Department of Transportation and Capital Infrastructure

Title VI Service Equity Analysis

July 2016 Service Changes

Prepared with assistance by:

ATTACHMENT 9

Contents

Service Equity Analysis Introduction, Title VI Policies, and Methodology

Introduction

This analysis was conducted in accordance with FTA Circular 4702.1B, *Title VI Requirements and Guidelines for Federal Transit Administration Recipients*. The Circular requires, under Title VI of the Civil Rights Act of 1964, that Department of Transportation and Capital Infrastructure (DTCI)undertake an evaluation of any proposed service change to determine whether it has a discriminatory impact on Title VI protected minority populations or on low-income populations. The requirement applies to any and all service changes, including elimination of routes, creation of new routes, or modification to alignments, headways, or span of service of existing routes. Any transit operator with at least 50 vehicles in peak service is required to conduct a service equity analysis.

The analysis is to be completed and approved by the operator's governing board during the planning stage, before the change is implemented, and will be submitted to FTA as a part of the Title VI Program update submission. In summary, the FTA Circular states that the analysis should include:

- A statement of the agency's "disparate impact" and "disproportionate burden" policies and how the public was engaged in developing the policies.
- A clear explanation of how the proposed service changes meets 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's consideration, awareness, and approval of the major service change 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 have 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.

As part of a plan to improve bus service in the region, DTCI is proposing several major service changes to be implemented to its Local Bus service in July 2016.

- Route 62 (Ashburn Connector)
- Route 72 (Wiehle Express)
- Route 85 (Dulles South Connector)

Local Bus routes 89X and Safe-T-Ride will be undergoing services changes as well, but they are below DTCI's major service change policy for both revenue hours and revenue miles.

Relevant DTCI Title VI Policies

As part of the DTCI's (Title VI Program, DTCI has established policies for a *Major Service Change*, a *Disparate Impact,* and a *Disproportionate Burden.* DTCI engaged the public in developing the definitions for major service changes, disparate impact, and disproportionate burden from April 15, 2016 to May 16, 2016. DTCI's Title VI policy outreach efforts were implemented in coordination with the county's Transit Development Plan update public outreach. These outreach efforts included:

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

DTCI defines a major service change as:

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

DTCI's policies for Disparate Impact and Disproportionate Burden adhere to FTA standards. Disparate Impact refers to a facially neutral policy or practice that disproportionately affects members of a group identified by race, color, or national origin. For service reductions, a disparate impact occurs when the average fare or service change impacts for minority riders is 15 percent or greater than non-minority riders. These policies will be reviewed on a cumulative basis.

Similarly, Disproportionate Burden refers to a neutral policy or practice that disproportionately affects low-income populations more than non-low-income populations. For service reductions, a disproportionate burden occurs when the average fare or service change impacts for low-income riders is more than 15 percent or greater than non-low-income riders. These policies will be reviewed on a cumulative basis.

Data and Methodology

For this analysis, the primary data source was the American Community Survey (ACS) five-year estimates from 2009 to 2013, measured at the Census Block Group level. Geographic data provided by DTCI was also used to determine the service areas for the entire DTCI Local Bus network, as well as the service areas of the current route alignments that have proposed changes.

For the disparate impact analysis, the primary ACS table utilized was Table B03002, "Hispanic or Latino Origin by Race." This table identifies all minority and non-minority populations within a block group, including Hispanic or Latino. To determine minority population for the DTCI Local Bus service area, total population estimates and minority population estimates (total population minus non-Hispanic White

population) for Census Block Groups were used along with bus stop point data and route line data within Geographic Information System (GIS) software. Using GIS, a one-quarter mile buffer was placed around each local bus stop; the resulting area was considered the Local Bus service area. Census Block Groups contained either partially or wholly within the Local Bus service area were used as part of the calculation for the total population and total minority population served by the network. Similarly, for each route with proposed changes, the same method was used to determine the service area. The corresponding total population and minority population figures were then calculated.

For the disproportionate burden analysis, the primary ACS table utilized was Table B19001, "Household Income in the Past 12 Months (In 2013 Inflation-Adjusted Dollars)." To determine the percentage of low-income households 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 was considered the Local Bus service area. Census Block Groups contained either partially or wholly within the Local Bus service area were used as part of the calculation for the total households and total low-income households served by the Local Bus network. Similarly, for each route with proposed changes, the same method was used to determine the service area. The corresponding total households and low-income households were then calculated.

DTCI used the procedures noted below to conduct this service equity analysis.

1. All proposed changes were examined to see if they met the DTCI's definition of a Major Service Change.
2. For routes that qualified as major service changes, each route was categorized by whether that change is an adverse change or a beneficial change for the population currently served by the route. DTCI has determined that an adverse change includes service changes that may have an adverse effect include reductions in service (route discontinuation, truncating or eliminating a route segment, rerouting an existing route, headway increases, and reduction of service span). DTCI will consider the degree of adverse effects, and analyze those effects, when planning their service changes. A beneficial change would have positive impacts on those within the service area of the route, such as the addition of new service, an increase in frequency, or an increase in span of an existing service.
3. Next, the service area population and the total number of households were determined for the all current Local Bus service area. For this analysis, DTCI's Local Bus service area was defined a one-quarter mile buffer around every DTCI Local Bus stops, including any diversions, i.e., any variations from the trunk line, even if the route only makes that variation trip a small number of times. Total populations and households, as well as minority populations and low-income households, were then determined for the Local Bus Service Area.
4. The total minority population and the total number of low-income households were also determined for each route experiencing a major service change. For this analysis, a route's service area was defined a one-quarter mile buffer around the route's bus stops, including any diversions, i.e., any variations from the trunk line, even if the route only makes that variation trip a small number of times. Total populations and households, as well as minority populations

and low-income households, were then aggregated for each route and service change type, determined.

5. For each of the adverse and beneficial changes, totals were then found for minority populations and low-income households impacted by each of the identified major service changes.
6. Based on the definitions of disparate impact and disproportionate burden, explained above, the overall thresholds were determined as follows:
    a. Disparate Impact Threshold for adverse changes: DTCI Service Area's Percent of Population which is Minority, plus 15 percent.
    b. Disparate Impact Threshold for beneficial changes: DTCI Service Area's Percent of Population which is Minority, minus 15 percent.
    c. Disproportionate Burden Threshold for adverse changes: DTCI Service Area's Percent of Households which earn less than half of the Area Median Income, plus 15 percent.
    d. Disproportionate Burden Threshold for beneficial changes: DTCI Service Area's Percent of Households which earn less than half of the Area Median Income, minus 15 percent.
7. Finally, for the adverse and for the beneficial changes separately, the aggregated percent of minority populations and the aggregated percent of low-income households was compared to the appropriate disparate impact / disproportionate burden thresholds in order to determine if a disparate impact / disproportionate burden occurred.

Service Equity Analysis

Service Area Demographics

Minority populations comprised approximately 43.5 percent of the DTCI's Local Bus service area population (comprised of all Census Block Groups within one quarter of a mile of local bus stops). After

applying DTCI's Disparate Impact policy, the threshold for a Disparate Impact is 58.5 percent (43.5 percent systemwide, plus 15 percent) for adverse changes and 28.5 percent (43.5 percent systemwide, minus 15 percent) for beneficial changes (**Table 1**).

Low-income households comprised approximately 16.7 percent of the households in the DTCI Local Bus service area (comprised of all Census Block Groups in Loudoun County). After applying DTCI's Disproportionate Burden policy, the threshold for a Disproportionate Burden is 31.7 percent (16.7 percent plus 15 percent) for adverse changes and 1.7 percent (16.7 percent minus 10 percent) for beneficial changes.

TABLE 1 LOUDOUN COUNTY LOCAL BUS MINORITY AND LOW-INCOME POPULATIONS (2009-2013 ACS)

Disparate Impact				
Total Population	**Minority Population**	**Percent Minority**	**Adverse Disparate Impact Threshold**	**Beneficial Disparate Impact Threshold**
203,327	88,397	43.5%	58.5%	28.5%
Disproportionate Burden				
Total Households	**Low-Income Households**	**Percent Low-Income Households**	**Adverse Disparate Impact Threshold**	**Beneficial Disparate Impact Threshold**
67,294	11,234	16.7%	31.7%	1.7%

Proposed Service Changes

Alignment Modifications

Route 62 – Ashburn Connector

Proposed changes to Route 62-Ashburn Connector will:

- Eliminate the northern part of the route along Ashburn Village Boulevard and INOVA Loudoun Hospital in Lansdowne.
- Extend the route to One Loudoun to where a transfer can be made to Route 70 connect to INOVA Loudoun Hospital in Lansdowne.
- Increase frequency.

Although this route will increase frequency, it has been categorized as an **adverse change** for this service equity analysis due to alignment changes that will eliminate direct service for Route 62 riders to INOVA Loudoun Hospital in Landsdowne. Route 62 riders, however, will have the option to transfer to Route 70 to connect to the hospital, and Route 62 will operate at an increased frequency (**Figure 1**, **Figure 2**).

FIGURE 1 PROPOSED ROUTE 62 MODIFICATION - MINORITY

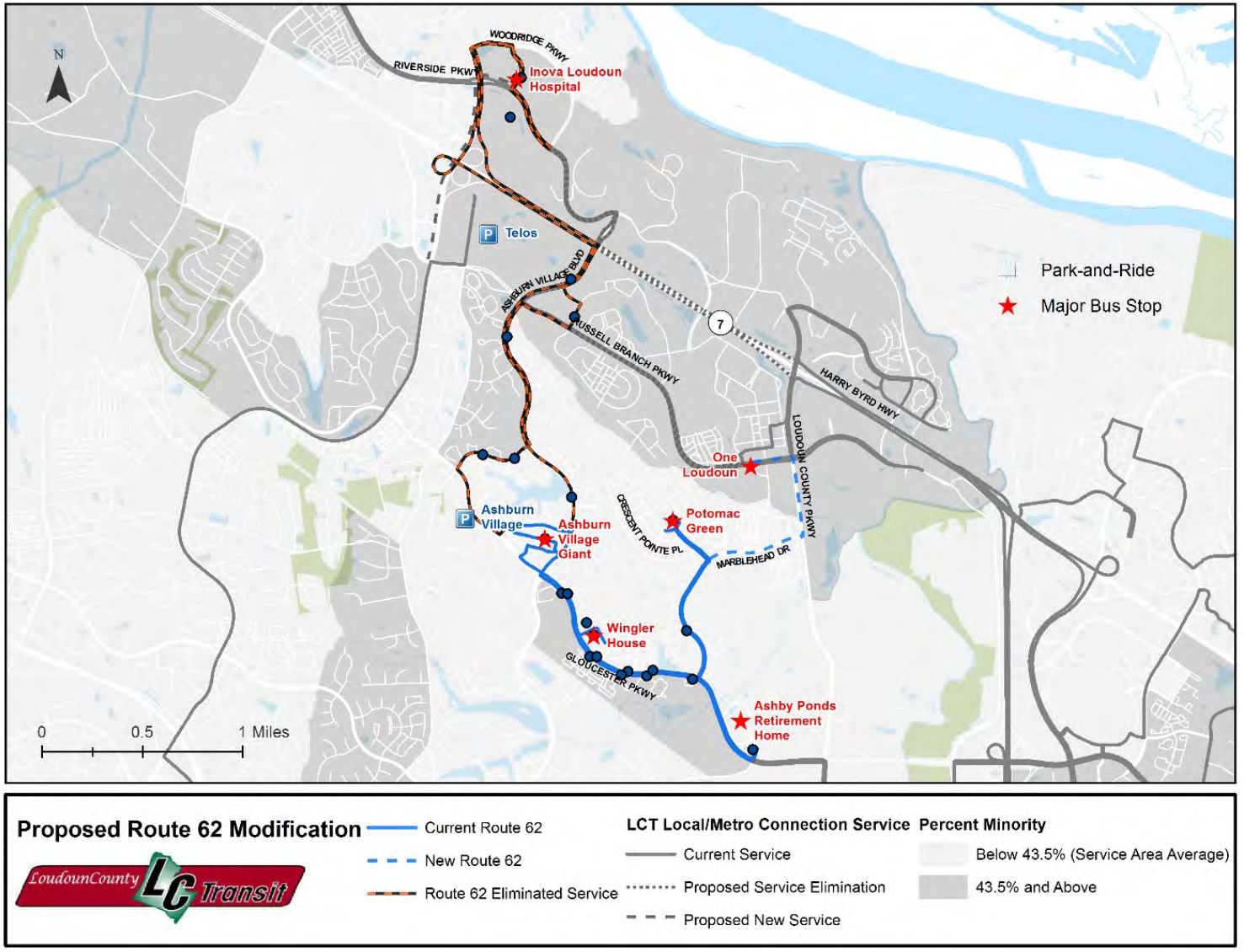
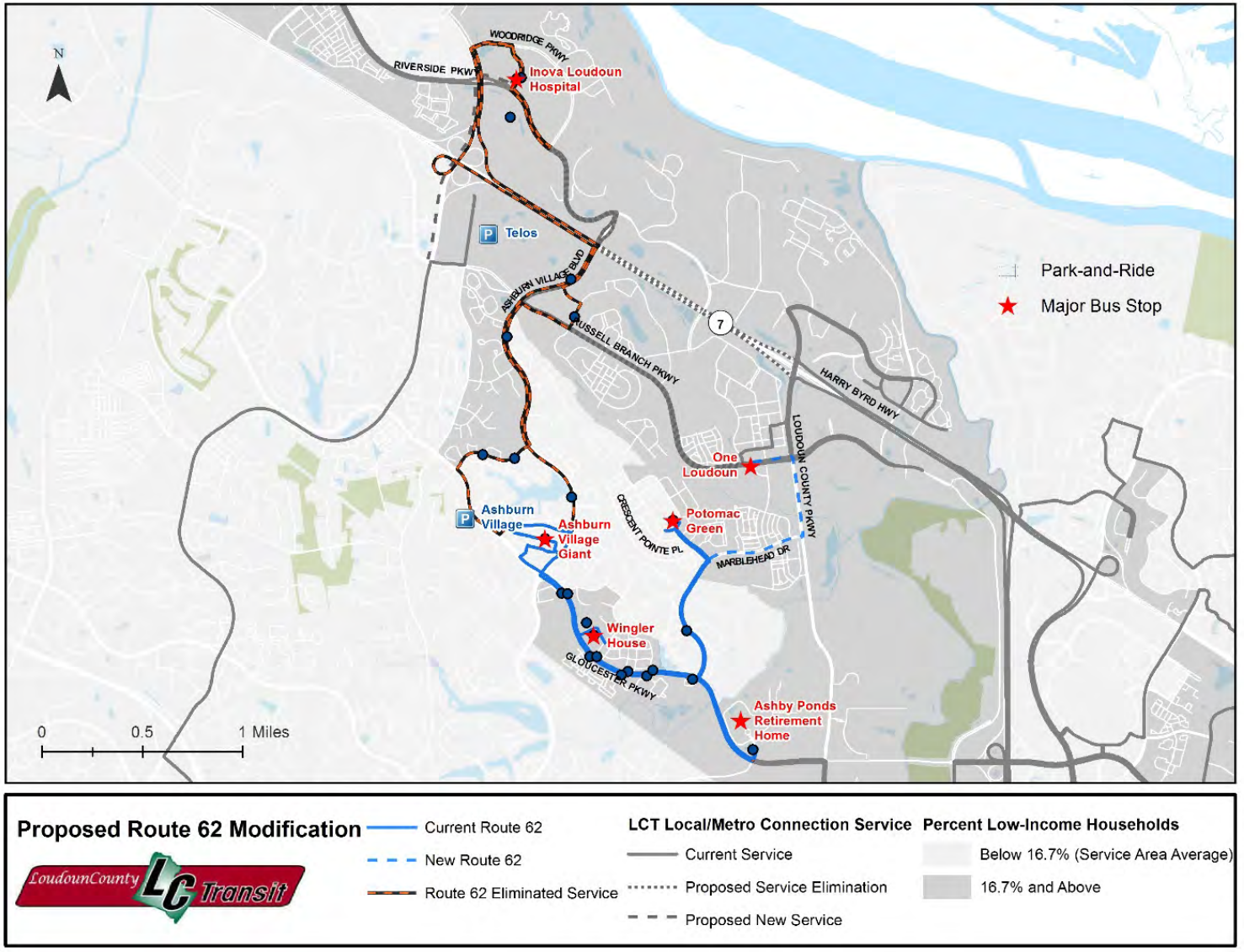


FIGURE 2 PROPOSED ROUTE 62 MODIFICATION - LOW-INCOME



Route 72 – Wiehle Express

Proposed changes to Route 72-Wiehle Express will:

- Eliminate service along Russell Branch Parkway east of One Loudoun and INOVA Loudoun Hospital in Lansdowne.
- Increase frequency.

Although this route will increase frequency, it has been categorized as an **adverse change** for this service equity analysis due to alignment changes that will eliminate service to INOVA Loudoun Hospital in Landsdowne. Route 72 riders will be able to transfer to Route 70 to access the hospital (**Figure 3**, **Figure 4**).

FIGURE 3 PROPOSED ROUTE 72 MODIFICATION - MINORITY

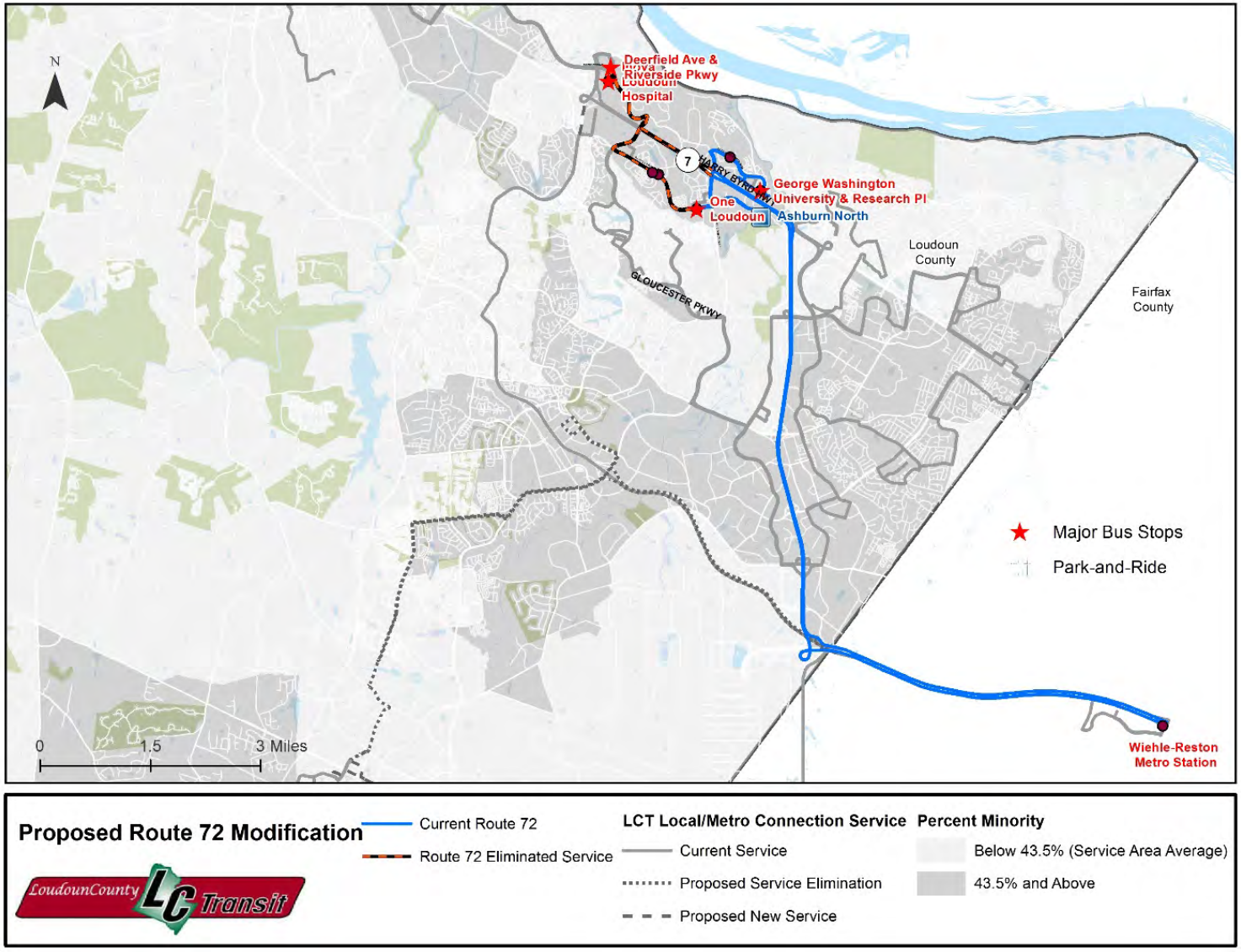
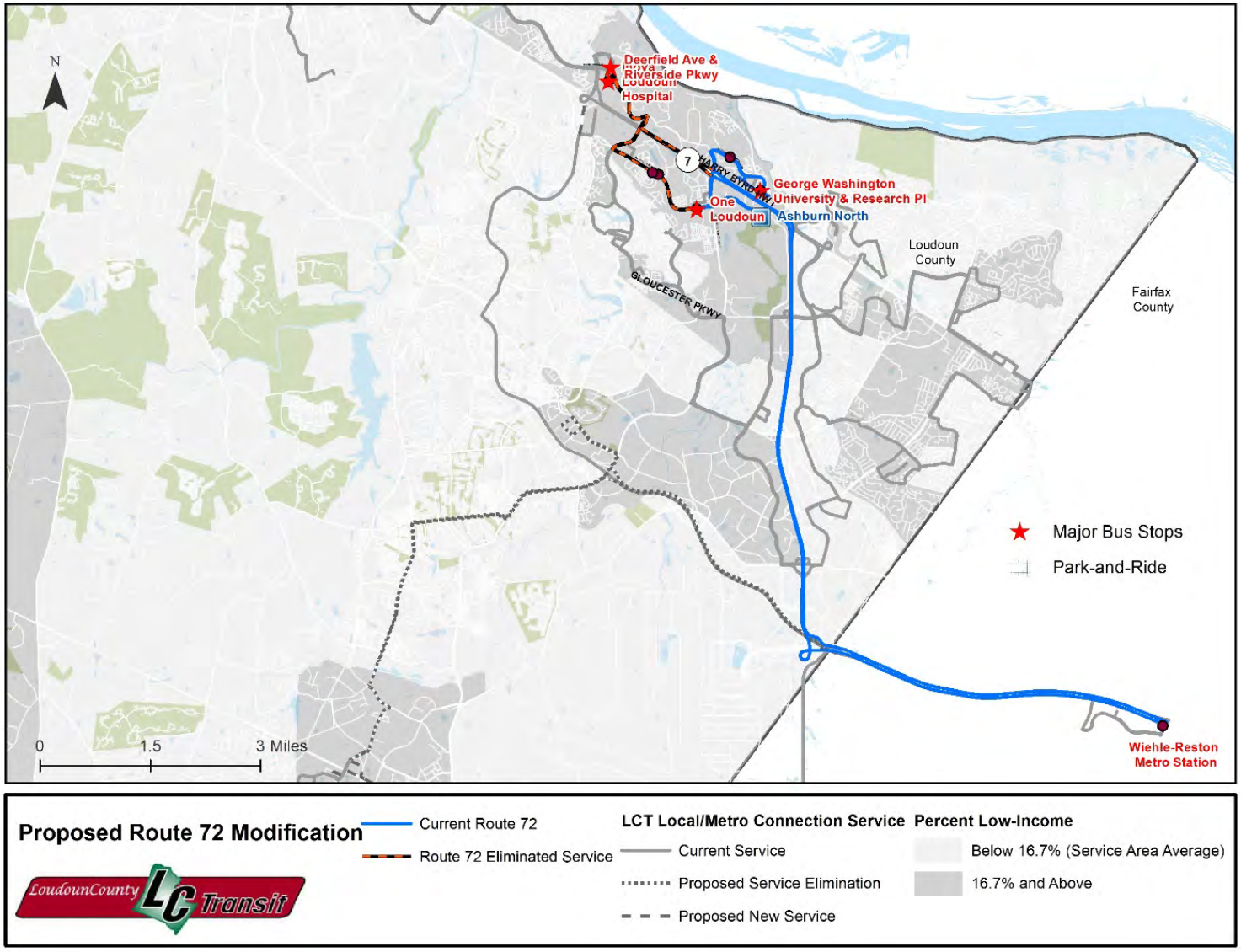


FIGURE 4 PROPOSED ROUTE 72 MODIFICATION - LOW-INCOME



Route 85 – Dulles South Connector

Proposed changes to Route 85-Dulles South Connector will:

- Eliminate northern portion of route: Stone Springs Boulevard north of the intersection with Medical Drive (old Gum Springs Boulevard), Evergreen Mills Road, Belmont Ridge Road, Ryan Road, Loudoun County Parkway, Loudoun Station, and mid-day Wiehle-Reston East Metro Connection from Loudoun Station.
- Eliminate southern portion of route: Riding Center Drive, Braddock Road, Gum Springs Road, Destiny Drive and Stone Springs Boulevard south of Tall Cedars Parkway, Tall Cedars Parkway east of Loudoun County Parkway, Poland Road and Eastgate View Drive.
- New routing: Route 50 from Stone Springs Boulevard to Loudoun County Parkway, Loudoun County Parkway from Route 50 to Tall Cedars Parkway.
- Extend mid-day routing from East Gate Park and Ride to Wiehle-Reston East Metrorail.
- Adjust timing to coordinate with Route 88X to for transfers.

This route will provide new service on Route 50 from Stonespring Hospital Center and the Dulles South Park and Ride Lot to the Wiehle-Reston Metro Station. However, the route change has been categorized as an **adverse change** for this service equity analysis, due to alignment changes removing much of the north/south service between Loudoun Station and Stonesprings Hospital Center.

FIGURE 5 PROPOSED ROUTE 85 MODIFICATION - MINORITY

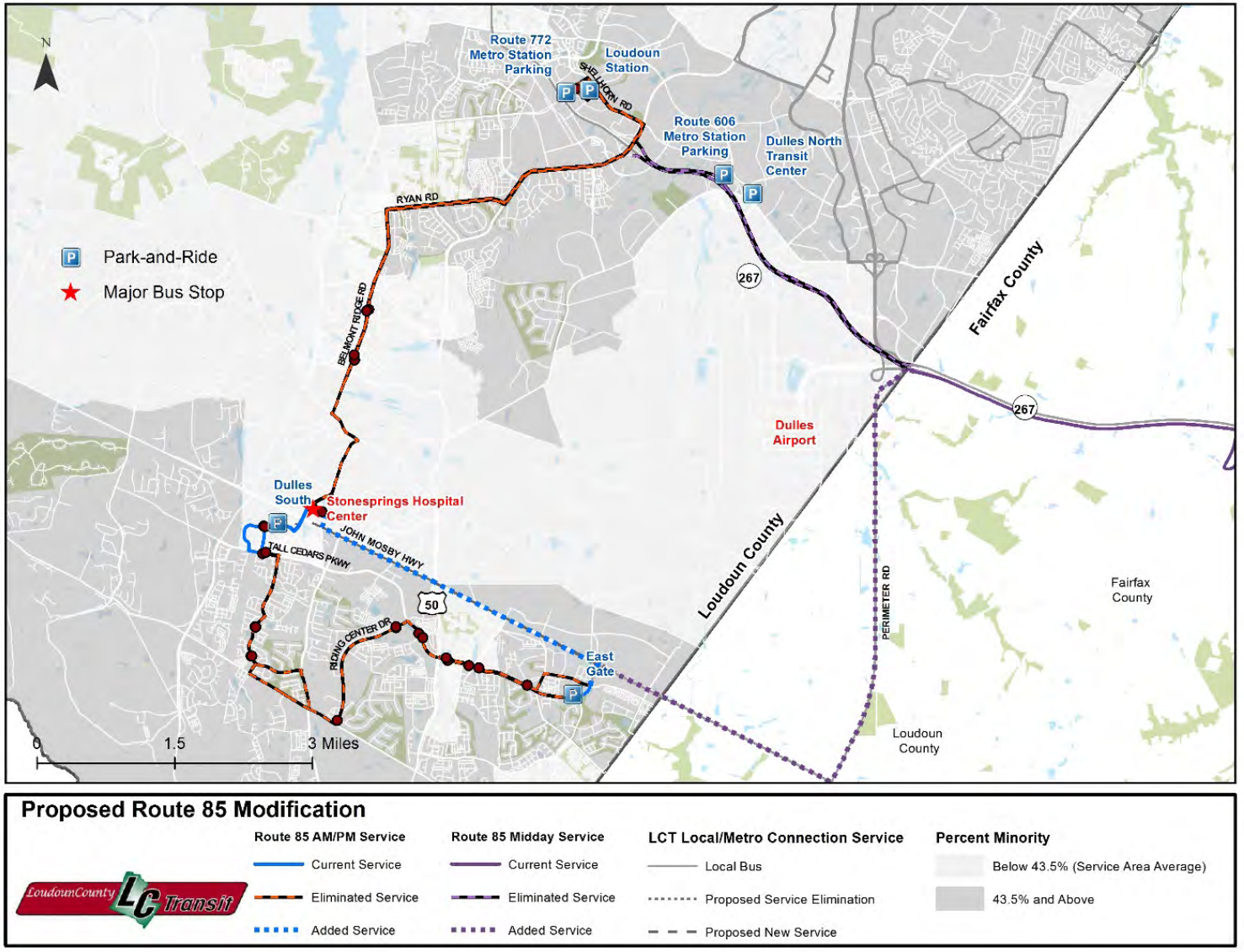
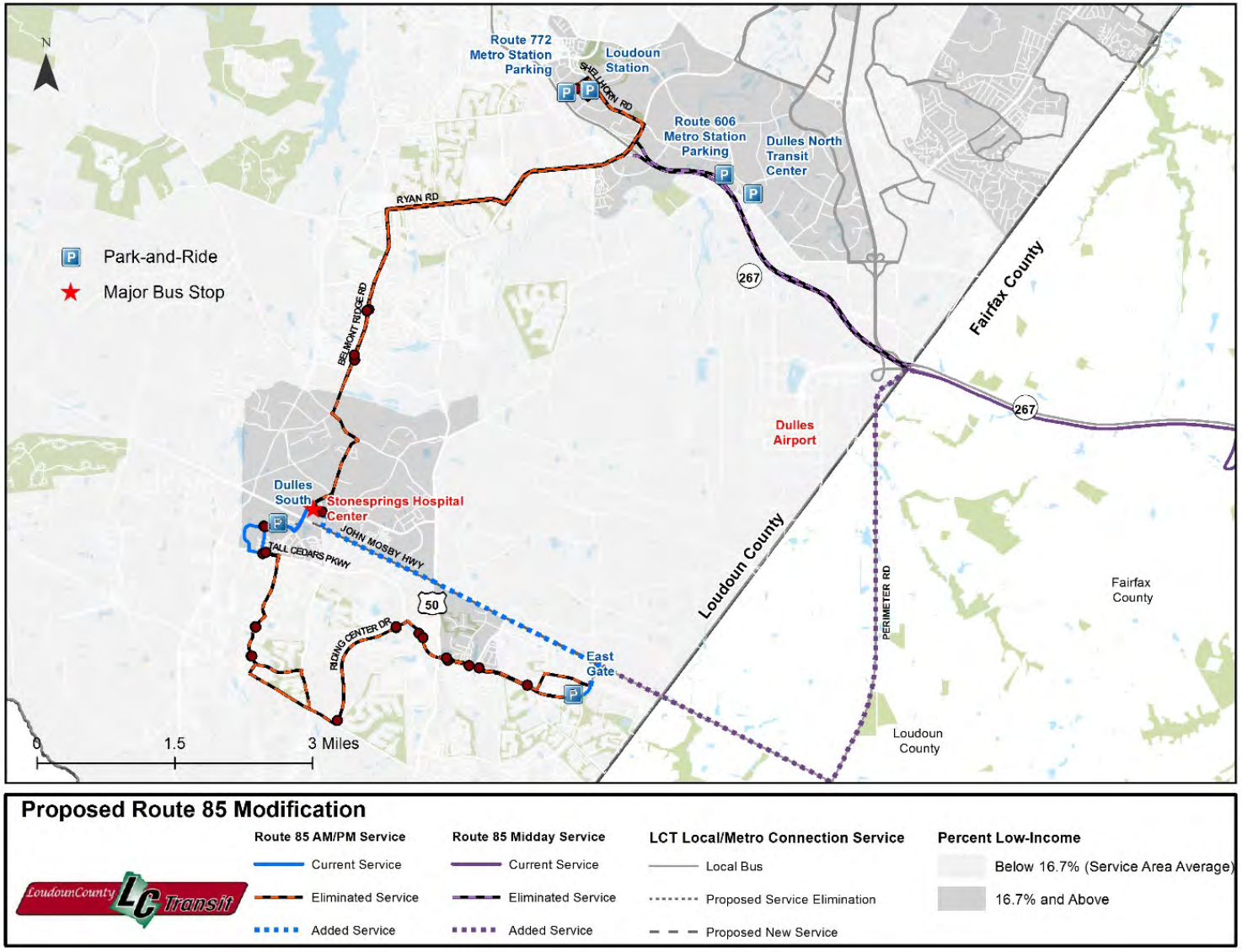


FIGURE 6 PROPOSED ROUTE 85 MODIFICATION - LOW-INCOME



Summary of Adverse and Beneficial Changes

To determine whether this package of changes complies with DTCI Title VI policies, aggregated percentages of minority and low-income populations were determined for all adverse changes (there were no direct beneficial changes analyzed for this service equity analysis). Overall, this package of changes has no Disparate Impact on minority populations or Disproportionate Burden on low-income households currently served by these routes.

Table 2 breaks down the number and percent of minority population residing in Census Block Groups within one-quarter mile of each bus stop of the routes experiencing a major service change. When compared to the disparate impact threshold for adverse changes (58.5 percent and higher), neither the individual routes nor the aggregate affected population met the criteria for potential disparate impact.

Table 3 breaks down the number and percent of low-income households residing in Census Block Groups within one-quarter mile of each bus stop of the routes experiencing a major service change. When compared to the disproportionate burden threshold for adverse (31.7 percent and higher), neither the individual routes nor the aggregate affected households met the criteria for potential disproportionate burden.

TABLE 2 DISPARATE IMPACT - SUMMARY OF ADVERSE CHANGES

Route	Adverse or Beneficial?	Total Population	Total Minority Population	Percent Minority Population
Route 62	Adverse	28,802	11,121	38.6%
Route 72	Adverse	12,535	5,865	46.7%
Route 85	Adverse	37,882	19,191	50.7%
TOTAL		***79,219***	***36,177***	***45.7%***
Disparate Impact Threshold for Adverse Changes				**58.5%**
Does this package of changes meet the Disparate Impact Threshold?				**No**

TABLE 3 DISPROPORTIONATE BURDEN - SUMMARY OF ADVERSE CHANGES

Route	Adverse or Beneficial?	Total Households	Total Low-Income Households	Percent Low-Income Households
Route 62	Adverse	10,859	2,168	20.0%
Route 72	Adverse	5,095	1,085	21.3%
Route 85	Adverse	11,699	1,149	9.8%
TOTAL		***27,653***	***4,402***	***15.9%***
Disproportionate Burden Threshold for Adverse Changes				**31.7%**
Does this package of changes meet the Disproportionate Burden Threshold?				**No**