 Service Prior to Route Changes		Current FY 21 Service		Major Service Change Test		
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change	Average Daily Ridership Change
57	Village at Leesburg/Wegmans	<ul style="list-style-type: none"> Arby's stop on Battlefield Parkway replaced stop at BB&T bank on Potomac Station Drive New stop at Caliber Collision 	776.0	70.0	900.0	70.	+16.0%	0.0%	+1
81	Countryside Connector	<ul style="list-style-type: none"> Elimination of Broad Run Farms Stop 	819.9	62.0	731.0	58.0	-10.7%	-6.5%	+2

Metro Connection: Changes to Existing Service (Currently Implemented)

Beginning in early 2022, LCT will realign its Metro Connection service to serve Metrorail's extension of the Silver Line into Loudoun County. These changes are addressed in the **Metro Connection: Proposed Restructured Service** section of this document. However, prior to proposing these changes, LCT revised its Metro Connection service to accommodate a 95 percent drop in ridership due to the onset of the COVID-19 pandemic and increased teleworking in response to stay-at-home orders and encouraged social distancing policies. A Service Equity Analysis is now required for these changes.

Following a general description of service changes, including changes to levels of service, **Table 2** lists each existing Metro Connection route's change from pre-COVID to current service levels in terms of revenue miles and hours.

Route 72 – George Washington University / Wiehle-Reston East Metrorail Station

Route 72 provides service from George Washington University (GWU) to and from Wiehle-Reston East Metrorail Station. During pre-COVID service, Route 72 had one vehicle operating on weekdays from 7:00 AM to 8:00 PM, and two additional vehicles operating during the morning peak (6:00 AM – 9:30 AM) and afternoon peak (3:40 PM – 8:00 PM), with headways every 25 to 30 minutes. Due to the 95 percent drop in ridership resulting from the COVID-19 pandemic, the two additional peak vehicles were suspended, resulting in revenue hours and miles decreases by over 50 percent each. All-day service continues to operate approximately every 70 minutes from 7:01 AM to 8:04 PM.

Route 88X – Stone Ridge / East Gate / Wiehle-Reston East Metrorail Station

Due to a drop in ridership resulting from the COVID-19 pandemic, LCT suspended two vehicles from the morning and afternoon Route 88X, which previously operated approximately every 25 to 40 minutes from 4:50 AM to 9:45 AM, and 3:00 PM to 8:09 PM on weekdays. One vehicle continues to serve the route between Wiehle-Reston East Metrorail, StoneSprings Hospital, Stone Ridge I Park and Ride Lot, and East Gate Park and Ride Lot across four morning and four afternoon trips, from 4:50 AM to 9:03 AM and 3:00 PM to 7:58 PM.

Route 901/902 – Potomac Falls / West Falls Church Metrorail Station

LCT suspended two vehicles from the morning and afternoon Route 901/902 peak service, which previously operated from 5:05 AM to 9:48 AM and 3:45 PM to 8:44 PM approximately every 25 to 35 minutes. Currently, LCT operates one vehicle between park and ride lots in Potomac Falls and West Falls Church Metrorail Station from 5:30 AM to 9:08 AM and 4:10 PM to 7:39 PM (totaling three morning and three afternoon trips). Unrelated to the COVID-19 pandemic, WMATA completed temporary Metrorail construction work and service was restored at West Falls Church Station (having temporarily operated at Ballston Station).

Route 921/922 – Harmony / Leesburg / Wiehle-Reston East Metrorail Station

Route 921/922 previously provided service from Harmony Park and Ride Lot to Wiehle-Reston East Metrorail via Leesburg Park and Ride Lot from 4:46 AM to 9:00 AM and 3:15 PM to 7:35 PM. This route has been suspended due to low ridership during the COVID-19 pandemic. Alternative bus service for Harmony Park and Ride Lot users is available 5.7 miles to the west at Purcellville Park and Ride via Route 931/932. Alternative bus service for Leesburg Park and Ride customers is available 3.5 miles south at Goose Creek Village Park and Ride via Route 923/924.

Route 923/924 – Goose Creek / Broadlands / Wiehle-Reston East Metrorail Station

Route 923/924 previously operated service approximately every 25 minutes (5:05 AM to 8:56 AM and 3:25 PM to 7:04 PM) from Goose Creek Village to Wiehle-Reston East Metrorail via Broadlands 772 Park and Ride Lot. LCT suspended one vehicle from Route 923/924, which currently has one remaining vehicle providing peak service from Goose Creek Village to Wiehle-Reston East Metrorail via Broadlands Park and Ride Lot from

5:05 AM to 8:56 AM and 3:25 PM to 6:39 PM, approximately every hour. Route 927 also provides one run from Wiehle-Reston East Metrorail Station at 7:45 PM and serves both park and ride lots.

Route 925/926 – Loudoun Station / Dulles North / Wiehle-Reston East Metrorail Station

LCT suspended one vehicle from Route 925/926, which previously operated 12 morning trips from Loudoun Station to Wiehle-Reston East Metrorail (three of which stopped at Dulles North Transit Center) 4:40 AM to 9:51 AM, and nine reverse afternoon trips (not stopping at Dulles North) 3:30 PM – 7:15 PM. One vehicle continues to provide peak hour service to Loudoun Station, Dulles North Transit Center, and Wiehle-Reston East Metrorail Station from 5:17 AM to 9:51 AM and from 3:30 PM to 7:15 PM (six morning trips and five afternoon trips). As was the case previously, the afternoon bus does not stop at Dulles North Transit Center. However, Route 927 provides service to Dulles North Transit Center with a single departure from Wiehle-Reston East Metrorail Station at 7:45 PM.

Route 927/928 – Wiehle-Reston East Metrorail Station / Central and Western Loudoun County Park and Ride Lots

Route 927/928 previously provided three afternoon trips from Wiehle-Reston East Metrorail to park and ride lots at Dulles North Transit Center, Loudoun Station Park and Ride, Broadlands 772 Park and Ride, Goose Creek Village Park and Ride, Leesburg Park and Ride, Harmony Park and Ride, and Purcellville Park and Ride, and one trip from Wiehle to Loudoun Station Park and Ride via Dulles North Transit Center. Service previously operated from 7:15 PM to 9:44 PM. LCT suspended two vehicles on this service, which reduced the service span and frequency, leaving one trip departing Wiehle-Reston East Metrorail Station at 7:45 PM.

Route 931/932 – Purcellville / Wiehle-Reston East Metrorail Station

Route 931/932 provides service from Purcellville to Wiehle-Reston East Metrorail, previously operating every 30 minutes from 4:45 AM to 9:30 AM and 3:00 PM to 7:45 PM. Although Route 931/932 was experiencing low ridership post-COVID (averaging 13 daily passengers), it did not experience service changes until November 2020 because the service is grant-funded. Two vehicles were suspended, which reduced the peak hour service span and frequency. Currently, one vehicle covers the most utilized peak time, operating every 90 minutes from 5:45 AM to 9:30 AM, and 3:00 PM to 6:45 PM.

Route 990/992 – Wiehle-Reston East Metrorail Station / Loudoun County Employers

Route 990/992 provides service from Wiehle-Reston East to employer sites in Loudoun County, previously operating from 6:20 AM to 9:37 AM and 3:30 PM to 6:10 PM every 20 to 30 minutes. LCT suspended one vehicle from the route, which now utilizes one bus for peak-hour weekday service (four morning and four afternoon trips) between 6:20 AM and 9:37 AM, and between 3:30 PM and 6:10 PM.

Route 993/994 – Wiehle-Reston East Metrorail Station / Loudoun County Government Center

Route 993/994, which previously provided one morning trip (8:00 AM) from Wiehle-Reston East to Loudoun County Government Center and one afternoon trip (5:05 PM) in the reverse direction, was suspended entirely.

Table 2: Proposed Service Changes: Metro Connection Changes to Existing Service

Route Number	Route Description	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
72	George Washington University - Wiehle Express	<ul style="list-style-type: none"> Suspended two peak service buses, which reduced service span and frequency. 	3,338.0	131.0	1,575.0	65.0	-52.8%	-50.4%
88X	Stone Ridge / East Gate - Wiehle Express	<ul style="list-style-type: none"> Suspended two peak service buses, which reduced service span and frequency. 	3,390.6	118.9	1,154.8	39.8	-65.9%	-66.6%
901/902	Potomac Falls - West Falls Church	<ul style="list-style-type: none"> Suspended two peak service buses, which reduced service span and frequency. 	3,592.4	113.9	1,243.5	32.03	-65.4%	-71.9%
921/922	Leesburg and Harmony-Wiehle	<ul style="list-style-type: none"> Route suspended. 	2,501.4	68.1	0.0	0.0	-100.0%	-100.0%

Route Number	Route Description	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
923/924	Goose Creek Village and Broadlands - Wiehle	<ul style="list-style-type: none"> Suspended one peak service bus, which reduced service span and frequency. 	2,101.9	63.2	996.0	29.9	-52.6%	-52.7%
925/926	Loudoun Station - Wiehle	<ul style="list-style-type: none"> Suspended one peak service bus, which reduced service span and frequency. 	2,194.0	84.7	1,024.7	39.1	-53.3%	-53.9%
927/928	Wiehle to Park and Ride Lots	<ul style="list-style-type: none"> Suspended two buses, which reduced service span and frequency. 	518.7	15.2	163.8	2.93	-68.4%	-80.8%
931/932	Purcellville- Wiehle	<ul style="list-style-type: none"> Suspended two buses, which reduced service span and frequency. 	4,212.1	107.4	1,179.0	31.9	-72.0%	-70.3%

Route Number	Route Description	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
990/992	Wiehle-Loudoun County	<ul style="list-style-type: none"> Suspended one bus, which reduced service span and frequency. 	1,387.5	51.1	624.8	25.3	-55.0%	-50.5%
993/994	Wiehle-Leesburg	<ul style="list-style-type: none"> Suspended service. 	209.8	5	0	0	-100.0%	-100.0%

Metro Connection: Proposed Restructured Service

The extension of the WMATA Metrorail Silver Line will provide three new rail stops in Loudoun County: Ashburn, Loudoun Gateway, and Dulles International Airport. While current Metro Connection service lines up connections at Wiehle-Reston East and West Falls Church Metrorail Stations, Loudoun County is proposing to restructure Metro Connection service to primarily serve the new stations. Ten new Metro Connection routes are proposed, the majority of which currently have two options under consideration. **Table 3** summarizes all new options, all of which are considered major service changes by nature of being new services. **Table 4** summarizes how existing Metro Connection services profiled in this document will be eliminated or modified to fit into the new service plan.

Table 3: Proposed Service Changes: Metro Connection Restructured Service

Proposed Route Name	Service Description	Weekday Service Span
Ashburn Farm	This route will replace current Routes 923/924 and 927/928, providing service between the western Ashburn communities of Ryan Park, Broadlands Village, Ashburn Farm, Belmont Greene, Goose Creek Village, and Ashburn Metrorail Station during peak commuting times.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
Ashburn Village	This route will provide service between Belmont Chase (Option 1) or Ashbrook Commons (Option 2) and Ashburn Metrorail Station during peak commuting times.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
Brambleton	This route will provide a peak hour connection between the Ashburn Metrorail Station and Brambleton, as well as neighborhoods along Evergreen Mills Road (Option 1) or Evergreen Ridge Drive (Option 2).	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
Broadlands	This route will provide service between Broadlands and Ashburn Metrorail Station during peak hours. Options 1 and 2 respectively call for a northern and southern loop around the Broadlands area.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
George Washington University (GWU)	This route will replace current Route 72, offering a new peak service from GWU to Ashburn Metrorail Station via One Loudoun. Option 2 would add a bus stop at the One Loudoun Park and Ride Lot in addition to the same bus stops as Option 1. The Ashburn North and Russell Branch Commonwealth stops will be discontinued.	7:00 AM – 8:00 PM with peak service available 7:00 AM – 9:00 AM 3:00 PM – 7:00 PM
Leesburg	Current Route 993/994 runs will be replaced with a new Leesburg Metro Connection route. The route will provide peak-hour service between Loudoun County Government Center on Harrison Street in Leesburg to Ashburn Metrorail Station.	6:00 AM – 9:00 AM 3:00 PM – 9:00 PM

Proposed Route Name	Service Description	Weekday Service Span
Moorefield-Westwind Farms	Operating in two legs, this route will provide service between Moorefield Station and the Ashburn Metrorail Station during peak hours.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
Potomac Falls	The route will provide peak hour service between West Falls Church Metrorail Station (Option 1 – current Route 901/902) or Herndon Metrorail Station (Option 2) and the communities of Countryside, Cascades, and Lowes Island.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
South Riding	This service will replace the current Route 88X service between the Metrorail and East Gate. The proposed route will operate during peak hours between Loudoun Gateway Metrorail Station, Mercure Circle, and East Gate Park and Ride.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM
Stone Ridge	This route will replace the current Route 88X service between the Metrorail and Stone Ridge. The proposed route will provide peak hour service between Loudoun Gateway Metrorail Station, Kirkpatrick Farms, Stone Ridge (including the Stone Ridge I Park and Ride) and StoneSprings Hospital.	5:00 AM – 9:00 AM 3:00 PM – 9:00 PM

Table 4: Proposed Service Changes: Metro Connection Existing Service (Integration into Restructured Service)

Current Route Name	Service Description
72	Route 72, which currently provides service to Wiehle-Reston East Metrorail from GWU, will be discontinued. Service from George Washington University (GWU) to and from Metrorail will be replaced by one of the new GWU Metro Connection options serving Ashburn Station.
88X	Route 88X, which currently serves trips from Wiehle-Reston East Metrorail to Stone Ridge Park and Ride, East Gate Park and Ride, and StoneSprings Hospital, will be discontinued. Service at the Stone Ridge Park and Ride, East Gate Park and Ride, and StoneSprings Hospital will be covered by neighborhood service proposed on both Stone Ridge and South Riding options for Metro Connection service to Loudoun Gateway Station.
901/902	Route 901/902 will continue to provide service to Wiehle-Reston East Station in addition to new Potomac Falls service to Herndon Station or another station on the Silver Line.

Current Route Name	Service Description
921/922	Route 921/922 currently provides service from Harmony Park and Ride Lot to Wiehle-Reston East Metrorail, via Leesburg Park and Ride Lot. This route is set to be discontinued, with service to Leesburg Park and Ride Lot replaced by the selected Leesburg Metro Connection option, and service to Harmony Park and Ride replaced by the expanded Route 931/932.
923/924	Route 923/924 provides peak service from Goose Creek Village to Wiehle-Reston East Metrorail via Broadlands 772 Park and Ride Lot. This route will be discontinued and replaced by one of the Ashburn Farm Metro Connection options, which will provide peak service to Ashburn Metrorail Station. While direct express service from Goose Creek Village to Metrorail will cease, total travel times for these passengers may actually decrease.
925/926	Route 925/926 provides peak hour service to Loudoun Station, Dulles North Transit Center, and Wiehle-Reston East Metrorail. This route will be discontinued to coincide with the expansion of Metrorail service to Loudoun County. Service to Loudoun Station and Dulles North Transit Center will be replaced by the Ashburn and Loudoun Gateway Metrorail stations.
927/928	Route 927/928 provides afternoon service from Wiehle-Reston East Metrorail to Dulles North Transit Center, Loudoun Station Park and Ride, Broadlands Park and Ride, Goose Creek Village Park and Ride, Leesburg Park and Ride, Harmony Park and Ride, and Purcellville Park and Ride. This route will be discontinued and replaced by service on the proposed Ashburn Farm service (Goose Creek Village), proposed Leesburg service (Leesburg Park and Ride), and 931/932 (Harmony and Purcellville Park and Rides).
931/932	Route 931/932, which currently operates from Purcellville Park and Ride to Wiehle-Reston East Metrorail, will add service at Harmony Park and Ride (previously covered by Route 921/922).
993/994	Route 993/994 provides one morning trip from Wiehle-Reston East to Loudoun County Government Center with the reverse trip in the afternoon. This route will be discontinued. The Leesburg Metro Connection service will replace this route, serving Ashburn rather than Wiehle-Reston East Metrorail.

Commuter Bus Changes (Currently Implemented)

Service reductions to Commuter Bus service in response to the 95 percent drop in ridership due to the COVID-19 pandemic are listed and evaluated for major service changes (based on weekly revenue miles and hours) in **Table 5**. Morning and afternoon service to and from the Western/Eastern Loudoun and South Dulles service zones, to and from Arlington County and Washington, DC are grouped according to the location of the park and ride lot.

The Western/Eastern Loudoun service zone is defined as all Census Block Groups within three miles of the following park and ride lots:

- Purcellville

- Harmony
- Leesburg
- Brambleton
- Ashburn North
- Loudoun Station
- Dulles North Transit Center.

The South Dulles service zone is defined as all Census Block Groups within three miles of the following park and ride lots:

- Stone Ridge II - Large Lot
- Stone Ridge - Small Lot
- East Gate.

Table 5: Proposed Service Changes: Commuter Bus

(*Denotes run started during COVID service. All other runs are not currently operating.)

Service Zone	Runs Affected	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
Western/Eastern Loudoun to DC	AM: 401, 101, 402, 301, 202, 103, 403, 404, 405, 251, 406, 104, 407, 408, 302, 303, 106, 410, 252, 411, 412, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 109, 307, 417, 418, 111, 308, 309, 419, 420, 209, *481 PM: 800, 501, 701, 801, 502, 802, 823, 702, 803, 503, 804, 805, 604, 808, 651, 703, 506, 704, 809, 507, 810, 652, 811, 508, 813, 705, 814, 706, 816, 817, 653, 707, 510, 819, 708, 820, 654, 609, 511, 821, 610, 822, *881	Service reduced from 41 to 5 runs in the morning, and from 42 to 5 runs in the afternoon	17,051.9	612.2	1,890.4	64.0	-88.9 %	-89.5 %

Service Zone	Runs Affected	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
Western/Eastern Loudoun to Arlington	AM: 402, 301, 403, 405, 203, 407, 408, 409, 105, 302, 410, 252, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 307, 110, 417, 111, 309, 420, *482 PM: 800, 601, 801, 804, 806, 807, 808, 651, 603, 504, 505, 704, 810, 652, 811, 508, 812, 813, 818, 509, 653, 819, 708, 820, 654, 609, 511, 821, 822, *882	Service reduced from 27 to 5 runs in the morning, and from 29 to 6 runs in the afternoon	11,884	431.7	2,054.7	38.8	-82.7 %	-91.0 %

Service Zone	Runs Affected	Change Description	FY 20 Service Prior to COVID-19 Reductions		Current FY 21 Service		Major Service Change Test	
			Weekly Revenue Miles	Weekly Revenue Hours	Weekly Revenue Miles	Weekly Revenue Hours	Revenue Miles Change	Revenue Hours Change
South Dulles to DC	AM: 201, 202, ,204, 205, 210, 206, 207, 211, 208, 209, *281 PM: 602, 604, 611, 605, 612, 606, 607, 608, 609, 610, *681	Service reduced from 10 to 2 runs in the morning, and from 10 to 2 runs in the afternoon	3,835.7	134.1	794.7	28.8	-79.3 %	-78.5 %
South Dulles to Arlington	AM: 201, 203, 210, 206, 208, *282 PM: 601, 602, 603, 606, 607, 608, 609, *682	Service reduced from 5 to 2 runs in the morning, and from 7 to 2 runs in the afternoon	2,237.4	82.1	752.4	52.5	-66.4 %	-36.1 %

ANALYSIS FRAMEWORK

Census Data Sources

For this Service Equity Analysis, the primary data source was the U.S. Census Bureau, American Community Survey (ACS) five-year estimates from 2015 to 2019, measured at the Census Block Group level. Geographic data provided by Loudoun County Transit (LCT) was also used to determine the service areas for the LCT Local and Commuter Bus networks, as well as the service areas of the current route alignments that have proposed changes. For the disparate impact analysis (minority population percentage), 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. For the disproportionate burden analysis (low-income households percentage), the primary ACS table utilized was Table B19001, "Household Income in the Past 12 Months (In 2015 Inflation-Adjusted Dollars)."

Calculation of Local Bus Service Area (for Reference)

Minority Population Percentage

Total population estimates, minority population percentage estimates (total population minus non-Hispanic White population) for Census Block Groups, bus stop point shapefiles, and route line shapefiles were used to determine minority population for the entire LCT Local Bus service area, which includes regular Local as well as Metro Connection service. Using a geographic information system (GIS), a one-quarter mile buffer was placed around each existing Local Bus or Metro Connection stop; the resulting area (including all Census Block Groups in Loudoun County contained either partially or wholly) was considered the Local Bus service area. To calculate the minority population percentage in the Local Bus service area, the number of residents identified as minority was divided by the total estimated population; the resulting figure was multiplied by 100.

Low-Income Households Percentage

To determine the percentage households identifying as low-income in the Local Bus service area (the sum of households reporting incomes under half of the area median income, aggregate of all income categories under \$50,000), a one-quarter mile buffer was placed around each Local Bus stop. The resulting area (including all Census Block Groups in Loudoun County contained either partially or wholly) was considered the Local Bus service area. To calculate the low-income households percentage in the Local Bus service area, the number of households identified as low-income was divided by the total estimated households; the resulting figure was multiplied by 100.

Calculation of Commuter Bus Service Area (for Reference)

Minority Population and Low-Income Households Percentage

Calculation of the minority population and low-income households percentage for the entire Commuter Bus service area applied nearly the same method used for the Local Bus service area. However, instead of selecting all Census Block Groups within one-quarter mile of Commuter Bus stops to calculate the service area, this analysis selected all Block Groups in Loudoun County and Fairfax County within three miles of park and rides located in Loudoun County.

Service Equity Analysis Methodology

This section describes the various methodologies employed to analyze proposed service changes. For each methodology, either the Local Bus or Commuter bus service area reference calculations (described in the previous section) were used.

Local Bus Changes

Changes to Local Bus Routes 57 and 81 were deemed to not qualify as major service changes and were thus not analyzed in the Service Equity Analysis portion of this document.

Metro Connection Changes to Existing Service

Suspension of trips or entire routes from existing Metro Connection service due to a drop in ridership were analyzed under Loudoun County Transit's major service change policy. All implemented changes qualified as major service changes. To assess these service reductions, by affected route, the area within one-quarter mile of bus stops was buffered to calculate the percent minority and low-income population served. All Metro Connection changes to existing service were subsequently analyzed cumulatively in comparison to LCT's policies for disparate impact and disproportionate burden. Changes in span or frequency were also assessed for potential adverse effects.

Metro Connection Proposed Restructured Service

The analysis of the proposed reconstruction of the Metro Connection service was designed to serve as a guide for LCT in the development of a final service plan. As a result, the cumulative analysis of disparate impact and disproportionate burden did not take place in this analysis, instead, each route was examined individually for disparate impact and disproportionate burden. This analysis also examined the areas that will have new service, or where service will no longer be available, under the proposed restructuring. This was done in two ways:

- 1) Restructured service will feature 10 new routes, the majority of which currently have two options proposed. For each route option set, the total minority population and low-income household percentages were calculated using one-quarter mile buffers around proposed stops. Each route option was analyzed individually to assess which might serve a greater minority population or low-income households percentage. These percentages were also compared to those of the Local Bus service area, based on LCT's definitions of and thresholds for disparate impact and disproportionate burden. Route changes were recommended based on this analysis.
- 2) Existing Metro Connection service will ultimately be modified significantly and in several cases, discontinued. Given that the majority of modified or discontinued service is slated to be replaced by renewed Metro Connection service, to assess for service reductions, the combined area of Census Block Groups within one-quarter mile of all roadside stops proposed for complete discontinuation was analyzed in comparison to LCT's cumulative policies for disparate impact and disproportionate burden. To assess for service improvements, the combined area of Census Block Groups within one-quarter mile of all completely new proposed stops (including all potential Metro Connection options) was analyzed in comparison to LCT's cumulative policies for disparate impact and disproportionate burden. Changes in span or frequency were assessed for potential adverse effects.

Commuter Bus Changes

To assess Commuter Bus proposed changes, the Commuter Bus service area was split into two analysis zones:

- The Western/Eastern Loudoun zone is comprised of the three-mile buffer area of Census Block Groups in Loudoun and Fairfax Counties surrounding the Purcellville, Harmony, Leesburg, Brambleton, Ashburn North, Loudoun Station, and Dulles North Transit Center park and ride lots.
- The South Dulles zone is comprised of the three-mile buffer area of Census Block Groups in Loudoun and Fairfax Counties surrounding the Stone Ridge and East Gate park and ride lots.

For each proposed change, the total minority population and low-income household percentages were calculated within the relevant Commuter Bus zone. These percentages were aggregated and compared to those of the Commuter Bus service area cumulatively, based on LCT's definitions of and thresholds for disparate impact and disproportionate burden. Adverse effects related to alignment, span, or frequency were also evaluated.

Adverse Effects Definition

Adverse effects to minority, limited English proficient, and low-income populations may result from major service changes. Loudoun County considers decreases in span of service, reduced frequency of trips, or the discontinuation of a route as adverse service changes.

SERVICE EQUITY ANALYSIS

Local Bus/Metro Connection Service Area Demographics

Table 6 summarizes service area demographics for the Local Bus/Metro Connection service area, defined as all Census Block Groups within one-quarter mile of Local Bus or Metro-Connection stops. Minority populations comprise approximately 44.5 percent of the population in the LCT Local Bus / Metro-Connection service area. The LCT disparate impact (DI) policy for service improvements or reductions is five percent. After applying the DI policy to the service area minority population percentage, the disparate impact threshold for service improvements is 39.5 percent (44.5 percent minus five percent), and the threshold for service reductions is 49.5 percent (44.5 percent plus 5 percent).

Low-income households comprise approximately 15.4 percent of households in the LCT Local Bus service area. The LCT disproportionate burden (DB) threshold is five percent. After applying the DB policy to the service area low-income households percentage, the disproportionate burden threshold for service improvements is 10.4 percent, and the threshold for service reductions is 20.4 percent.

Table 6: Local Bus and Metro Connection Disparate Impact and Disproportionate Burden Thresholds (2015 – 2019 ACS)

Disparate Impact				
Service Area Population	Minority Population	Percent Minority Population	Service Reduction Disparate Impact Threshold (+5%)	Service Improvement Disparate Impact Threshold (-5%)
244,453	108,688	44.5%	49.5%	39.5%
Disproportionate Burden				
Service Area Households	Low-Income Households	Percent Low-Income Households	Service Reduction Disproportionate Burden Threshold (+5%)	Service Improvement Disproportionate Burden Threshold (-5%)
83,059	12,773	15.4%	20.4%	10.4%

Metro Connection Changes to Existing Service

As described earlier in this document, 10 Metro Connection routes have implemented major service changes that are considered adverse effects because services are reduced, including the discontinuation of 921/922 and 993/994, as well as a reduction in frequency and span on nearly all other routes. This section presents a cumulative assessment of service changes for potential disparate impacts or disproportionate burdens. As Metro Connection service will soon be completely restructured, the **Metro Connection Proposed Restructured Service** section (that follows this section) features a variety of service change maps showing how services slated for elimination or modification will be replaced in the new service plan.

Implemented Service Change Maps

Figure 3 and **Figure 4** respectively depict the percent minority population and percent low-income households in the vicinity of Metro Connection routes with implemented service changes.

Figure 3: Existing Metro Connection Service with Implemented Service Changes: Percent Minority

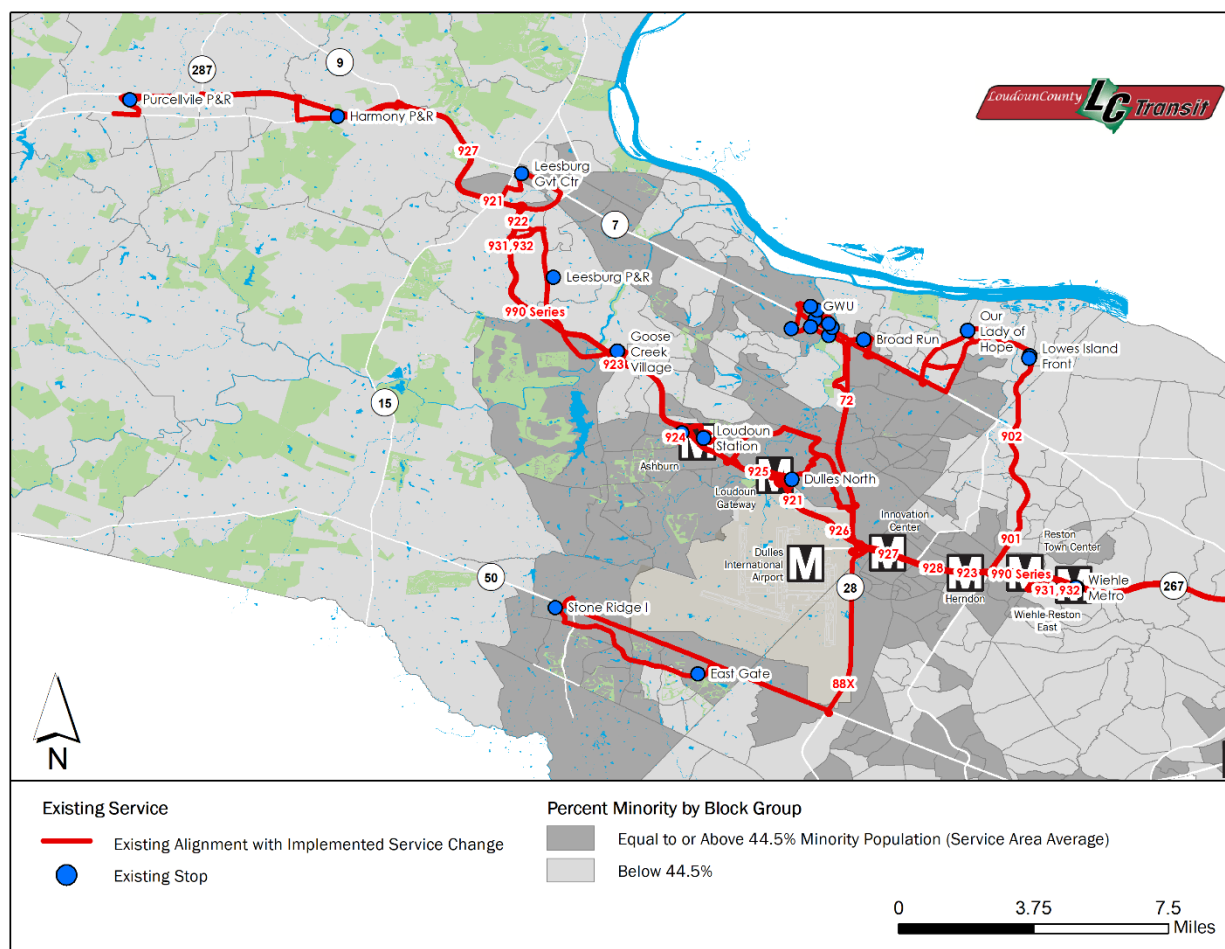
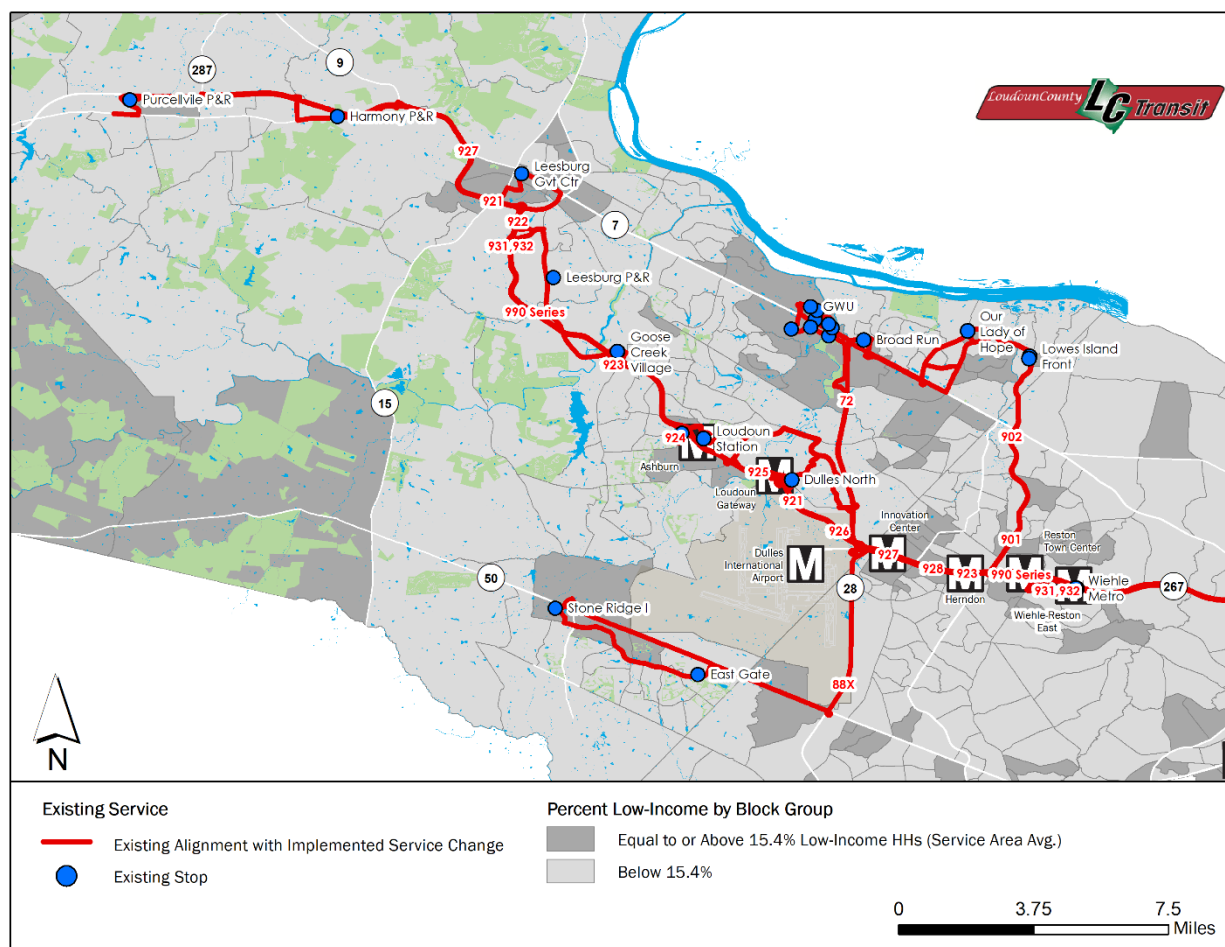


Figure 4: Existing Metro Connection Service with Implemented Service Changes: Percent Low-Income



Disparate Impact Analysis

Service Reductions (Span, Frequency, and Discontinued Routes)

Table 7 shows the disparate impact analysis for Metro Connection changes to existing service. For each affected route, demographic statistics were calculated by taking all Census Block Groups within a quarter-mile of all route stops. Minority population percentages are listed by route and summarized cumulatively for the purpose of evaluating against LCTs disparate threshold for service reductions, 49.5 percent. The cumulative minority population percentage associated with these service reductions is 40.0 percent, below the threshold for a disparate impact.

Table 7: Metro Connection Changes to Existing Service Disparate Impact Analysis

Route	Total Population Served	Total Minority Population	Percent Minority Population
72	11,215	4,994	44.5%
88X	8,937	5,531	61.9%

Route	Total Population Served	Total Minority Population	Percent Minority Population
901/902	30,068	11,122	37.0%
921/922	11,860	3,031	25.6%
923/924	27,577	12,965	47.0%
925/926	5,283	3,080	58.3%
927/928	48,419	18,040	37.3%
931/932	8,982	2,044	22.8%
990/992	4,994	2,653	53.1%
993/994	6,431	2,064	32.1%
SUBTOTAL	165,222	65,524	40.0%
Disparate Impact Threshold for Service Reductions			49.5%
Does this package of changes meet the disparate impact threshold for service reductions?			No

Disproportionate Burden Analysis

Service Reductions (Span, Frequency, and Discontinued Routes)

Table 8 shows the disproportionate burden analysis for Metro Connection changes to existing service. For each affected route, demographic statistics were calculated by taking all Census Block Groups within a quarter-mile of all route stops. Low-income household percentages are listed by route and summarized cumulatively for the purpose of evaluating against LCTs disproportionate burden threshold for service reductions, 20.4 percent. The cumulative low-income households percentage associated with these service reductions is 11.5 percent, below the threshold for a disproportionate burden.

Table 8: Metro Connection Changes to Existing Service Disproportionate Burden Analysis

Route	Total Households Served	Total Low-Income Households	Percent Low-Income Households
72	4,503	924	20.5%
88X	3,219	470	14.6%
901/902	11,163	1,554	13.9%
921/922	3,785	293	7.7%
923/924	9,125	864	9.5%

Route	Total Households Served	Total Low-Income Households	Percent Low-Income Households
925/926	1,941	257	13.2%
927/928	15,783	1,480	9.4%
931/932	2,873	323	11.2%
990/992	1,596	109	6.8%
993/994	1,990	167	8.4%
SUBTOTAL	56,648	6,441	11.5%
Disproportionate Burden Threshold for Service Reductions			20.4%
Does this package of changes meet the disproportionate burden threshold for service reductions?			No

Summary of Findings: Metro Connection Changes to Existing Service

During 2020, LCT implemented a variety of service changes on its Metro Connection service in response to the COVID-19 pandemic and a resulting 95 percent drop in ridership. Based on the analysis presented in this section, these changes did not result in a finding of disparate impact or disproportionate burden. However, given the magnitude of span and frequency changes associated with these service changes, adverse effects on riders of affected services are anticipated. LCT hopes to restore service back to normal levels in the coming year. Adverse effects resulting from span and frequency changes have occurred and will continue until service is restored, post pandemic.

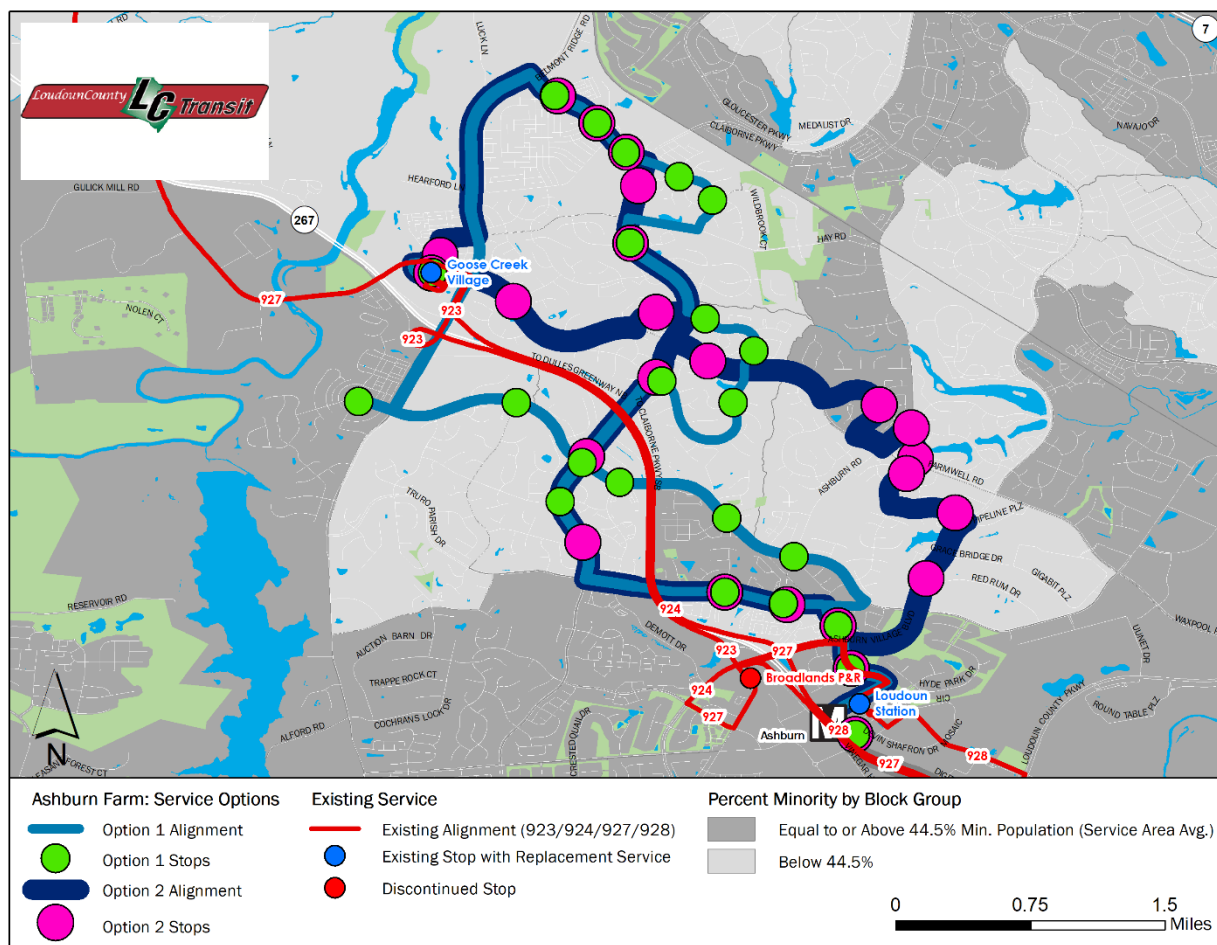
Metro Connection Proposed Restructured Service

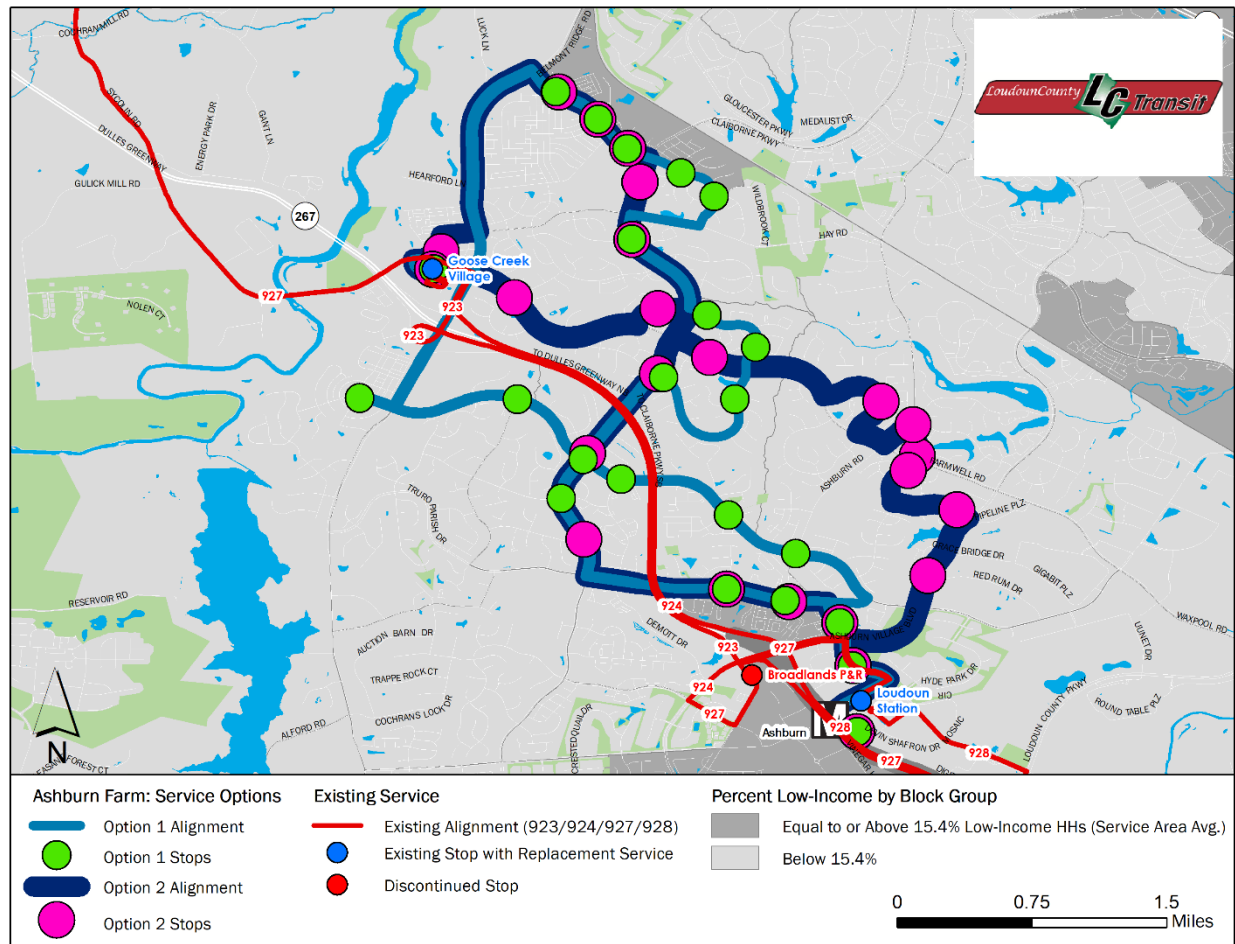
Proposed Service Change Maps

The maps in this section show each newly proposed Metro Connection route along with the current Metro Connection route(s) it is slated to replace. Maps also depict whether the percent minority population or percent low-income households is above or below service area average. **Figure 25** and **Figure 26** display both options for new Metro Connection service alongside existing service (including service to be preserved or replaced), completely discontinued stops, and potential new stops. In cases where a proposed Metro Connection service would not cover or replace an existing service, no existing service is displayed.

Ashburn Farm

Figure 5: Proposed Metro Connection Service, Ashburn Farm: Percent Minority





Ashburn Village

Figure 7: Proposed Metro Connection Service, Ashburn Village: Percent Minority

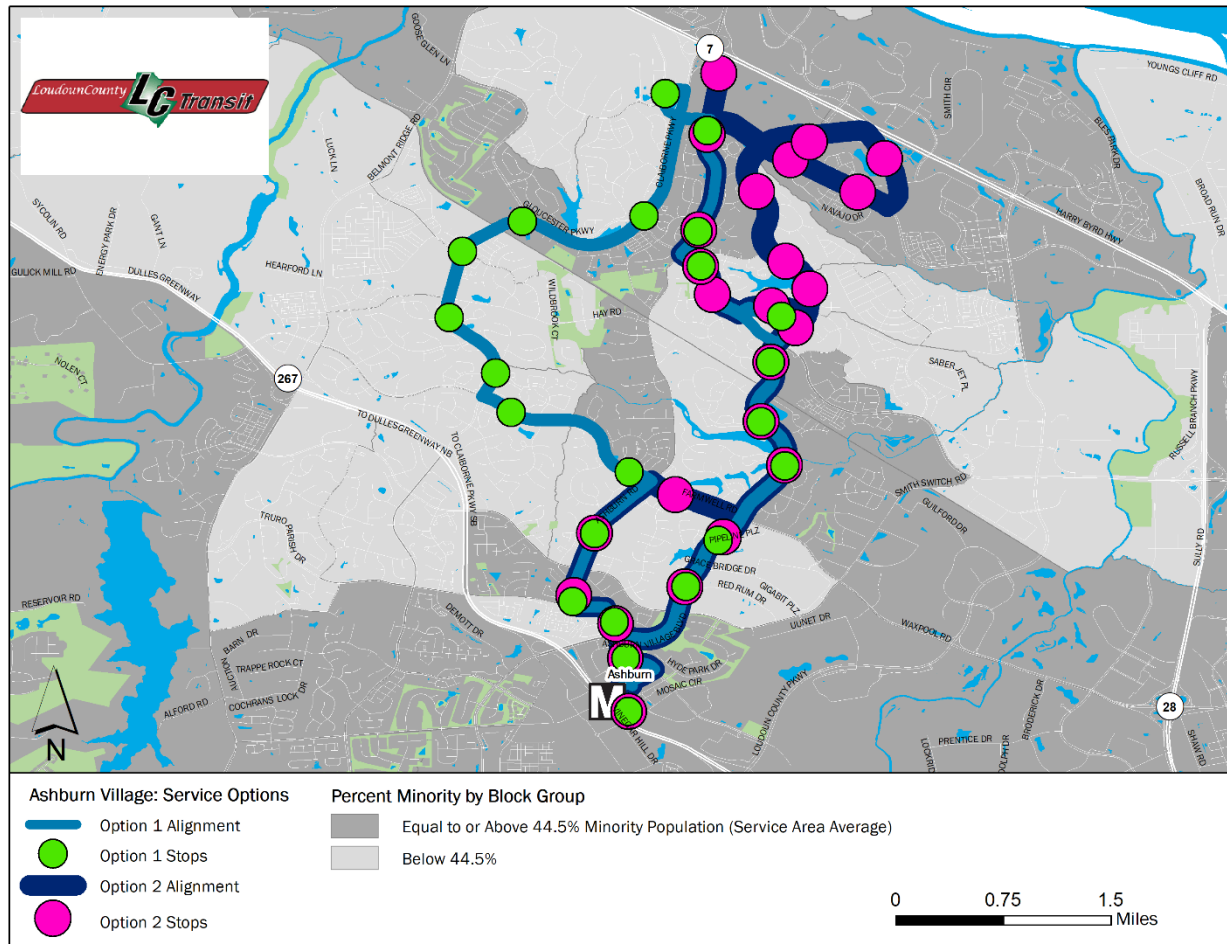
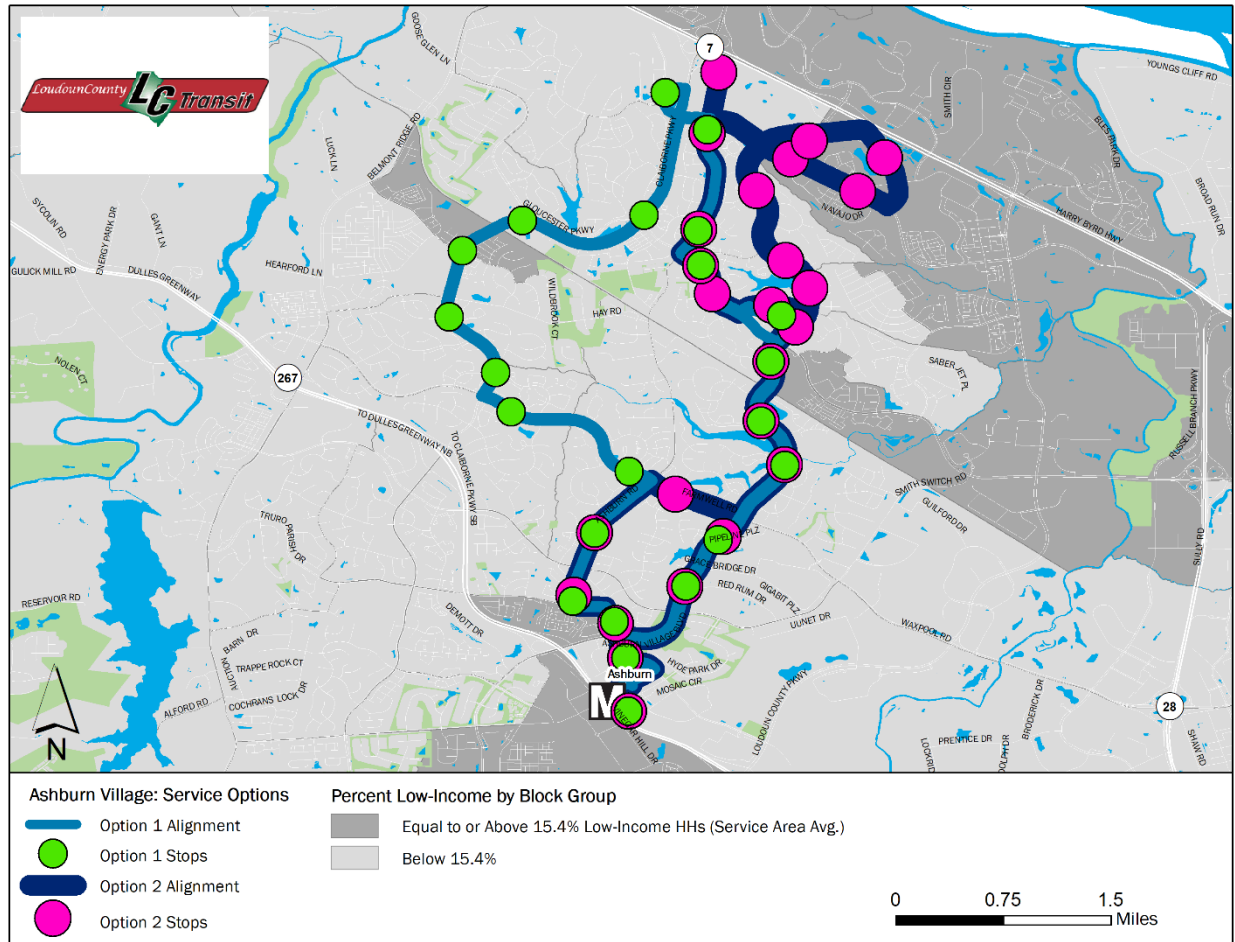


Figure 8: Proposed Metro Connection Service, Ashburn Village: Percent Low-Income



Brambleton

Figure 9: Proposed Metro Connection Service, Brambleton: Percent Minority

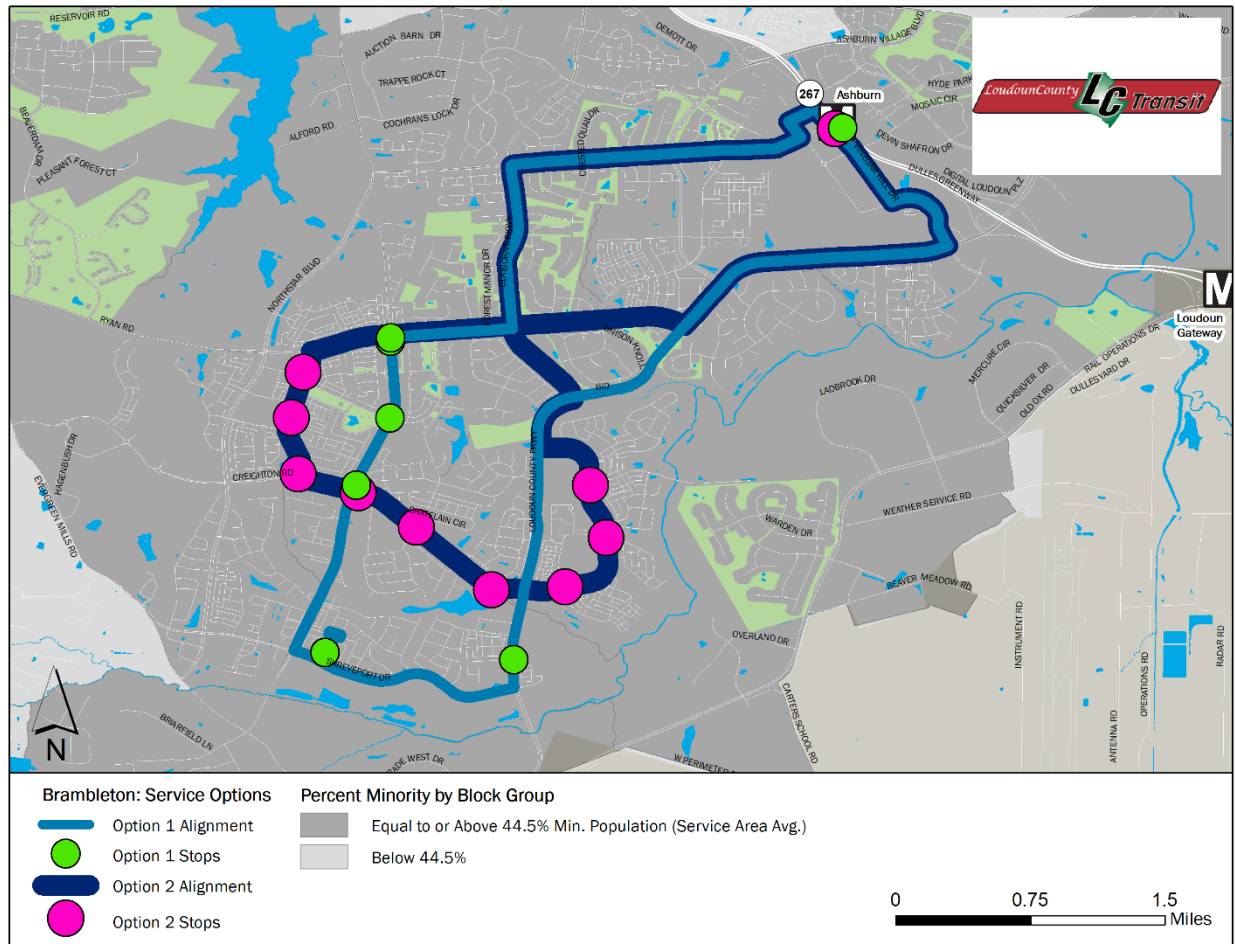
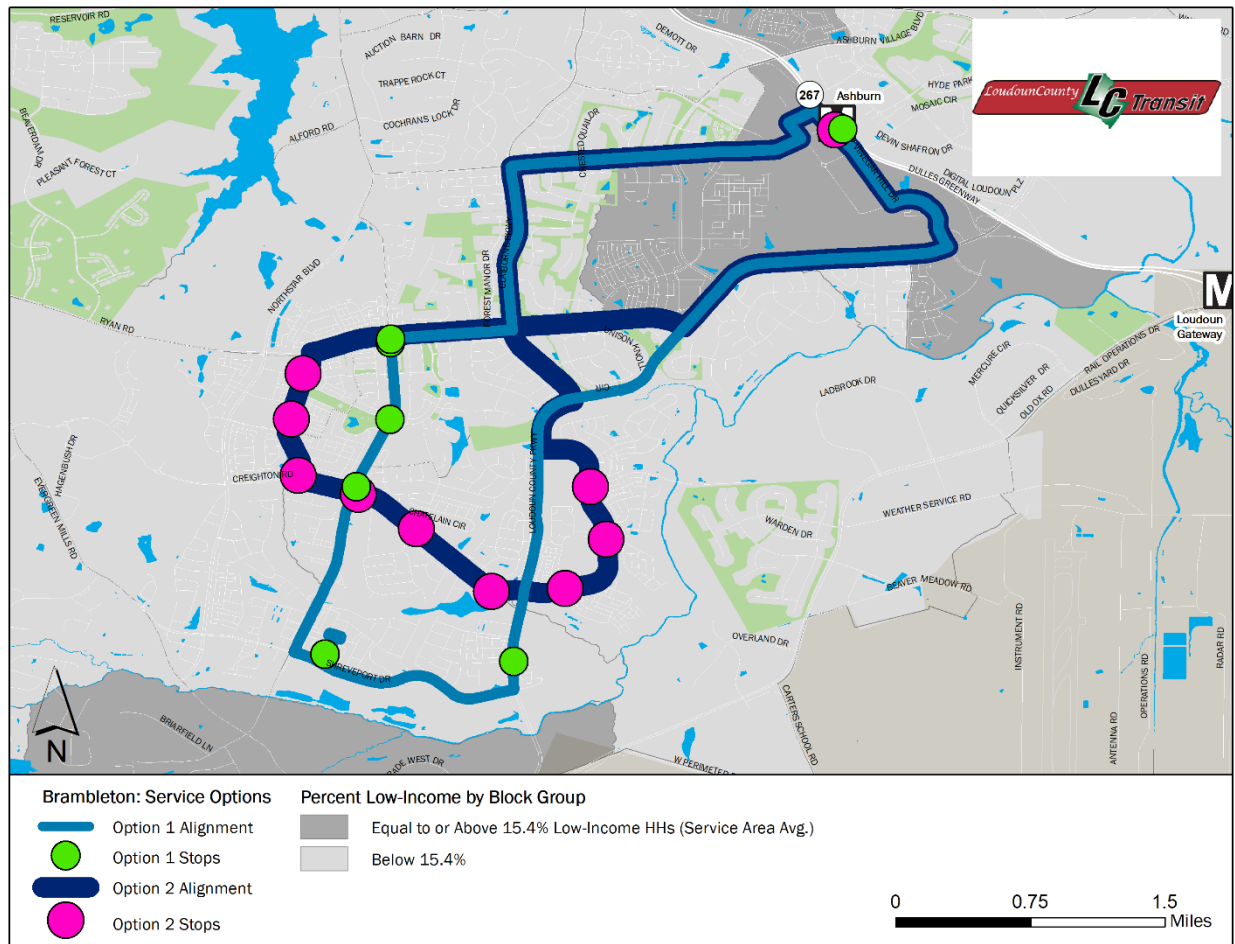


Figure 10: Proposed Metro Connection Service, Brambleton: Percent Low-Income



Broadlands

Figure 11: Proposed Metro Connection Service, Broadlands: Percent Minority

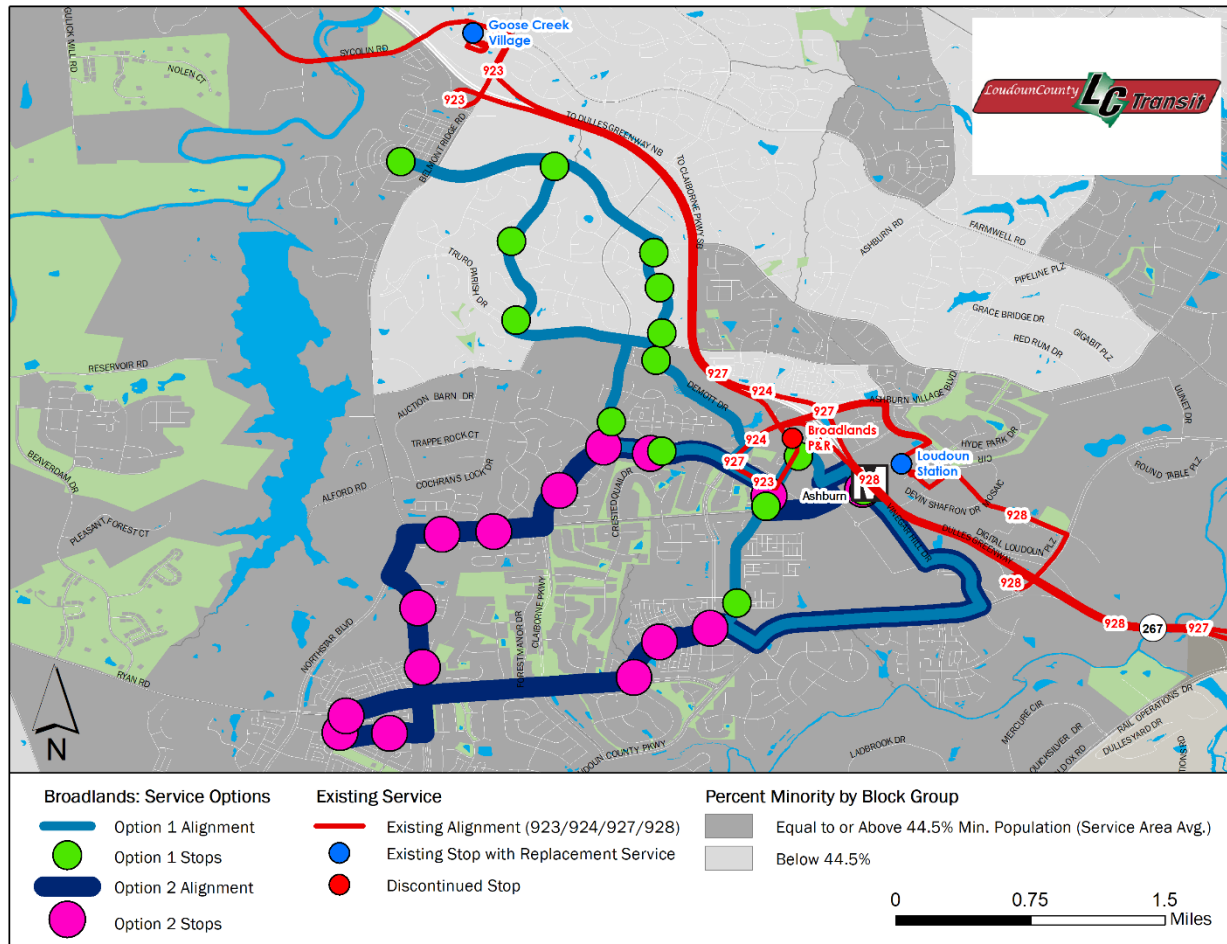
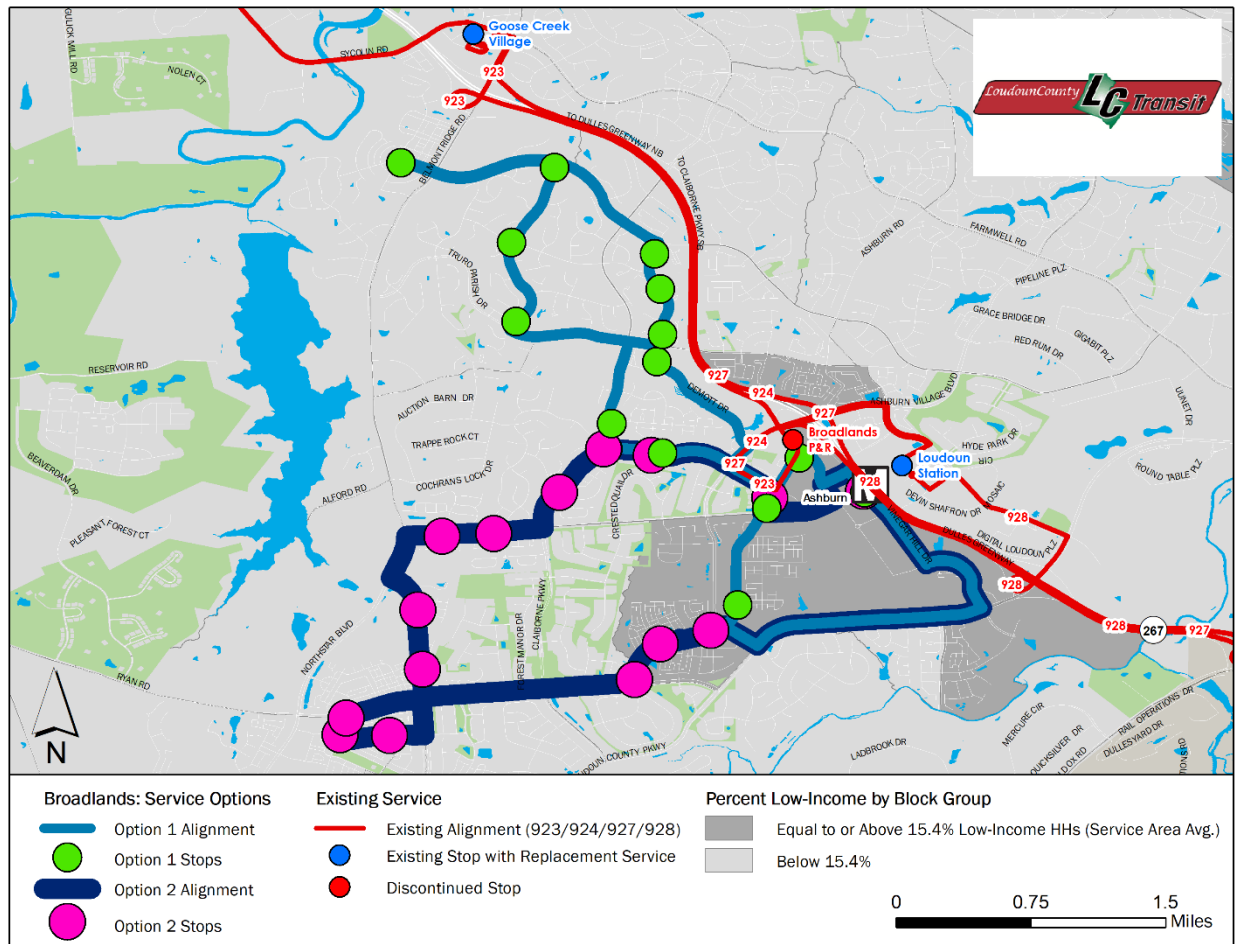


Figure 12: Proposed Metro Connection Service, Broadlands: Percent Low-Income



George Washington University (GWU)

Figure 13: Proposed Metro Connection Service, GWU: Percent Minority

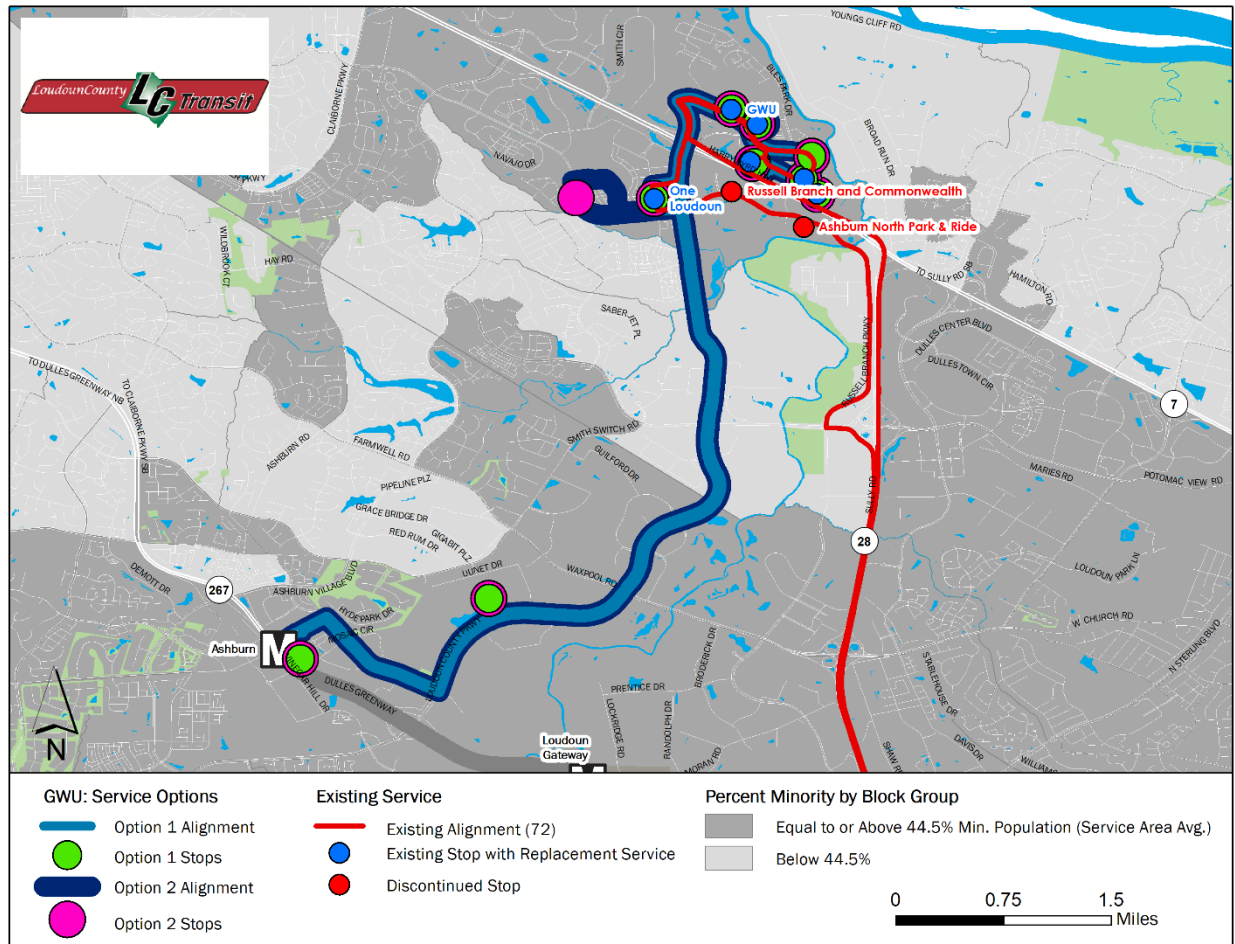
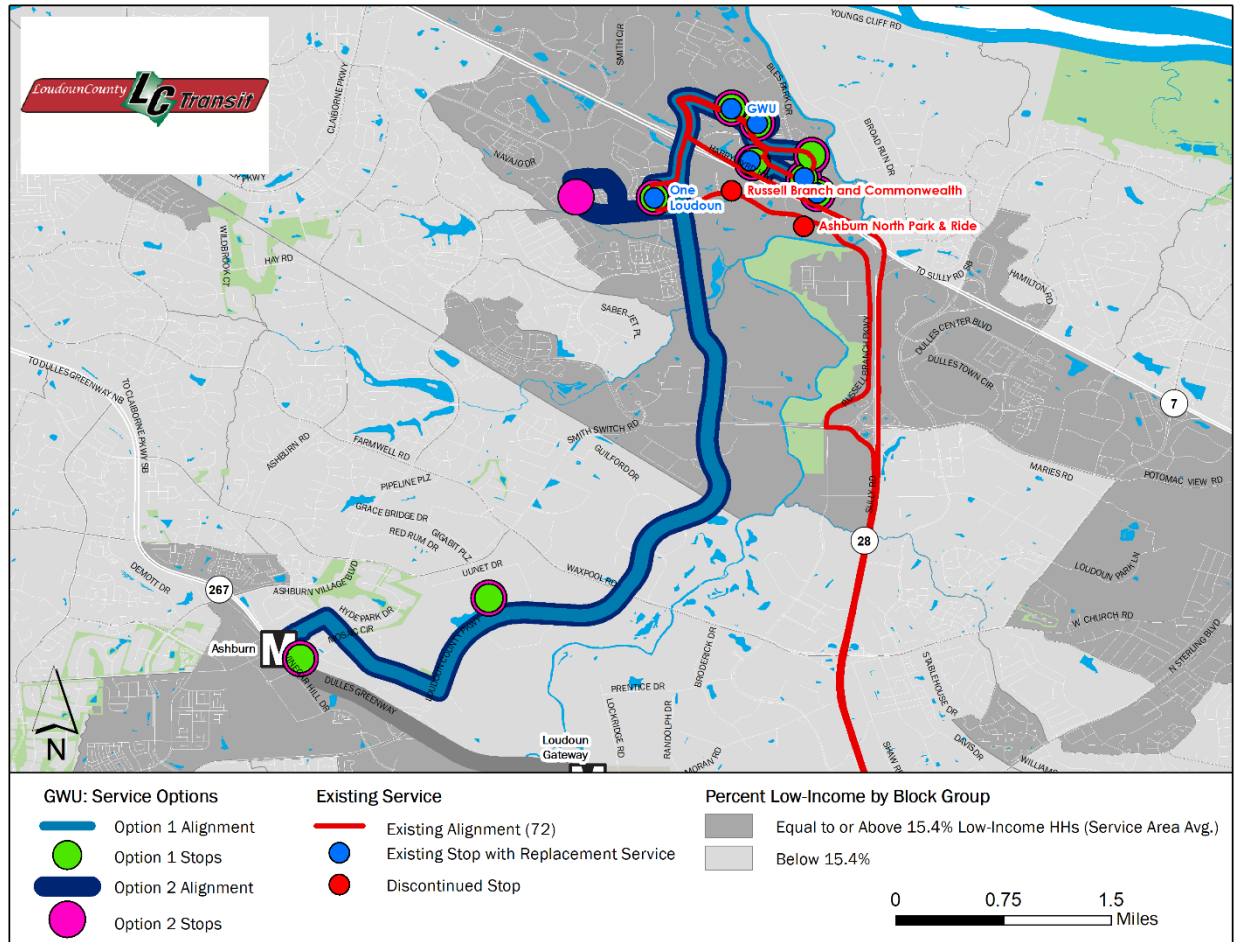
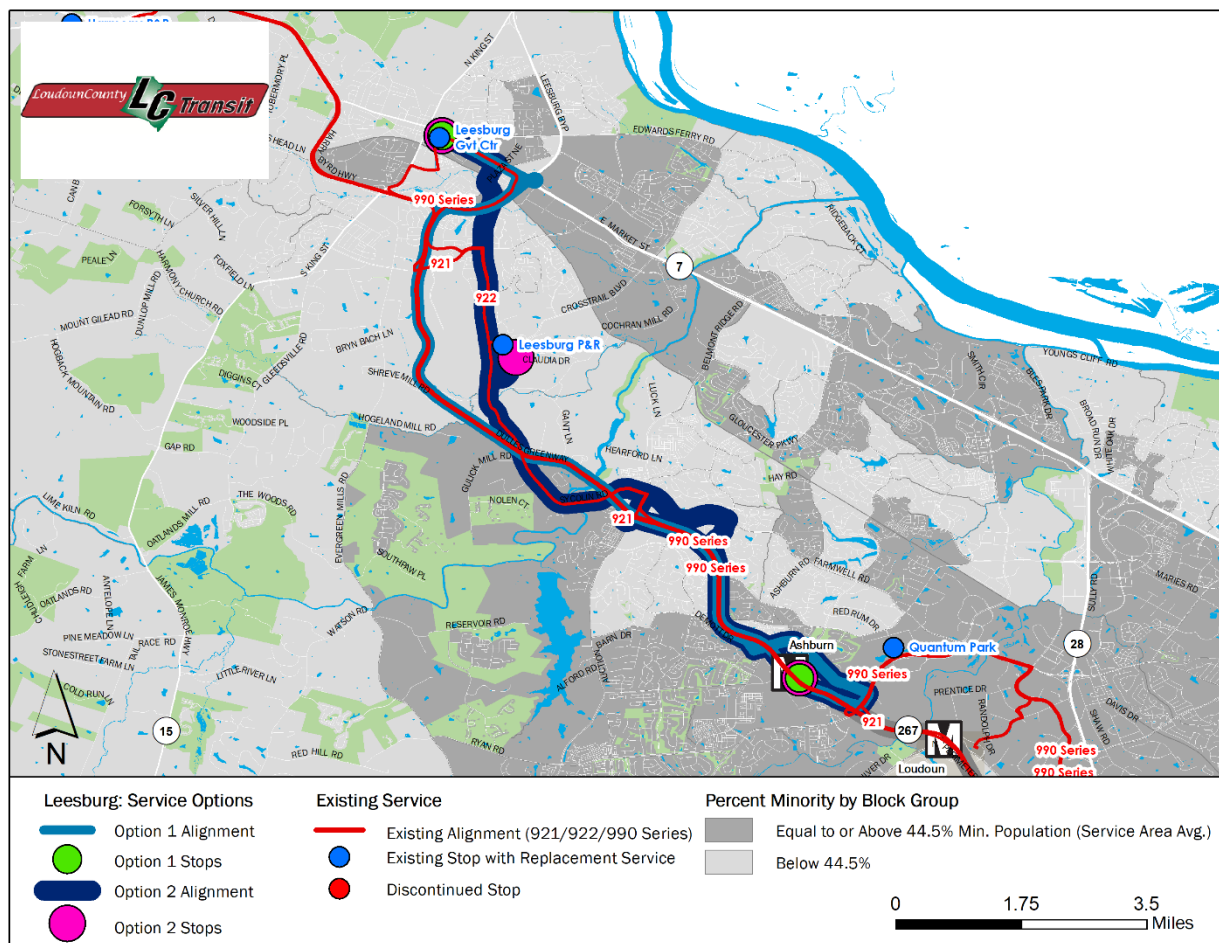


Figure 14: Proposed Metro Connection Service, GWU: Percent Low-Income



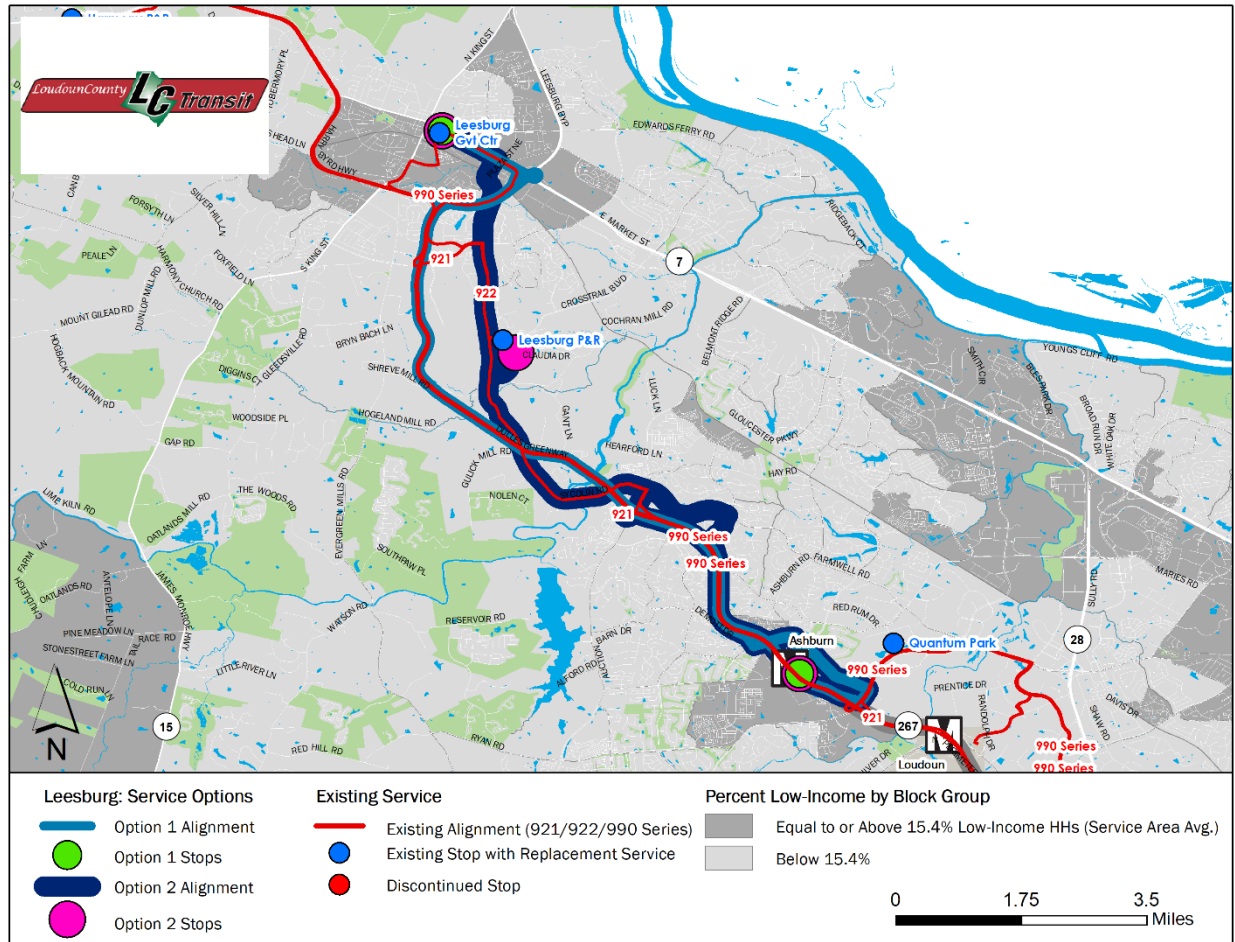
Leesburg²

Figure 15: Proposed Metro Connection Service, Leesburg: Percent Minority



² Leesburg Park and Ride will not serve Metro Connection service under the restructured service plan. However, given that Commuter Bus service is proposed to serve this stop, it has not been labeled as discontinued.

Figure 16: Proposed Metro Connection Service, Leesburg: Percent Low-Income



Moorefield-Westwind Farms

Figure 17: Proposed Metro Connection Service, Moorefield: Percent Minority

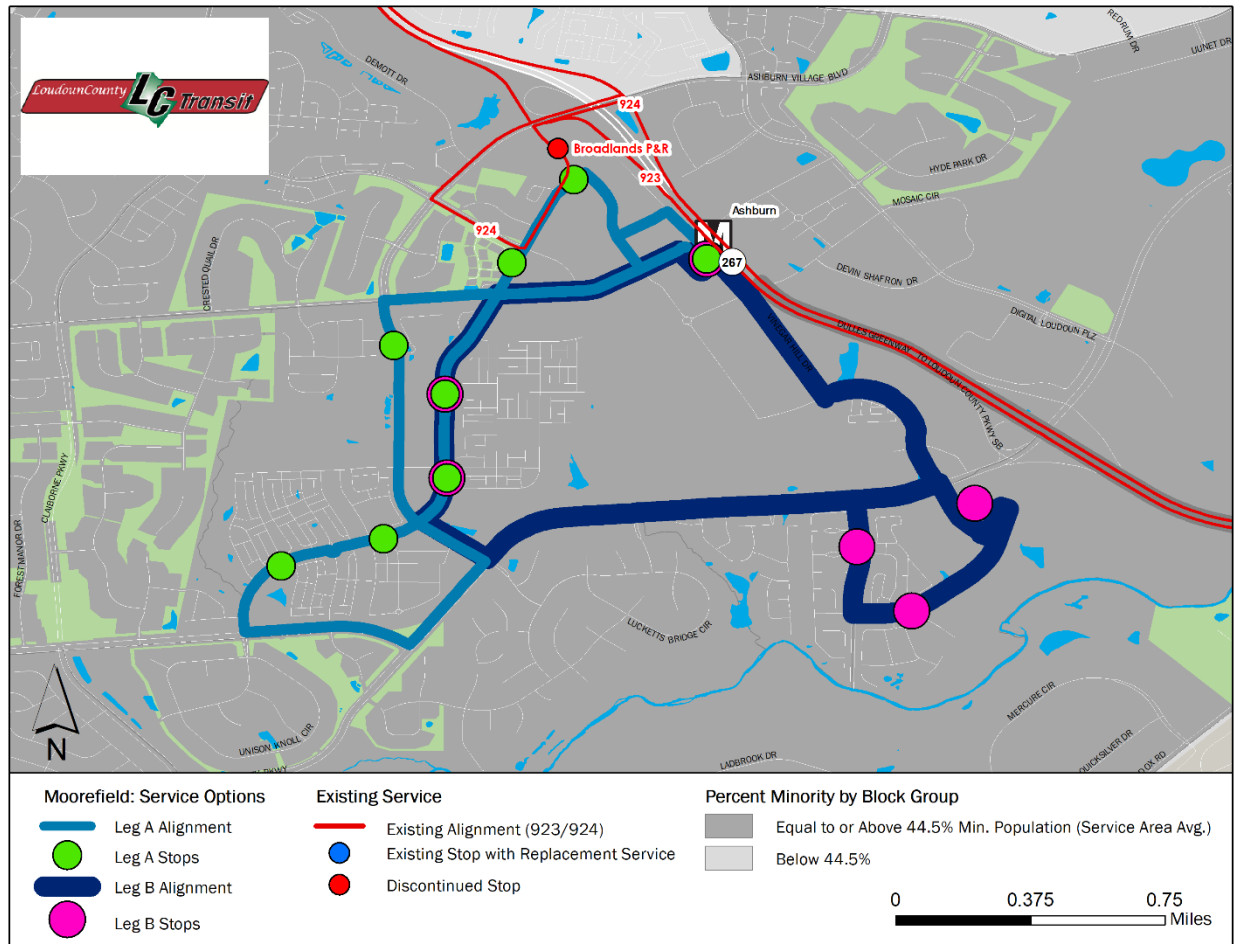
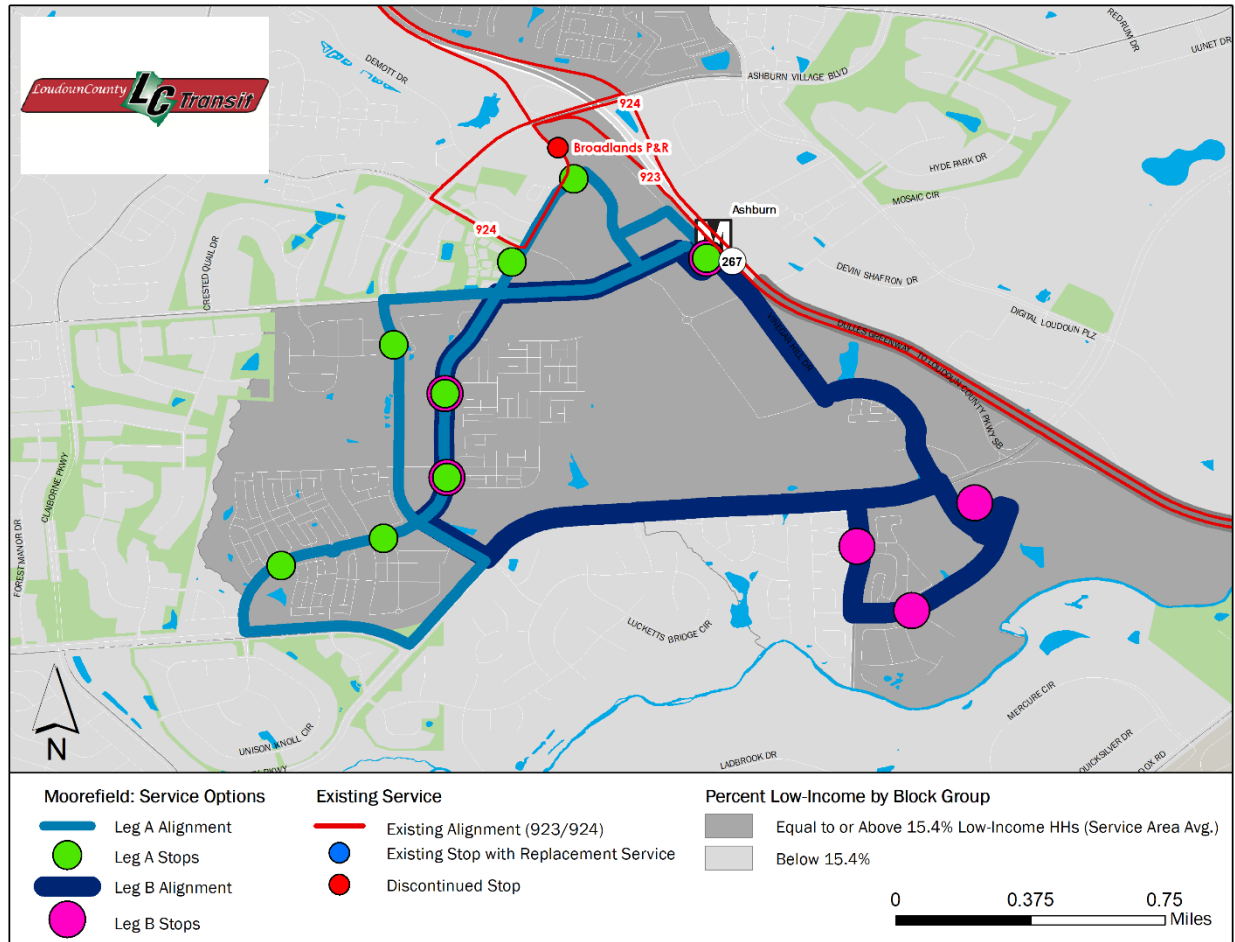


Figure 18: Proposed Metro Connection Service, Moorefield: Percent Low-Income



Potomac Falls

Figure 19: Proposed Metro Connection Service, Potomac Falls: Percent Minority

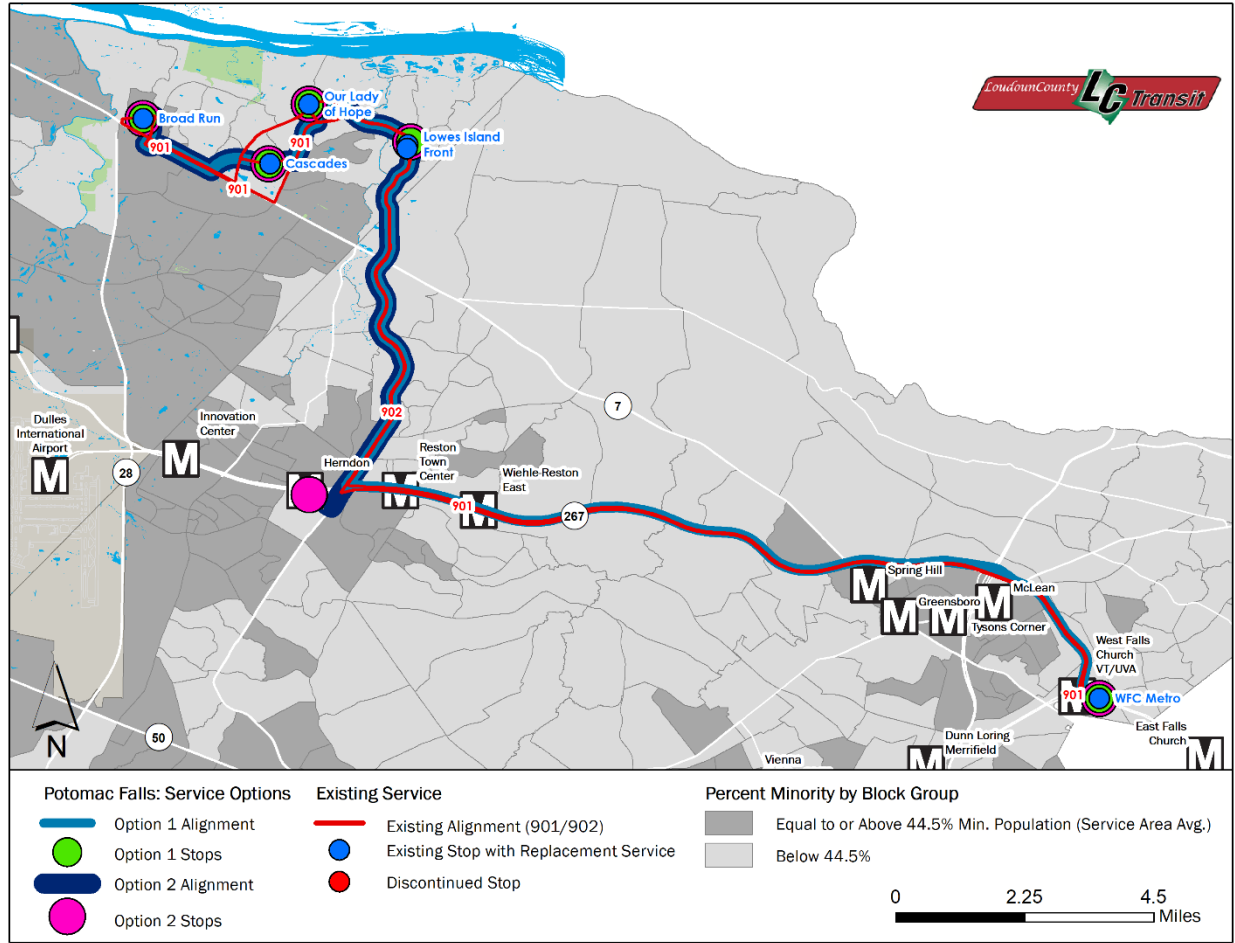
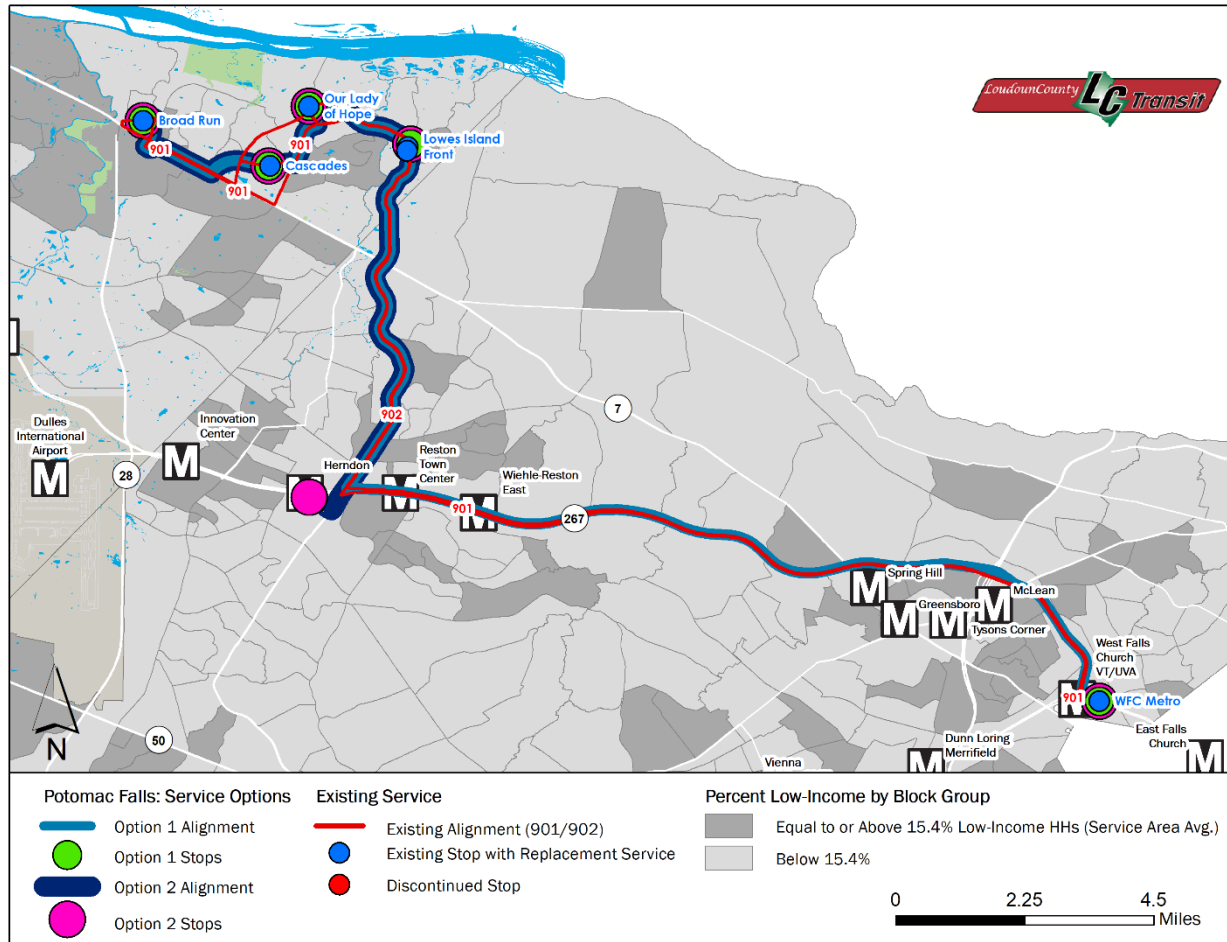


Figure 20: Proposed Metro Connection Service, Potomac Falls: Percent Low-Income



South Riding

Figure 21: Proposed Metro Connection Service, South Riding: Percent Minority

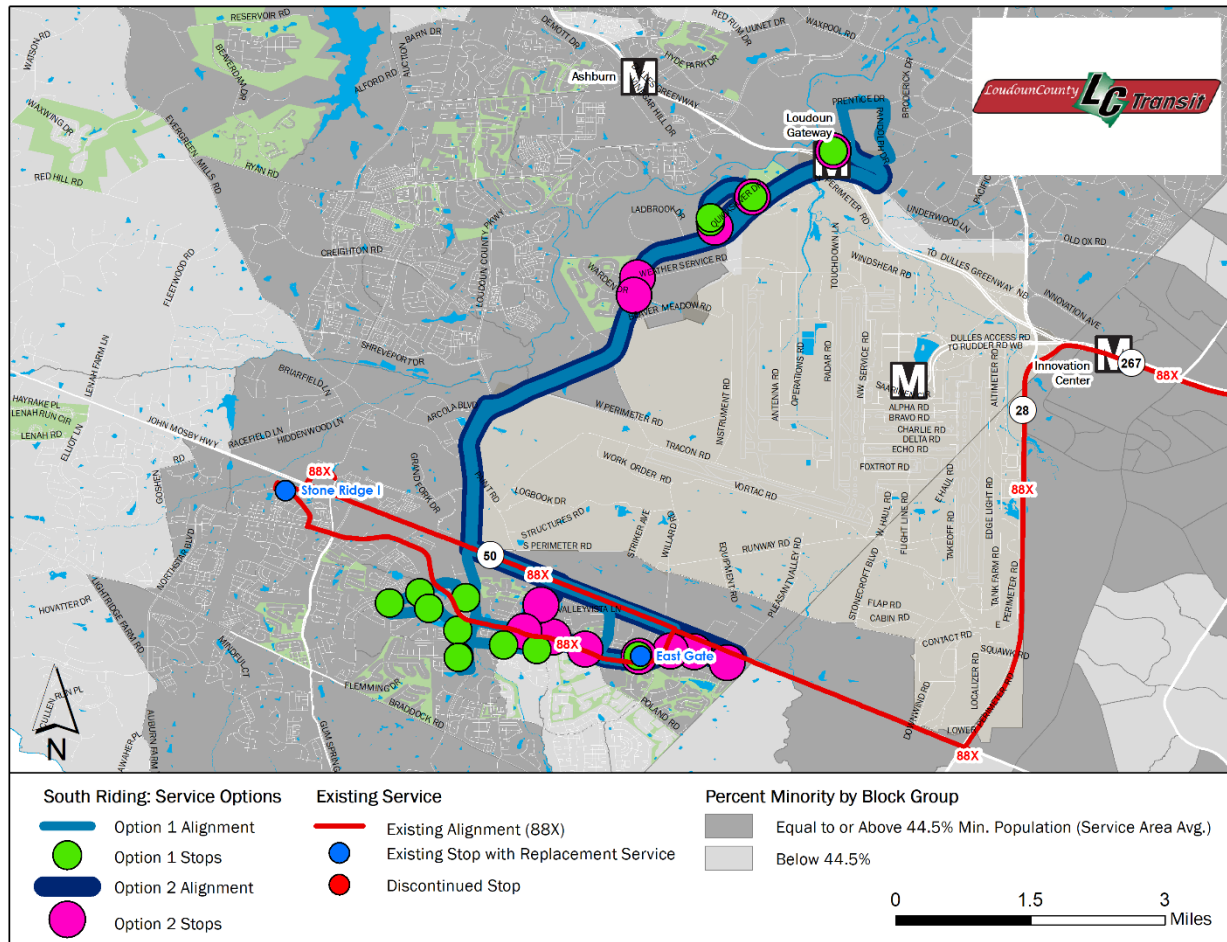
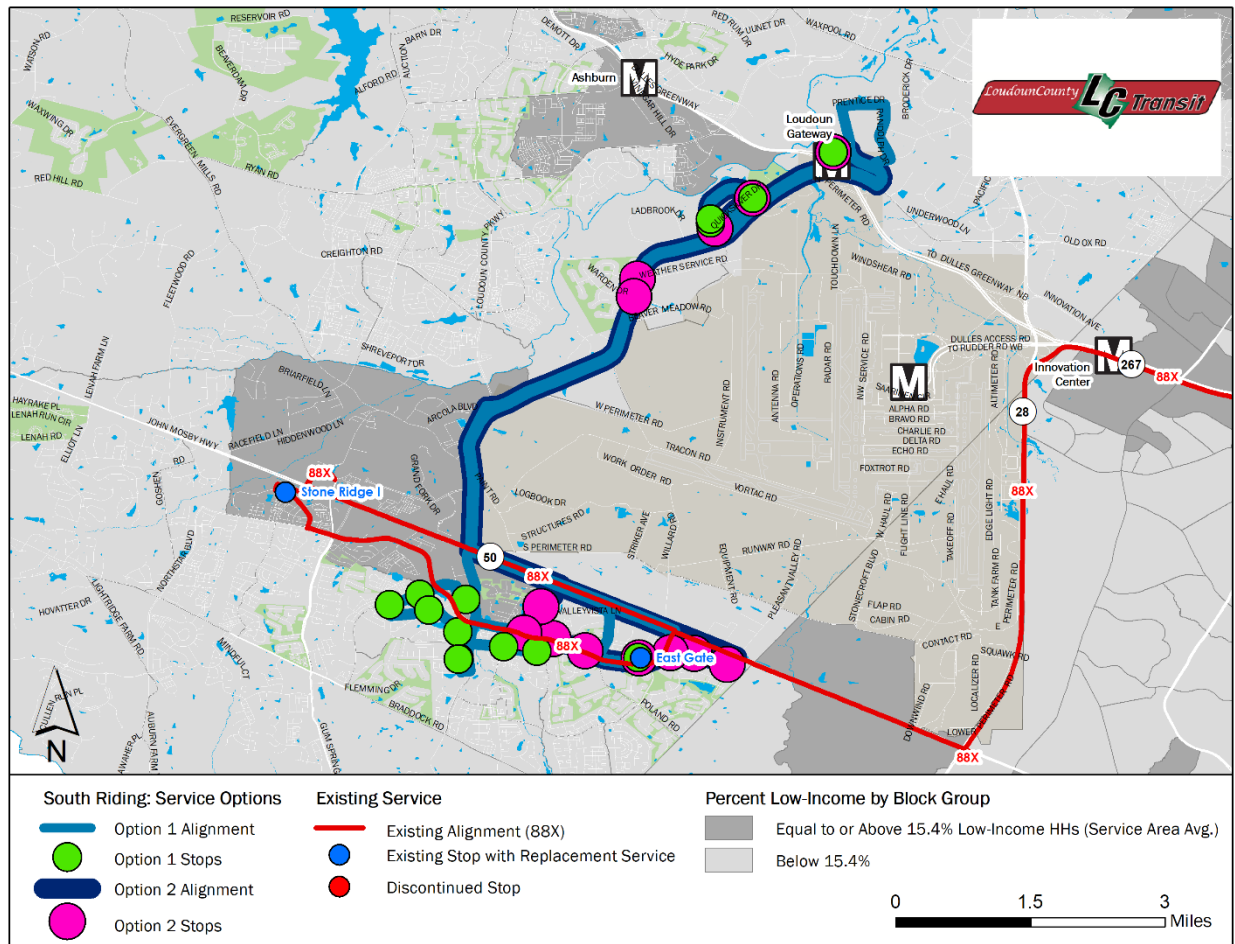


Figure 22: Proposed Metro Connection Service, South Riding: Percent Low-Income



Stone Ridge

Figure 23: Proposed Metro Connection Service, Stone Ridge: Percent Minority

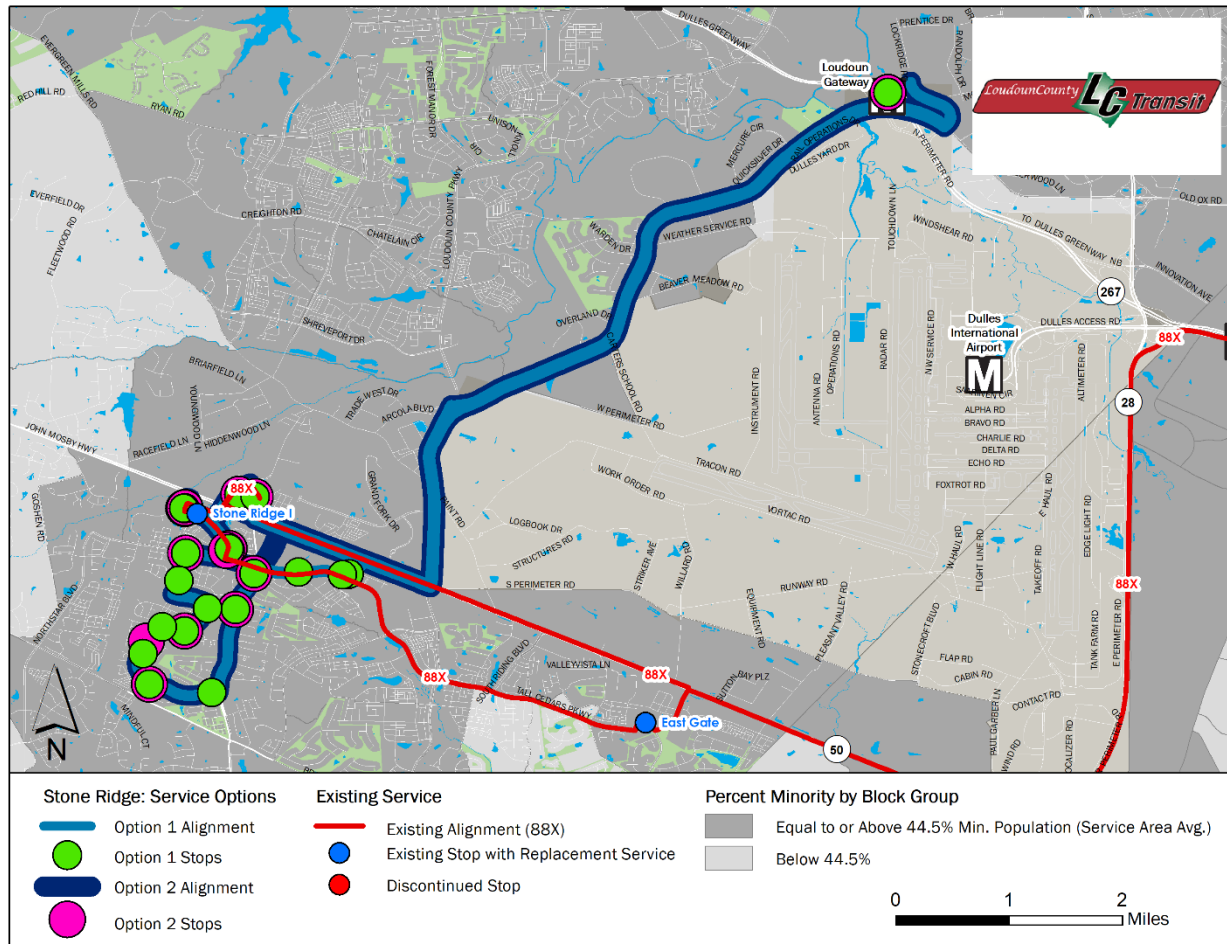
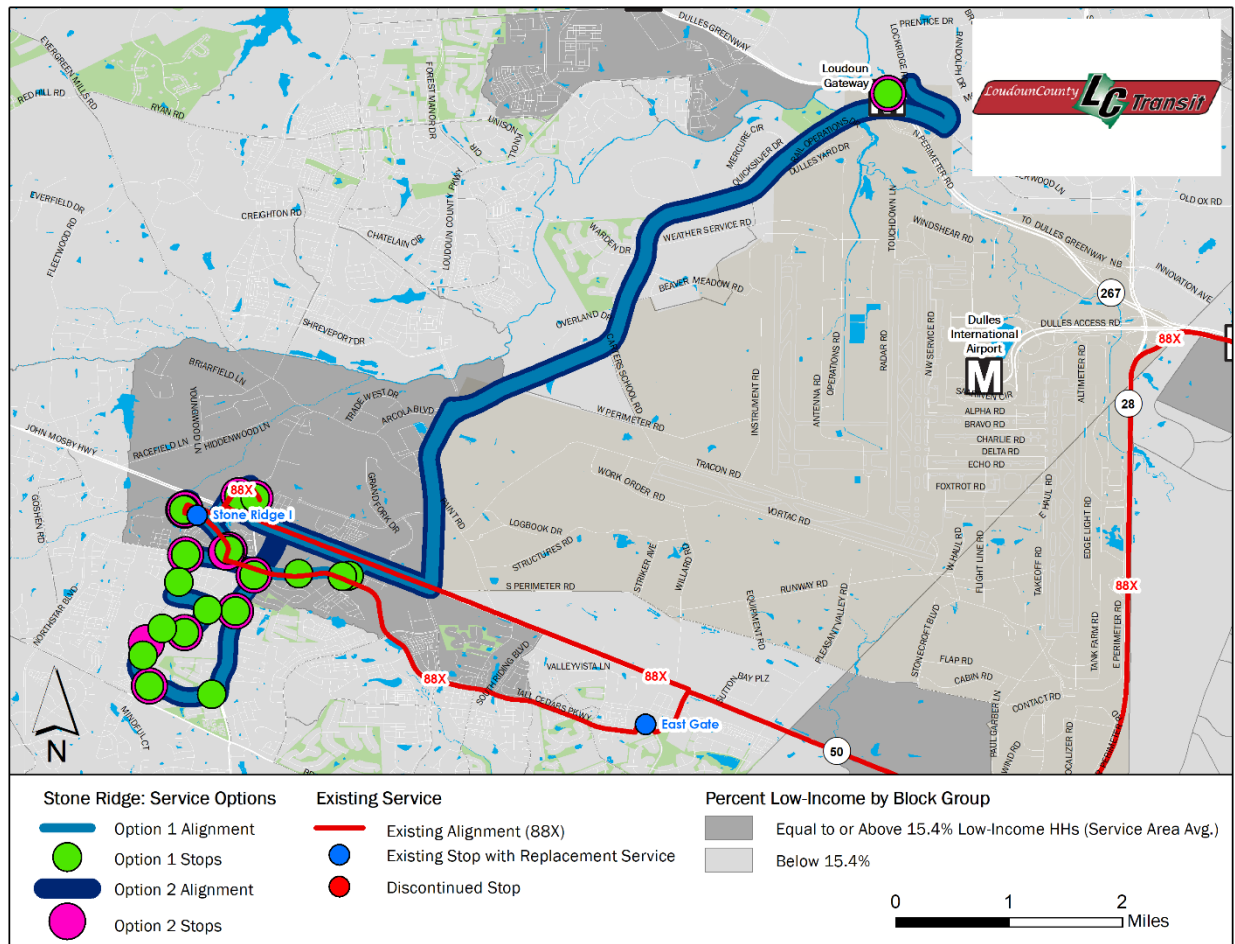


Figure 24: Proposed Metro Connection Service, Stone Ridge: Percent Low-Income



Discontinued and New Service Summary

Figure 25: Discontinued and New Service Stops, Metro Connection: Percent Minority

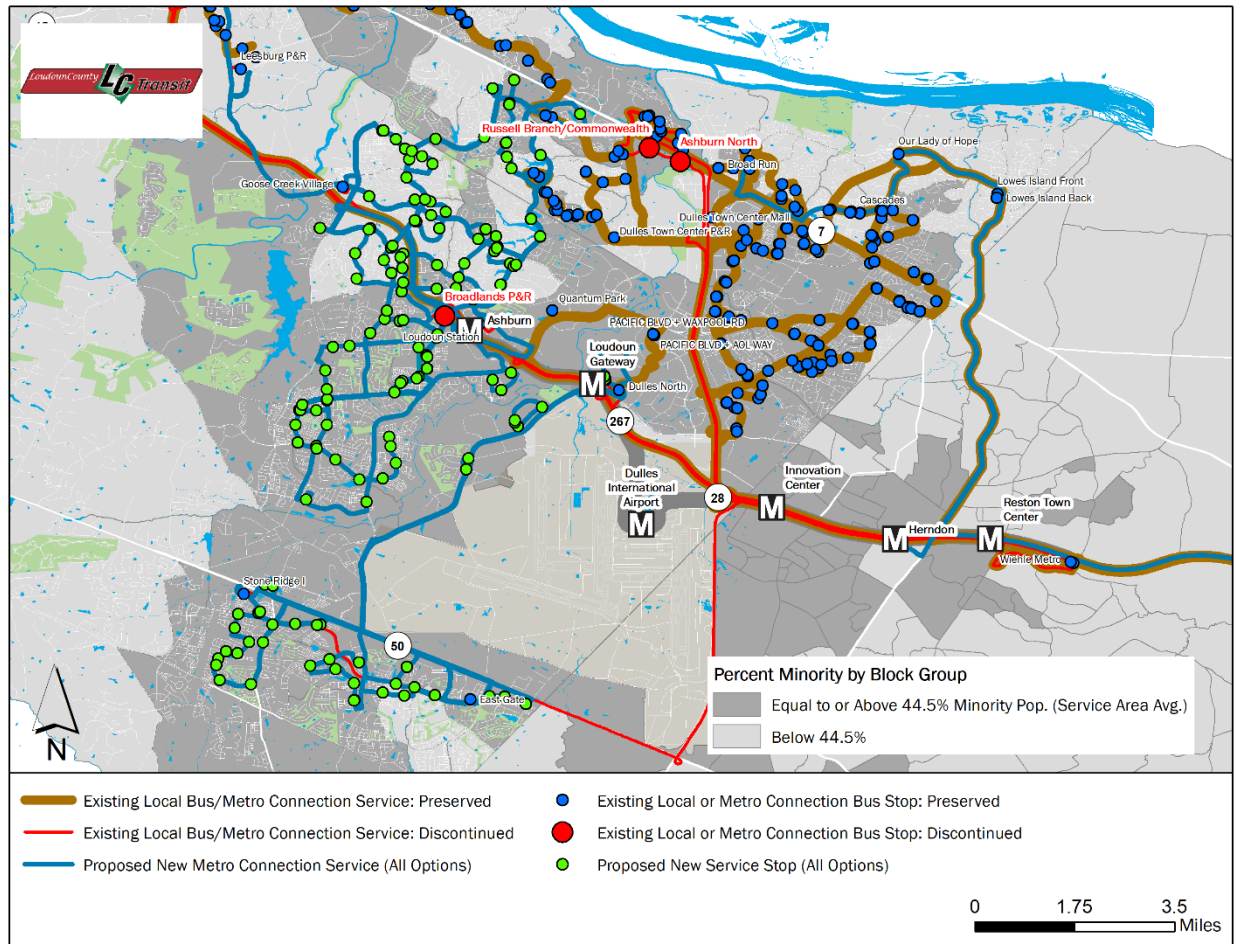
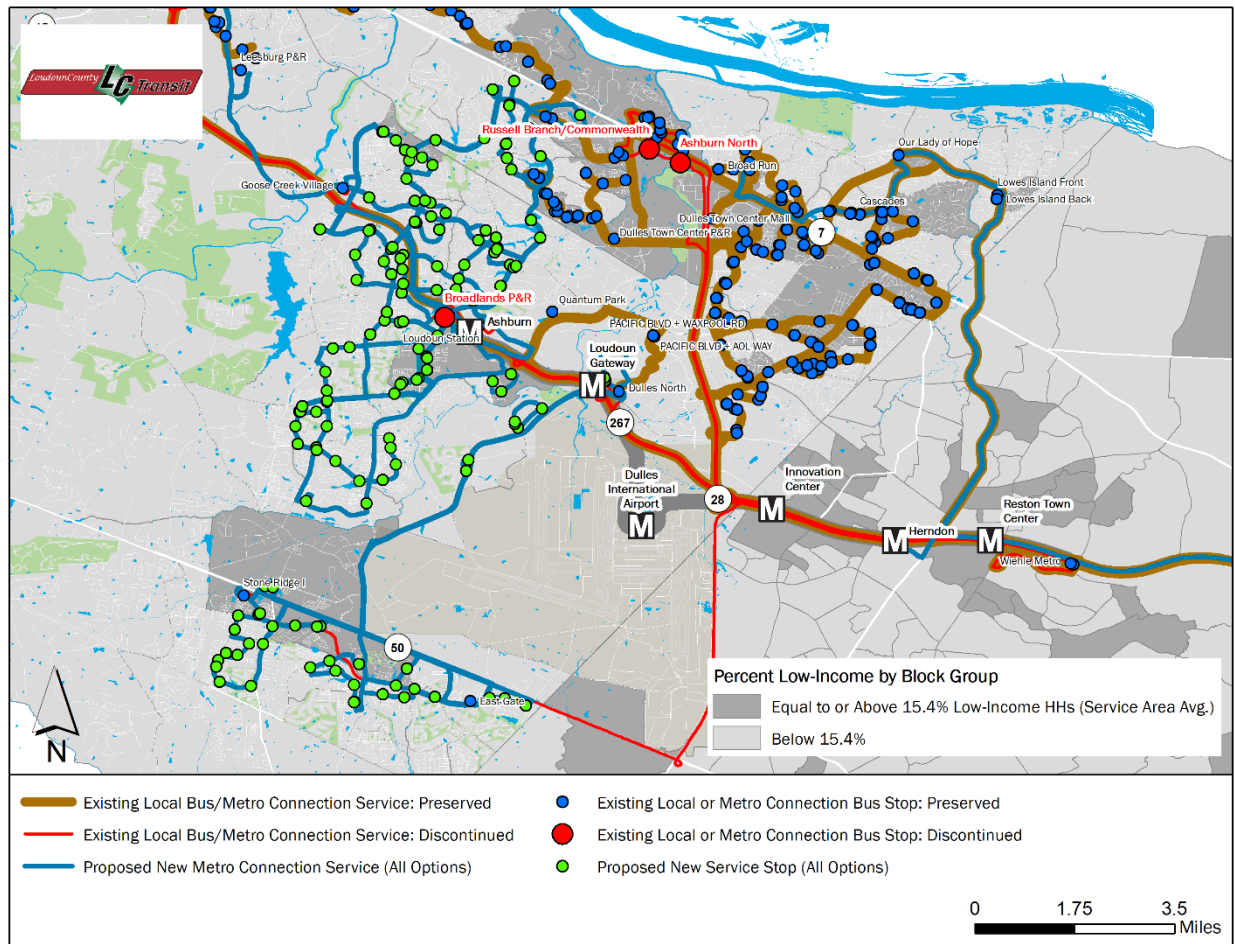


Figure 26: Discontinued and New Service Stops, Metro Connection: Percent Low-Income



Disparate Impact Analysis

Disparate Impact Analysis of Proposed Metro Connection Services

The following tables show the disparate impact analysis for all potential new routes. The minority population percentage within each route option's service area is compared to the disparate impact threshold for the Local Bus service area. Population statistics do not include Block Groups surrounding planned or existing Metrorail stations in Fairfax County.

In addition, route options are compared generally to assess which would serve a greater minority community. While routes are compared individually in this section, when options are selected for implementation, in compliance with LCT's disparate impact policy, all routes will be evaluated together as part of a service change package.

Ashburn Farm

Table 9 shows the disparate impact analysis for the proposed Ashburn Farm options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 2.

Table 9: Proposed Restructured Service Disparate Impact Analysis: Ashburn Farm

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Ashburn Farm	47,864	20,854	43.6%	52,204	22,848	43.8%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Ashburn Village

Table 10 shows the disparate impact analysis for the proposed Ashburn Village options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 2.

Table 10: Proposed Restructured Service Disparate Impact Analysis: Ashburn Village

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Ashburn Village	54,755	23,556	43.0%	49,792	22,621	45.4%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Brambleton

Table 11 shows the disparate impact analysis for the proposed Brambleton options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 2.

Table 11: Proposed Restructured Service Disparate Impact Analysis: Brambleton

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Brambleton	28,971	17,305	59.7%	31,204	19,322	61.9%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Broadlands

Table 12 shows the disparate impact analysis for the proposed Broadlands options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 2.

Table 12: Proposed Restructured Service Disparate Impact Analysis: Broadlands

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Broadlands	37,390	18,830	50.4%	37,899	22,941	60.5%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

George Washington University

Table 13 shows the disparate impact analysis for the proposed GWU options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 1.

Table 13: Proposed Restructured Service Disparate Impact Analysis: George Washington University

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
George Washington University	15,227	8,029	52.7%	18,928	9,169	48.4%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Leesburg

Table 14 shows the disparate impact analysis for the proposed Leesburg Option 1 and Option 2 (the preferred option). The percent minority population is below the disparate impact threshold for service improvements in both options (35.8 percent in Option 1; 34.9 percent in Option 2). This shows a potential for a disparate impact via either option. The percent minority population is slightly lower in Option 2, the preferred option.

Table 14: Proposed Restructured Service Disparate Impact Analysis: Leesburg

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Leesburg	15,584	5,575	35.8%	19,063	6,664	34.9%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	Yes			Yes		

Moorefield-Westwind Farms

Table 15 shows the disparate impact analysis for the proposed Moorefield-Westwind Farms Circulator, which consists of two legs. As the percent minority population is above the disparate impact threshold for service improvements in both legs, there is no potential for a disparate impact via this service.

Table 15: Proposed Restructured Service Disparate Impact Analysis: Moorefield-Westwind Farms

Proposed Route Name	Leg A			Leg B		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Moorefield-Westwind Farms	20,686	12,839	62.1%	14,133	9,367	66.3%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Potomac Falls

Table 16 shows the disparate impact analysis for the proposed Potomac Falls options. Population statistics are identical for both options. As the percent minority population is below the disparate impact threshold for service improvements, there is a potential for a disparate impact via either option.

Table 16: Proposed Restructured Service Disparate Impact Analysis: Potomac Falls

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Potomac Falls	22,764	7,955	35.0%	22,764	7,955	35.0%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	Yes			Yes		

South Riding

Table 17 shows the disparate impact analysis for the proposed South Riding options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is slightly higher in Option 2.

Table 17: Proposed Restructured Service Disparate Impact Analysis: South Riding

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
South Riding	31,939	19,346	60.6%	24,123	15,067	62.5%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Stone Ridge

Table 18 shows the disparate impact analysis for the proposed Stone Ridge options. As the percent minority population is above the disparate impact threshold for service improvements, there is no potential for a disparate impact via either option. The minority population percentage to be served is the same for both options.

Table 18: Proposed Restructured Service Disparate Impact Analysis: Stone Ridge

Proposed Route Name	Option 1			Option 2		
	Total Population	Total Minority Population	Percent Minority Population	Total Population	Total Minority Population	Percent Minority Population
Stone Ridge	38,131	23,483	61.6%	38,131	23,483	61.6%
Disparate Impact Threshold for Service Improvements	39.5%			39.5%		
Does this option individually meet the disparate impact threshold?	No			No		

Disparate Impact Analysis of Existing to Restructured Metro Connection Service

As an addendum to the analysis of new Metro Connection service, this section summarizes the disparate impact analysis for all existing routes or route segments slated for discontinuation and all completely new routes or route segments.

Eliminated Routes or Route Segments

In this Service Equity Analysis, given that the majority of Metro Connection service proposed for elimination will be replaced by new Metro Connection service, the combined area surrounding stops proposed for complete discontinuation is analyzed in isolation. Stops without a replacement service identified are:

- Ashburn North Park and Ride
- Russell Brand and Commonwealth
- Broadlands Park and Ride.

Table 19 displays the disparate impact analysis for Metro Connection changes to existing service (eliminated service). The combined area surrounding stops proposed for elimination has a minority population percentage of 50.3 percent, slightly above the disparate impact threshold for service reductions (49.5 percent).

Table 19: Metro Connection Changes to Existing Service Disparate Impact Analysis: Eliminated Service

Total Population	Total Minority Population	Percent Minority Population
17,474	8,788	50.3%
Disparate Impact Threshold for Service Reductions		49.5%
Does this package of changes meet the disparate impact threshold for service reductions?		Yes

New Routes or Route Segments

In this Service Equity Analysis, the combined area surrounding completely new proposed stops located in Loudoun County is analyzed in isolation. This analysis includes stops proposed as part of the new, expanded Metro Connection service, which currently includes multiple options. New stops are defined as stops not located within one-quarter mile of an existing Local, Metro Connection, or Commuter Bus stop. Although only stops located in Loudoun County are analyzed through this analysis, the surrounding area includes a small number of Census Block Groups located in Fairfax County.

Table 20 displays the disparate impact analysis for Metro Connection changes to existing service (added service). The combined area surrounding stops proposed for addition has a minority population percentage of 52.7 percent. As this is above 39.5 percent, the disparate impact threshold for service improvements, there is no potential for a service improvement disparate impact.

Table 20: Metro Connection Changes to Existing Service Disparate Impact Analysis: Added Service

Total Population	Total Minority Population	Percent Minority Population
162,943	85,859	52.7%
Disparate Impact Threshold for Service Improvements		39.5%
Does this package of changes meet the disparate impact threshold for service improvements?		No

Disproportionate Burden Analysis

Disproportionate Burden Analysis of Proposed Metro Connection Services

The following tables show the disproportionate burden analysis for all potential new routes. The low-income households percentage within each route option's service area is compared to the disproportionate burden threshold for the Local Bus service area. Population statistics do not include Block Groups surrounding planned or existing Metrorail stations in Fairfax County.

In addition, route options are compared generally to assess which would serve a greater low-income community. While routes are compared individually in this section, when options are selected for implementation, in compliance with LCT's disproportionate burden policy, all routes will be evaluated together as part of a service change package.

Ashburn Farm

Table 21 shows the disproportionate burden analysis for the proposed Ashburn Farm options. As the percent low-income households is below the disproportionate burden threshold for service improvements, there is potential for a disproportionate burden via either option. The low-income households percentage to be served is slightly higher in Option 1.

Table 21: Proposed Restructured Service Disproportionate Burden Analysis: Ashburn Farm

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Ashburn Farm	15,646	1,228	7.9%	16,793	1,307	7.8%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	Yes			Yes		

Ashburn Village

Table 22 shows the disproportionate burden analysis for the proposed Ashburn Village options. As the percent low-income households is above the disproportionate burden threshold for service improvements, there is no potential for a disproportionate burden via either option. The low-income households percentage to be served is slightly higher in Option 2.

Table 22: Proposed Restructured Service Disproportionate Burden Analysis: Ashburn Village

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Ashburn Village	18,388	2,009	10.9%	17,339	2,253	13.0%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	No			No		

Brambleton

Table 23 shows the disproportionate burden analysis for the proposed Brambleton options. As the percent low-income households is below the disproportionate burden threshold for service improvements, there is potential for a disproportionate burden via either option. The low-income households percentage to be served is slightly higher in Option 2.

Table 23: Proposed Restructured Service Disproportionate Burden Analysis: Brambleton

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Brambleton	9,174	691	7.5%	9,834	812	8.3%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	Yes			Yes		

Broadlands

Table 24 shows the disproportionate burden analysis for the proposed Broadlands options. As the percent low-income households is below the disproportionate burden threshold for service improvements, there is potential for a disproportionate burden via either option. The low-income households percentage to be served is slightly higher in Option 1.

Table 24: Proposed Restructured Service Disproportionate Burden Analysis: Broadlands

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Broadlands	11,857	960	8.1%	11,791	897	7.6%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	Yes			Yes		

George Washington University

Table 25 shows the disproportionate burden analysis for the proposed GWU options. As the percent low-income households is above the disproportionate burden threshold for service improvements, there is no potential for a disproportionate burden via either option. The low-income households percentage to be served is slightly higher in Option 1 (although the total number of low-income households is higher in Option 2).

Table 25: Proposed Restructured Service Disproportionate Burden Analysis: George Washington University

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
George Washington University	5,556	957	17.2%	7,242	1,192	16.5%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	No			No		

Leesburg

Table 26 shows the disproportionate burden analysis for the proposed Leesburg options. As the percent low-income households is above the disproportionate burden threshold for service improvements in both options, there is no potential for a disproportionate burden. The percentage of low-income households served is slightly higher in Option 1.

Table 26: Proposed Restructured Service Disproportionate Burden Analysis: Leesburg

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Leesburg	5,740	1,172	20.4%	6,597	1,199	18.2%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	No			No		

Moorefield-Westwind Farms

Table 27 shows the disproportionate burden analysis for the proposed Moorefield-Westwind Farms Circulator, which consists of two legs. As the percent low-income households is above the disproportionate burden threshold for service improvements in both legs, there is no potential for a disproportionate burden via this service.

Table 27: Proposed Restructured Service Disproportionate Burden Analysis: Moorefield-Westwind Farms

Proposed Route Name	Leg A			Leg B		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Moorefield-Westwind Farms	6,952	787	11.3%	4,601	511	11.1%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	No			No		

Potomac Falls

Table 28 shows the disproportionate burden analysis for the proposed Potomac Falls options, which have identical demographic characteristics. The percent low-income households is above the disproportionate burden threshold for service improvements in both options.

Table 28: Proposed Restructured Service Disproportionate Burden Analysis: Potomac Falls

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Potomac Falls	8,239	999	12.1%	8,239	999	12.1%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	No			No		

South Riding

Table 29 shows the disproportionate burden analysis for the proposed South Riding options. The percent low-income households is below the disproportionate burden threshold for service improvements in Option 1, and above the threshold in Option 2. Thus, there is potential for a disproportionate burden via Option 1.

Table 29: Proposed Restructured Service Disproportionate Burden Analysis: South Riding

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
South Riding	10,016	892	8.9%	7,479	898	12.0%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	Yes			No		

Stone Ridge

Table 30 shows the disproportionate burden analysis for the proposed Stone Ridge options. The percent low-income households is below the disproportionate burden threshold for service improvements for both options. Thus, there is potential for a disproportionate burden via either option, both of which have the same demographic composition.

Table 30: Proposed Restructured Service Disproportionate Burden Analysis: Stone Ridge

Proposed Route Name	Option 1			Option 2		
	Total Households	Total Low-Income Households	Percent Low-Income Households	Total Households	Total Low-Income Households	Percent Low-Income Households
Stone Ridge	11,655	934	8.0%	11,655	934	8.0%
Disproportionate Burden Threshold for Service Improvements	10.4%			10.4%		
Does this option individually meet the disproportionate burden threshold?	Yes			Yes		

Disproportionate Burden Analysis of Existing to Restructured Metro Connection Service

As an addendum to the analysis of new Metro Connection service, this section summarizes the disproportionate burden analysis for all existing routes or route segments slated for discontinuation and all completely new routes or route segments.

Eliminated Routes and Route Segments

Table 31 displays the disproportionate burden analysis for Metro Connection changes for the combined area surrounding stops proposed for elimination have a low-income households percentage of 17.9%, below the disproportionate burden threshold for service reductions (20.4%). Thus, there is no potential for a disproportionate burden via discontinuation of these stops.

Table 31: Metro Connection Changes to Existing Service Disproportionate Burden Analysis: Eliminated Service

Total Households	Total Low-Income Households	Percent Low-Income Households
7,154	1,282	17.9%
Disproportionate Burden Threshold for Service Reductions		20.4%
Does this package of changes meet the disproportionate burden threshold for service reductions?		No

New Routes or Route Segments

As mentioned, in this Service Equity Analysis, the combined area surrounding completely new proposed stops located in Loudoun County is analyzed in isolation. This analysis includes stops proposed as part of the new, expanded Metro Connection service. New stops are defined as stops not located within one-quarter mile of an existing Local, Metro Connection, or Commuter Bus stop. Although only stops located in Loudoun County are analyzed through this analysis, the surrounding area includes a small number of Census Block Groups located in Fairfax County.

Table 32 displays the disproportionate burden analysis for Metro Connection for the combined area surrounding stops proposed for new service (new routes or route segments) have a low-income households percentage of 8.9%. This figure is below the disproportionate burden threshold for service improvements (10.4%), showing a disproportionate burden.

Table 32: Metro Connection Changes to Existing Service Disproportionate Burden Analysis: Added Service

Total Households	Total Low-Income Households	Percent Low-Income Households
51,786	4,613	8.9%
Disproportionate Burden Threshold for Service Improvements		10.4%
Does this package of changes meet the disproportionate burden threshold for service improvements?		Yes

While a relatively small number of Metro Connection stops are slated for complete discontinuation, LCT has identified a replacement service for the majority of stops on routes that will be discontinued or significantly modified. Moreover, route levels of service, although still in planning, are unlikely to change significantly on replacement service, which will be restructured to serve new Metrorail stations in Loudoun County. Thus, adverse effects anticipated through Metro Connection restructured service are expected to be minimal.

Summary of Findings: Metro Connection Restructured Service

Restructured Service

Table 33 summarizes the disparate impact and disproportionate burden findings for each new Metro Connection route option in isolation, as well as which option in each service area would serve a greater share of Loudoun County's minority population and low-income households. LCT will review these findings when developing the final Metro Connection service plan.

Table 33: Summary of Findings: Metro Connection Restructured Service

Proposed Route	Greater Minority Percentage Served Option	Greater Low-Income Percentage Served Option	Potential Disparate Impact Option(s)	Potential Disproportionate Burden Option(s)
Ashburn Farm	Option 2	Option 1	None	Option 1, Option 2
Ashburn Village	Option 2	Option 2	None	None
Brambleton	Option 2	Option 2	None	Option 1, Option 2
Broadlands	Option 2	Option 1	None	Option 1, Option 2
George Washington University	Option 1	Option 1	None	None
Leesburg ³	Option 1	Option 1	Option 1, Option 2	None
Moorefield-Westwind Farms	Leg B	Leg A	None	None
Potomac Falls	Same Demographics	Same Demographics	Option 1, Option 2	None
South Riding	Option 2	Option 2	None	Option 1
Stone Ridge	Same Demographics	Same Demographics	None	Option 1, Option 2

³ LCT has selected Option 2 as the preferred option.

Existing to Restructured Comparison

As discussed, the analysis of the transition from existing to restructured Metro Connection service revealed a potential disparate impact based on eliminated stops, and a potential disproportionate burden based on creation of new stops.

LCT will examine the findings of this analysis closely when preparing its final service plan, which will include selection of the Metro Connection options presented in this document and implementation of service spans and frequencies. At present, LCT considers these findings in the context of the following:

- All Metro Connection replacement services will provide service to new Metrorail stations on the Silver Line, which is the final destination for Metro Connection passengers.
- Route 72 service to and from GWU will be replaced with service on one of the newly proposed GWU services. The discontinued Russell Branch/Commonwealth and Ashburn North stops are within 1.4 mile of newly proposed stops.
- Route 923/924 service from Goose Creek Village to Wiehle-Reston East will be replaced by one of the newly proposed Ashburn Farm services. While service to and from Broadlands Park and Ride Lot will be discontinued, this lot is within 1/2-mile distance of the Ashburn Metrorail Station. Passengers will lose direct express service from Goose Creek Village to Metrorail; however, given a shorter overall ride to train service, travel times between this origin and destination are projected to decrease.
- Route 927/928 will be discontinued and replaced by the Ashburn Farm and Leesburg services, as well as Route 931/932 Purcellville service (with Harmony Park and Ride added). Like Route 923/924, service will be eliminated at Broadlands Park and Ride as well as Dulles North Transit Center and Loudoun Station Park and Ride; however, these stops are each within 1/2-mile of either the Ashburn or Loudoun Gateway Metrorail stations.
- The calculation of a potential disproportionate burden based on new stops assumes all stops (across both Metro Connection options) are being introduced. Once the service plan includes only the preferred options, this calculation may be revisited to assess for disparate impact and disproportionate burden based on new service.

Commuter Bus

Service Area Demographics

Table 34 summarizes service area demographics for the Commuter Bus service area, defined as all Census Block Groups in Loudoun and Fairfax Counties within three miles of park and ride lots serving Commuter Bus service. Minority populations comprise approximately 46.4 percent of the population in the Commuter Bus service area. The LCT disparate impact (DI) policy for service improvements or reductions is five percent. After applying the DI policy to the service area minority population percentage, the disparate impact threshold for service improvements is 41.4 percent (46.4 percent minus 5 percent), and the threshold for service reductions is 51.4 percent (46.4 percent plus 5 percent).

Low-income households comprise approximately 12.5 percent of households in the Commuter Bus service area. The LCT disproportionate burden (DB) threshold is five percent. After applying the DB policy to the service area low-income households percentage, the disproportionate burden threshold for service improvements is 7.5 percent, and the threshold for service reductions is 17.5 percent.

Table 34: Commuter Bus Disparate Impact and Disproportionate Burden Thresholds (2015 – 2019 ACS)

Disparate Impact				
Service Area Population	Minority Population	Percent Minority Population	Service Reduction Disparate Impact Threshold (+5%)	Service Improvement Disparate Impact Threshold (-5%)
426,384	197,617	46.4%	51.4%	41.4%
Disproportionate Burden				
Service Area Households	Low-Income Households	Percent Low-Income Households	Service Reduction Disproportionate Burden Threshold (+5%)	Service Improvement Disproportionate Burden Threshold (-5%)
137,754	17,234	12.5%	17.5%	7.5%

Proposed Service Change Maps

The maps below show the Western/Eastern Loudoun and South Dulles service areas alongside whether the percent minority population or percent low-income households is above or below service area average.

Figure 27: Commuter Bus Western/Eastern Loudoun Service Area: Percent Minority

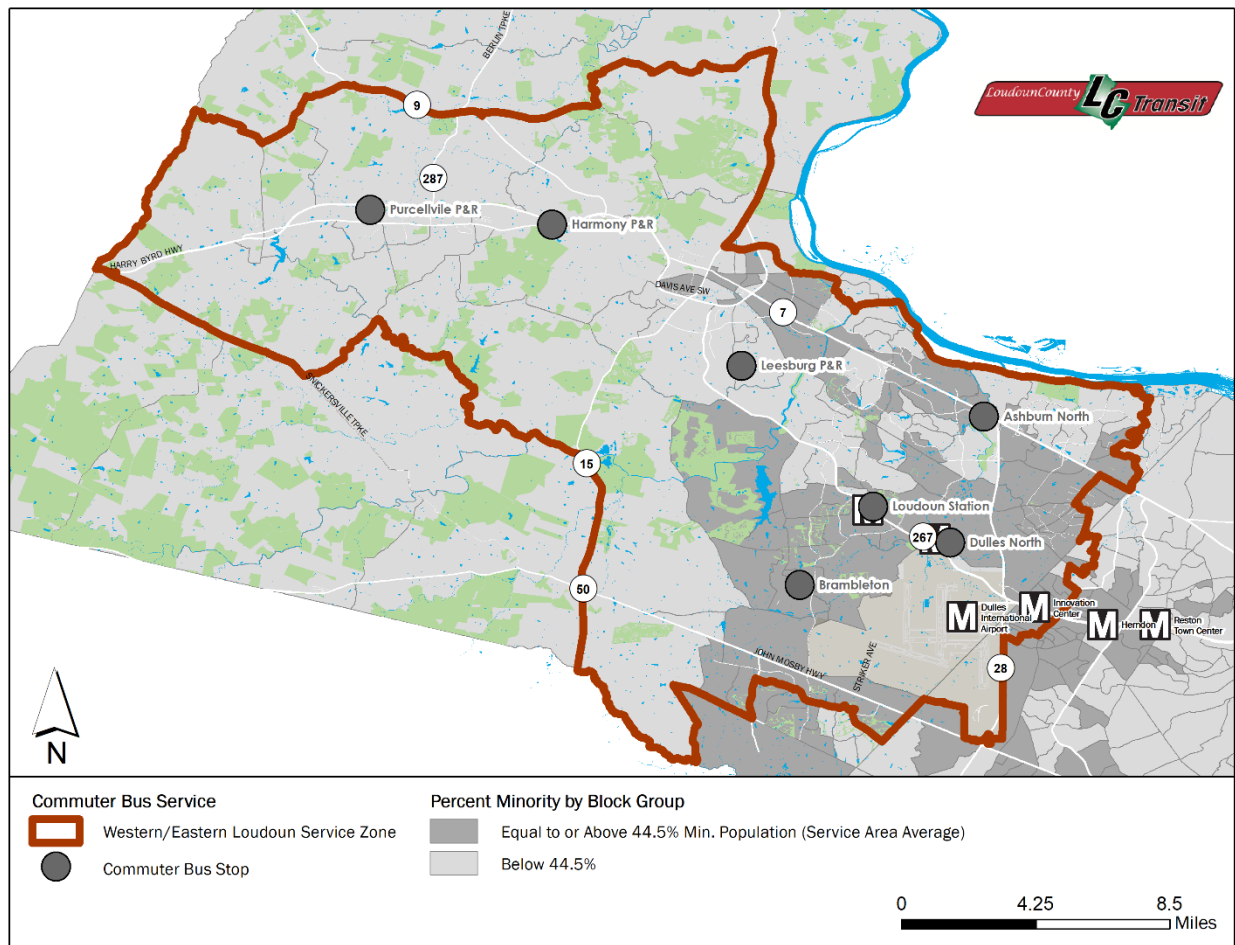


Figure 28: Commuter Bus Western/Eastern Loudoun Service Area: Percent Low-Income

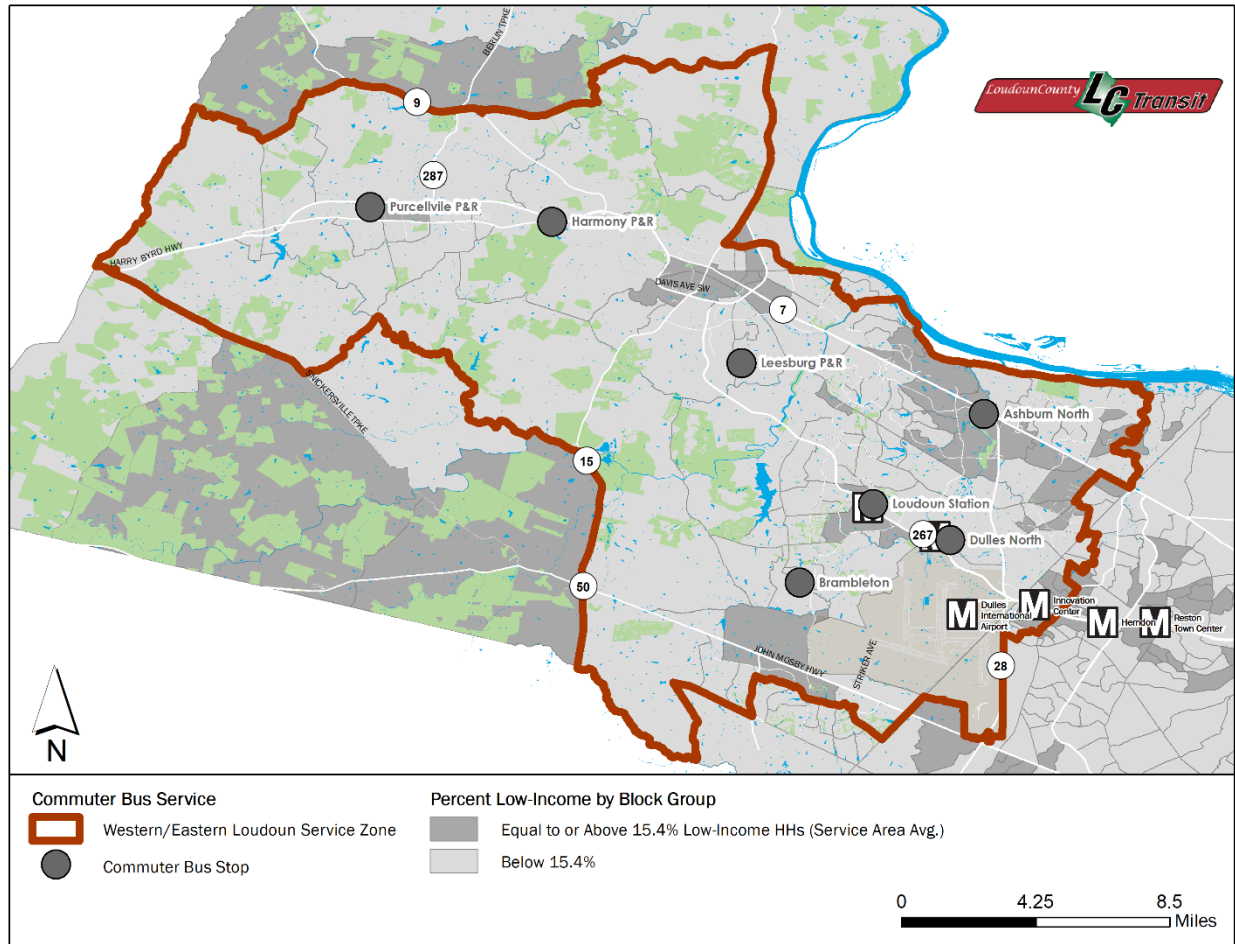


Figure 29: Commuter Bus South Dulles Service Area: Percent Minority

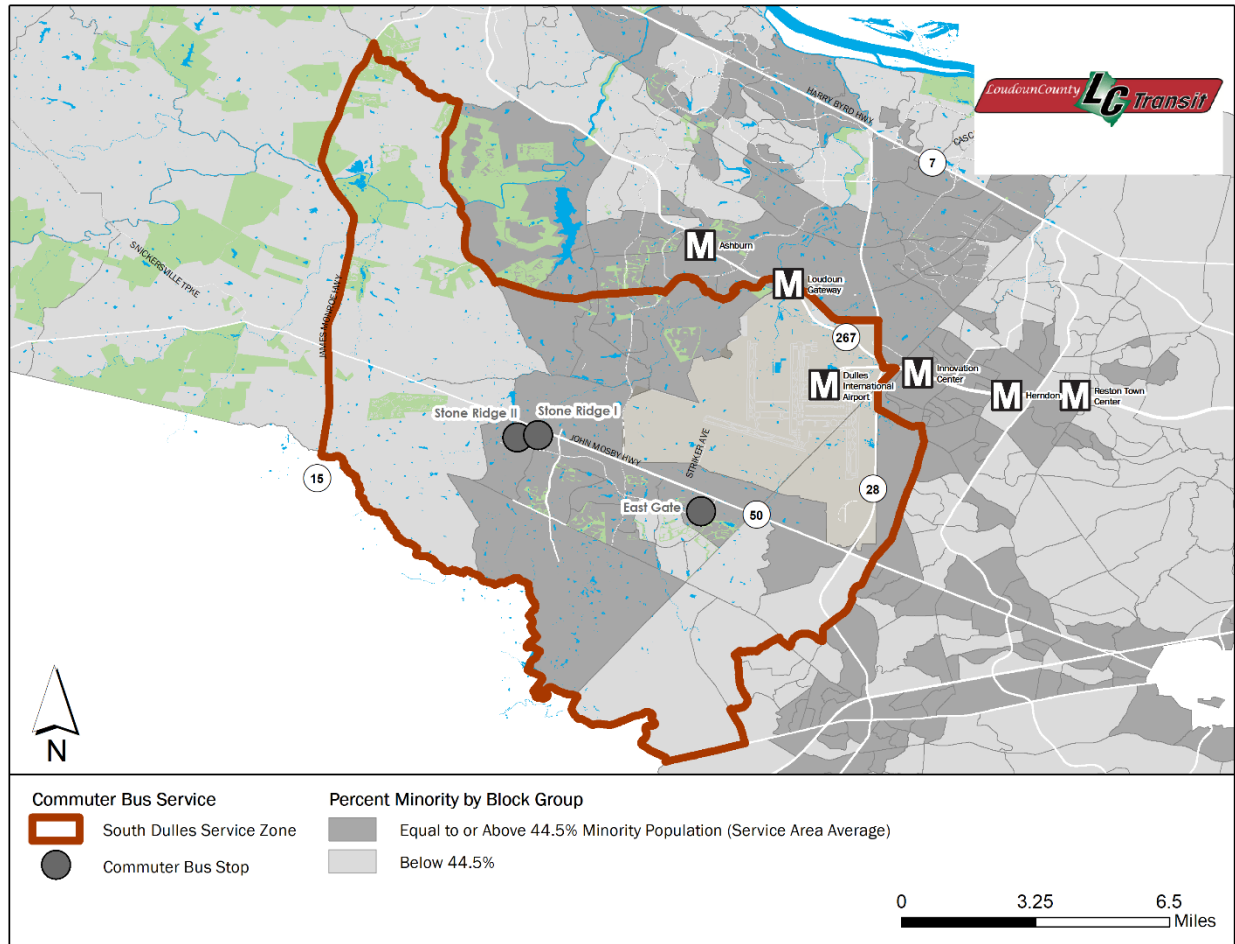
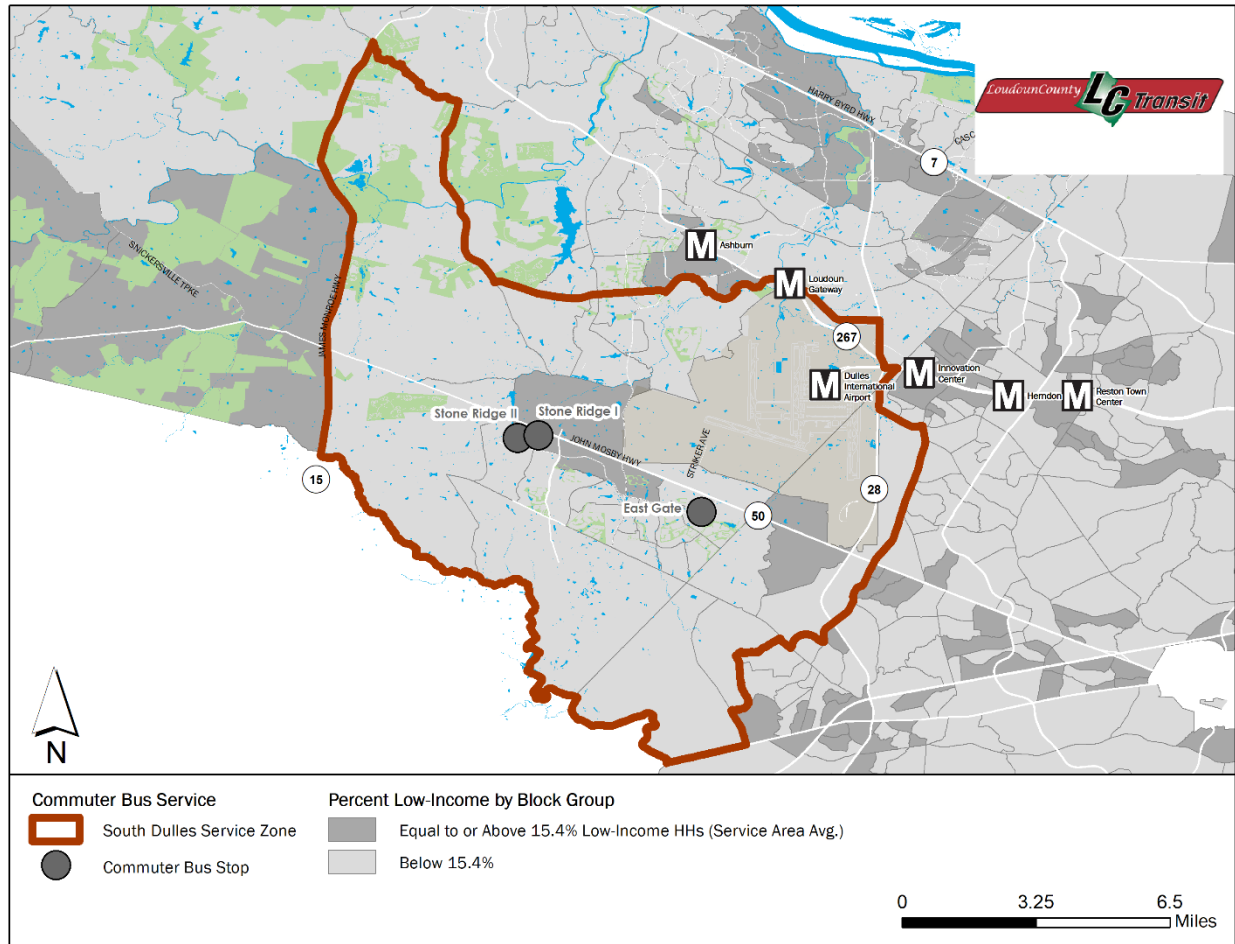


Figure 30: Commuter Bus South Dulles Service Area: Percent Low-Income



Disparate Impact Analysis

Eliminated Commuter Bus Runs

Commuter Bus service was reduced as specified in the change descriptions in **Table 35**, which calculates the percentage of minority populations affected. Within each service zone, Western/Eastern Loudoun and South Dulles, the same demographics are observed regardless of the destination. This is because only the populations around the Loudoun County boarding locations are counted and service is provided from the same park and ride lots in each zone regardless of destination. As such, in the total (cumulative) service package calculation, each area has been counted only once. This avoids double counting of the service population.

The total minority population percentage affected by the proposed service changes is 48.7 percent, which is below the disparate impact threshold for service reductions (51.4 percent). Therefore, this package of service changes does not meet the threshold for a disparate impact.

Table 35: Commuter Bus Disparate Impact Analysis: Eliminated Runs

Service Zone	Eliminated Runs	Change Description	Total Population	Total Minority Population	Percent Minority Population
Western/Eastern Loudoun to DC	401, 101, 402, 301, 202, 103, 403, 404, 405, 251, 406, 104, 407, 408, 302, 303, 106, 410, 252, 411, 412, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 109, 307, 417, 418, 111, 308, 309, 419, 420, 209	Service reduced from 41 to 5 runs in the morning, and from 42 to 5 runs in the afternoon	338,843	158,477	46.8%

Service Zone	Eliminated Runs	Change Description	Total Population	Total Minority Population	Percent Minority Population
Western/Eastern Loudoun to Arlington	301, 403, 405, 203, 407, 408, 409, 105, 302, 410, 252, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 307, 110, 417, 111, 309, 420	Service reduced from 27 to 5 runs in the morning, and from 29 to 6 runs in the afternoon	338,843	158,477	46.8%
South Dulles to DC	201, 203, 210, 206, 208	Service reduced from 10 to 2 runs in the morning, and from 10 to 2 runs in the afternoon	99,095	54,615	55.1%
South Dulles to Arlington	201, 203, 210, 206, 208	Service reduced from 5 to 2 runs in the morning, and from 7 to 2 runs in the afternoon	99,095	54,615	55.1%
SUBTOTAL			437,938	213,092	48.7%
Disparate Impact Threshold for Service Reductions				51.4%	
Does this package of changes meet the disparate impact threshold for service reductions?				No	

Disproportionate Burden Analysis

Eliminated Commuter Bus Runs

Commuter Bus service reductions are listed again in **Table 36** for the purpose of evaluating the percent of low-income households affected. Similar to the Disparate Impact analysis, each service zone has been counted only once in the total (cumulative) service package calculation to avoid double counting the same population within the service zone.

The total low-income households percentage affected by the proposed service changes is 12.4 percent, which is below the disproportionate burden threshold for service reductions (17.5 percent). Therefore, this package of service changes does not meet the threshold for a disproportionate burden.

Table 36: Commuter Bus Disproportionate Burden Analysis: Eliminated Runs

Service Zone	Runs Affected	Change Description	Total Households	Total Low-Income Households	Percent Low-Income Households
Western/Eastern Loudoun to DC	401, 101, 402, 301, 202, 103, 403, 404, 405, 251, 406, 104, 407, 408, 302, 303, 106, 410, 252, 411, 412, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 109, 307, 417, 418, 111, 308, 309, 419, 420, 209	Service reduced from 41 to 5 runs in the am, and from 42 to 5 runs in the pm	110,801	15,085	13.6%

Service Zone	Runs Affected	Change Description	Total Households	Total Low-Income Households	Percent Low-Income Households
Western/Eastern Loudoun to Arlington	301, 403, 405, 203, 407, 408, 409, 105, 302, 410, 252, 413, 107, 415, 414, 304, 108, 253, 305, 416, 306, 307, 110, 417, 111, 309, 420	Service reduced from 27 to 5 runs in the am, and from 29 to 6 runs in the pm	110,801	15,085	13.6%
South Dulles to DC	201, 203, 210, 206, 208	Service reduced from 10 to 2 runs in the am, and from 10 to 2 runs in the pm	29,862	2,344	7.9%
South Dulles to Arlington	201, 203, 210, 206, 208	Service reduced from 5 to 2 runs in the am, and from 7 to 2 runs in the pm	29,862	2,344	7.9%
SUBTOTAL			140,663	17,429	12.4%
Disproportionate Burden Threshold for Service Reductions				17.5%	
Does this package of changes meet the disproportionate burden threshold for service reductions?				No	

Summary of Findings: Commuter Bus Changes

Commuter Bus changes do not meet thresholds for a potential disparate impact or disproportionate burden. Given the magnitude of span and frequency changes associated with these service changes, adverse effects on riders of affected services are anticipated. Adverse effects resulting from span and frequency changes have occurred; however, the drop in demand for service as a result of the pandemic lessens the impact..

LCT has implemented these changes in response to COVID-19, which greatly lowered ridership and the agency's ability to provide service. LCT is hopeful that as ridership gradually returns and service is restructured to meet new demand associated with the Metrorail Silver Line extension, these adverse effects will be reversed.

OVERALL CONCLUSIONS: CUMULATIVE EFFECTS

This Service Equity Analysis evaluated Loudoun County Transit implemented service changes in response to the COVID-19 pandemic, as well as proposed service changes in response to the impending arrival of the Metrorail Silver Line to Loudoun County. A summary of overall findings is listed below:

- Local Bus changes to Routes 57 and 81 do not qualify as major service changes, and thus were not analyzed for disparate impact or disproportionate burden.
- There were no findings of disparate impact or disproportionate burden associated with implemented Metro Connection changes to existing service (in response to COVID-19).
- After a review of Metro Connection options for restructured service, several options showed the potential for disparate impact or disproportionate burden under the category of service improvement. These findings, along with the compared population percentages of minority population and low-income households, are reviewed in **Table 33**. LCT will review these findings while developing a service plan.
- LCT also analyzed the potential for disparate impact and disproportionate burden associated with the discontinuation of (and lack of a replacement service for) three stops, as well as the addition of entirely new stops. This analysis found a potential disparate impact as a result of the removal of the stops, and a potential disproportionate burden as a result of the addition of new stops. LCT will review these findings while developing a service plan.
- There were no findings of disparate impact or disproportionate burden associated with implemented Commuter Bus changes to existing service (in response to COVID-19).