**Charlotte Area Transit System**



**Service Changes: August 2022 Service Changes**

**June 2023**

City of Charlotte

Charlotte Area Transit System

600 East Fourth Street

Charlotte-Mecklenburg Government Center

Charlotte, North Carolina 28202

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#

# INTRODUCTION

The purpose of this document is to document the Title VI service equity analysis for the Charlotte Area Transit System (C.A.T.S.) during the service changes for the month of August 2022 to improve efficiencies within the system. Service for both the C.A.T.S. light rail and all bus routes are included in the analysis.

Title VI of the Civil Rights Act of 1964 prohibits discrimination on the basis of race, color, or national origin in programs receiving Federal financial assistance. This equity analysis follows the requirements of the Federal Transit Administration’s Circular C 4702.1B “Title VI Requirements and Guidelines for Federal Transit Administration Recipients.” Specifically, the Circular requires any FTA recipient serving a population of 200,000 or greater to evaluate major service changes before implementation to determine whether those changes have a disparate impact on minorities (the term used in the Circular) or disproportionate burden on low-income populations. C.A.T.S. Title VI program and policies work to meet both federal and agency expectations to ensure that service (and any service changes) are provided to riders in a non-discriminatory manner. Subsequently, if an analysis were to find a disparate or disproportionate effect for minority and/or low-income populations, C.A.T.S. staff would consider modifications to the original proposal and an additional analysis of the corresponding service networks.

C.A.T.S. realizes the need to implement service changes to better meet bus and rail schedules, customers’ needs and expectation. The proposed service changes will reduce the number of operators needed for the provision of transit services to accomplish the goal of increased reliability.

# SERVICE CHANGES

* 1. **August 2022**
* On August 15, 2022, C.A.T.S. made adjustments to the frequency of several bus routes in the C.A.T.S. bus network as well as the LYNX Blue Line.  The modifications were in response to an industry-wide labor shortage that has impacted C.A.T.S.’. Therefore, operations and schedule modifications were made in an effort to increase the reliability of C.A.T.S. services.
* Prior to August 2022, C.A.T.S. had begun implementing a route restore plan that included adding frequencies to the LYNX Blue Line and to its most heavily utilized bus routes. However, despite its efforts to restore transit services, C.A.T.S. began experiencing the same labor shortages that is plaguing public transportation systems across the country, which staffing shortages which effect reliability.
* Operator shortages have disrupted and complicated the recovery of C.A.T.S. bus and rail services. As previously reported, C.A.T.S. is experiencing a significant lack of available bus and rail operators needed to meet daily service levels. The LYNX Blue has lost 8 operators resulting in 16 open positions. The Bus Operations Division (BOD) had 74 open positions combined with approved and unapproved absenteeism resulting in an average of 40-50 daily deficit in operators. This availability for bus and rail service made it impossible for C.A.T.S. to operate its printed and advertised schedule. In order to make the service more reliable to customers and riders, C.A.T.S. proposed a service reduction to be implemented on August 15, 2022. The service changes would change the frequency of eleven routes and discontinue underutilized late night or early morning trips on nine bus routes.
* As communicated on FTA’s webpage and in the FTA Title VI Circular 4702.1B, such service changes do not require a service equity analysis unless the change lasts longer than 12 months. Subsequently, the proposed changes have become permanent and did require a service equity analysis.

# PUBLIC INVOLVEMENT

C.A.T.S. hosted a variety of meetings in different styles and settings to gather feedback from the service changes that occurred during the COVID-19 pandemic. The meetings were both in person, as well as virtual. The meeting information was shared the following methods:

* Charlotte Observer, Charlotte Post, LaNoticia
* Twitter, Facebook, Instagram
* C.A.T.S. Rider’s Alerts
* Media press releases and media advisories
* Informal council notification
* Meeting notification on C.A.T.S. website as well as City of Charlotte event calendar
* Internal email to C.A.T.S. employees
* Crown publication (city newsletter)

**Table 3-1: In person meetings**

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Time | Location | Address |
| August 2, 2022 | 6:00 am. – 8:00 pm | Cornelius Park and Ride | 2300 Sefton Park RoadCornelius, NC 28031 |
| August 2, 2022 | 4:00 pm – 6:00 pm | Davidson GatewayPark and Ride | 630 Davidson-Gateway DriveDavidson, NC 28036 |
| August 3, 2022 | 12:00 pm – 2:00 pm | Charlotte TransportationCenter (CTC) | 310 Trade Street, Charlotte, NC 28202 |
| August 4, 2022 | 1:00 pm-3:00 pm | Northcross Park and Ride | 17126 Northcross Drive,Huntersville, NC 28078 |
| August 4, 2022 | 6:00 am – 12:00 pm | Huntersville Gateway Park & Ride | 10300 Compass Street,Huntersville, NC 28708 |

**Table 3-2: Virtual Meetings via YouTube**

|  |  |
| --- | --- |
| Date | Time |
| August 4, 2022 | 12:00 pm |
| August 4, 2022 | 6:00 pm |

In each of the meetings listed above, C.A.T.S. provided ways for the public to verbalize, write or type or type their comments, depending on the type of meeting. For the YouTube Live meetings, attendees were encouraged to leave questions in the chat.

## Public Comments

The comments collected from the public mainly focused on the following Comment focused on the following topics.

* Do better with marketing routes
* Increasing, changing, or enhancing bus | rail routes
* Service changes and community
* Ticket machine inefficiency

The more specific public comments are found below:

* I'm a finance guy and did the calculation - I save $7,000 per year taking the express bus. It's been terrible not having the late day (express) service after 6 p.m. and later. C.A.T.S. needs to better market express/BRT. I would love to have the 1 p.m. trip option. Concord used to have the CK rider? What happened. You all used to have mid-day (express) trips and late-night trips. Now I can't stay uptown for dinner. I've been riding the (express) bus for 10 years and I've had no problems. There has been some incidences of car theft at the Northcross park and ride. I appreciate that. (the change to make buses more reliable) (add) later service, even if it is combined with the N. Meck route. Make all seats available since larger loads now (more full). It (changes) makes it difficult to get the evening bus and got to the gym after work. I won't be able to do that now. It (changes) makes it difficult to get the evening bus and got to the gym after work. I won't be able to do that now. It would be great if evening/Saturday trips into uptown. Don't need to spend all this money on a light rail. Just use the express buses/lanes. That's no big deal. (the changes) still picking me up at College and 3rd. My main concern is my daughter - I have to be able to get home to her in the afternoon. As long as the first afternoon trip doesn't get taken away. Route 7 does not currently operate every 15 minutes at night. Close them down.
* Far as I'm concerned the bus are doing fine. C.A.T.S. ain't sh\*t. The service changes are going to hurt a lot of people.
* Doing good job, I ride the bus every day. I go to the meeting thank you
* Have Rt. 28 Fairview run to walker Rd and McAlway as a variant to SouthPark Mall & back. Have a McAlway Rd. crosstown to connect from Monroe/Commonwealth to New Bern station. Have 28 run on Sundays. Bring back 232 Greir Heights except from NC 055 to Walmart connect w/ 221 on the way home I take the 22 and then have to take the 99 (transfer) 6:40 p.m. is the last 99. The 6:20 outbound (express) will not get me there in time. Makes it a little difficult.
* When will y’all repaint the lines in the parking lot (Northcross P&R)
* Bus 3&23 to plaza. Bus won't stop because no stop. Eastway & Central by the Wendy's gas station the bus shelter was taken down and no benches. Incident May 14, Saturday on the #17 I got off work and stop on Central Ave. 6:19 pm bus. Waited and waited but no bus came. Caught the 9 at 8 p.m. Complaint. 4&23 have not been running on Sundays. If you're going to make it a 20-minute headway on the blue line - I can't get anyone to take the train to evening events, make it 20 minutes throughout all day. Woodlawn Station -trash is piling up, trashcans "broken" College & 3rd on the outbound trip - 48x missing stop from app. Wells Fargo employee incentives (to ride the bus). Bring the #3 back to uptown. 23 bus missed trips Friday/Saturday/Sunday and had to take the LYNX and walk home. I take the #3 or the train to 36th St and end up walking for 4 or 5 miles.
* Need a bus back earlier than 4 p.m. (express) to Cornelius bring back midday routes.

## Virtual Comments

* I don't know about everyone else but the graph isn't very clear. I can see the bars but not the writing on the sides.
* Is there a link to a page that will list all these changes mentioned in video? Thank you.
* ​Will these adjustments also be reflected in google maps transit route planning?
* ​Have you already alerted people affected by morning/evening route changes?

# METHODOLOGY

A Title VI service equity analysis was performed on the service changes implemented due to the to assess the effects of the service changes. This analysis determines if the proposed adjustments will have a disproportionately high and adverse impact on the minority and low-income populations. The analysis also recommends mitigation, where necessary.

## Legal and Regulatory Context

This analysis complies with the legal requirements outlined in *Title VI of the 1964 Civil Rights Act (*42 USC § 2000d et seq.) July 1964. The analysis additionally uses the guidance and references described in the Public Comment section of the document.

## Title VI Guidance and References

This document has been completed using the definitions, methodologies and guidance outlined in:

* *C.A.T.S. Policy for Major Service Changes and/or Fare Change Reviews* (C.A.T.S. CivR01), October 2018
* *Title VI and Title VI – Dependent Guidelines for Federal Transit Administration Recipients* (FTA Circular C 4702.1B), October 1, 2012

## Datasets

The following Geographic data was used to complete the demographic analysis for the service equity analysis:

* *2020 U.S. Census Data – Tract Level Population by Race*
* *2018 American Community Survey Data – Block Group Level Poverty Status*

## Definitions

Disparate Impact Threshold – A circumstance in which the estimated minority population in a geographic area or the system-wide surveyed route ridership exceeds the minority population proportion for the C.A.T.S.’ system accounting for the survey’s margin of error. C.A.T.S. currently defines this threshold as 49.5 minority and 11.8 low income.

Low-Income – “low-income population” is a population whose median income is at or below the American Community Survey poverty level by block group as defined by the U.S. Census American Community Survey (ACS) 5-year estimates.

Major Service Change Review – According to Section 4.0 of C.A.T.S. CivR01 *Policy for Major Service Changes and/or Fare Change Reviews*, a major service change review will occur whenever there is a major service change to any transit service provided by C.A.T.S..

Major Service Adjustments – According to Section 4.1 of C.A.T.S. CivR01 *Policy for Major Service Changes and/or Fare Change Reviews*, a major service adjustment includes:

* Any change to an existing bus or light rail route that affects 25% or more of the route’s daily revenue miles or 25% or more of the route’s ridership
* Any system-wide change that affects 25% or more daily revenue miles or 25% or more passengers system-wide
* Elimination of an existing transit route without replacement
* New service routes

Minority – In aggregate, Non-White/Non-Hispanic population by race by census tract as defined by the U.S. Census 2010 Decennial Census.

Service Change – A geographical or temporal reduction in service, including but not limited to the elimination of a route, shortening of a route, rerouting an existing route, or an increase in headways.

## Study Area

### Service Area

The service area (in aggregate) is calculated:

1. The entire C.A.T.S. system bus and rail GIS polyline files are overlaid onto North/South Carolina census tract and block group polygons containing demographic data.
2. A ¾ mile buffer is calculated from the bus and rail route polylines within Mecklenburg County [to represent both the fixed-route and Americans with Disability (ADA) complementary transit service].
3. A ¼ mile buffer is calculated from the regional bus route polylines that extend outside of Mecklenburg County (as complementary ADA bus service is not required to be provided by C.A.T.S. outside of Mecklenburg County. Furthermore, the industry standard for an acceptable walking distance from transit service is considered to be ¼ mile).
4. The resulting buffer selects the affected tracts/block groups.
5. The demographic data joined to the affected tracts/block groups is exported as a table.

## Data Calculations

### Demographic Data

#### Service Area Demographic Data

Demographic data is then calculated for the total C.A.T.S. service area. Population by race is calculated using tract level geography by county. Percent minority is calculated for service tracts to provide a baseline comparison.

* Percent Minority = (Total Service Area Tract Population – Total Service Area White Alone Population) / Total Service Area Tract Population

Low-income percentage is calculated using block group data. Percent low income is calculated for service area block groups to provide a baseline comparison.

* Low-income by Block Group = Total Service Area Poverty Rate by Block Group/ Total Service Area Block Group Population

The resulting demographic data percentages are then used as a threshold to determine minority tracts and low-income block groups. Any tract or block group with percentage of minority or low-income populations at or higher than the demographic thresholds are considered minority or low income for the purpose of Title VI analysis.

#### Route Level Demographic Data

Demographic data for bus routes is calculated using the same method as described in section 4.5.1.1. However, In the case of express routes, demographic data is only calculated for portions of the route where the route is in service. In the Northeast Corridor express routes do not provide service along Interstates 77 and 85.

The resulting demographic data for the C.A.T.S. service area, Northeast Corridor bus routes percentages are detailed in Section 4, Table 4-1 below.

**Table 4-1: System-Wide Low-Income and Minority Area**

|  |  |  |
| --- | --- | --- |
|  | **Service Area** | **Mecklenburg County** |
| **Minority**  | 49.5% | 49.0% |
| **Low Income** | 11.8% | 10.2% |

The resulting demographic data found in Section 4, Table 4-2 below shows demographics for each of the 70 routes in which C.A.T.S. operates. 49 of the routes travel through low-income and/or minority census tracts.

## Route Level Analysis

**Table 4-2: System Demographics by Route**

|  |  |  |  |
| --- | --- | --- | --- |
| **Route Number**  | **Route Name** | **Low- Income**  | **Minority** |
| 1 | Mount Holly  | 15.6 | 65.8 |
| 2 | Ashley|Scaleybark|Crosstown  | 20.1 | 69.1 |
| 3 | The Plaza  | 20 | 79.4 |
| 4 | Belmont  | 16.8 | 57.3 |
| 5 | Sprinter Airport  | 18.2 | 60.1 |
| 6 | Kings Drive  | 9.4 | 24.7 |
| 7 | Beattie Ford Rd.  | 14.7 | 68.7 |
| 8 | Tuckaseegee Rd.  | 17.7 | 67 |
| 9 | Central Avenue  | 18 | 59.4 |
| 10 | West Blvd.  | 18.6 | 58.8 |
| 11 | North Tryon Street  | 19.6 | 66.6 |
| 12 | South Blvd. | 16.5 | 57.3 |
| 13 | Nevin Rd. | 15.6 | 81.6 |
| 14 | Providence Rd.  | 7.7 | 23.8 |
| 15 | Randolph Rd.  | 12.3 | 29.6 |
| 16 | South Tryon  | 17.2 | 58.2 |
| 17 | CommonWealth  | 15.1 | 53.3 |
| 18 | Paw Creek|Rosa Parks Crosstown  | 10.2 | 76 |
| 19 | Park Road  | 9.6 | 32.8 |
| 20 | Sharon Road | 11.5 | 28 |
| 21 | Statesville Avenue | 15.3 | 66.7 |
| 22 | Graham Street | 17.9 | 66.3 |
| 23 | Shamrock Dirve | 18.8 | 64 |
| 24 | Nations Ford Rd.  | 18.7 | 68 |
| 26 | Oaklawn Avenue | 14.1 | 64.1 |
| 27 | Monroe Rd.  | 13.1 | 43 |
| 28 | Fairview Rd.  | 22.5 | 43.7 |
| 29 | UNCC|JW Clay | 15 | 75.2 |
| 30 | Woodlawn|Scaleybark|Crosstown | 16.8 | 45.4 |
| 34 | Freedom Drive | 18.1 | 68.3 |
| 35 | Wilkinson |Amazon | 21.1 | 59.4 |
| 39 | Eastway | 17.5 | 61 |
| 42 | Carowinds | 8.2 | 50.5 |
| 43 | Ballantyne | 8.9 | 37 |
| 50 | URP|CIC | 13.7 | 72.3 |
| 51 | Pineville-Matthews Road | 6.5 | 30.4 |
| 54 | University Research Park | 12.7 | 66.9 |
| 55 | Westinghouse Blvd.  | 10.5 | 63.7 |
| 56 | Arrowwood  | 14.1 | 70.9 |
| 57 | Archdale|South Park | 14.5 | 51.8 |
| 58 | Pineville | 8.8 | 47.7 |
| 59 | North Meck Connector | 9.3 | 60.6 |
| 60 | Tyvola Rd.  | 17.3 | 68.3 |
| 87 | City LYNX | 10.5 | 27.9 |
| 97 | Village Rider-Cornelius | 5.2 | 22.5 |
| 98 | Village Rider McCoy Rd.  | 3.8 | 37.4 |
| 99 | Village Rider-Huntersville | 5.3 | 33.3 |
| 211 | Hidden Valley | 19.3 | 82.2 |
| 221 | E.WT Harris Blvd. -Idlewild Rd.  | 22 | 76 |
| 222 | Pence Rd.  | 21 | 78 |
| 235 | Goodwill | 20.2 | 77.6 |
| 290 | Davidson Shuttle | 3.3 | 16.8 |
| 501 | LYNX Blue Line | 18.6 | 63.3 |
| 40X | Lawyer Road Express | 17.5 | 60.1 |
| 41X | South Tryon Express | 12.9 | 63.3 |
| 46X | Harrisburg Road Express | 18.6 | 66.7 |
| 47X | Huntersville Greenhouse Express | 12.9 | 49.8 |
| 48X | Northcross Express | 8.7 | 33.5 |
| 52X | Idlewild Road Express  | 17.1 | 60.9 |
| 53X | Northlake Express | 9.6 | 56.7 |
| 61X | Arboretum Express | 11.4 | 61.1 |
| 62X | Rea Road Express  | 10 | 32.1 |
| 63X | Huntersville Express | 9.4 | 34.4 |
| 64X | Independence Blvd. Express | 16.1 | 56.9 |
| 65X | Matthews Express | 14 | 50 |
| 74X | Union County Express | 14.8 | 44.1 |
| 77X | North Mecklenburg Express | 10.8 | 31.3 |
| 82X | Rock Hill Express | 12.6 | 36.9 |
| 85X | Gastonia Express | 19.8 | 51.5 |
| 88X | Mountain Island Express | 15.1 | 62.9 |

# SERVICE EQUITY ANALYSIS

## Description of Route Changes

The August 2022 service adjustments resulted in the modification of 10 routes that had a change that exceeded 25% of the daily revenue miles or daily revenue hours twelve months or more after the initial adjustment. The changes therefore resulted in a “Major Service” change and the need for a Service Equity analysis. Table 5-1 below shows the 10 routes which exceeded 25% in revenue miles.

**Table 5-1: C.A.T.S. Route Hour Changes**



**Table 5-2 C.A.T.S. Mileage Changes**



# MITIGATION

The public was notified about the Title VI Equity Analysis as found in Section 3 of this document. After a further review of the 9 routes defined as having a Major Service change, C.A.T.S. found that eight of the routes listed as either traveling through a low income or minority census track which exceeded the threshold set in Table 4-1. The result is that the changes for commuters on those routes is presenting as the better alternative in comparison to the original scheduling. The services changes are therefore the preferred method to prevent a disparate impact with superseding negative consequences for these protected populations, under these circumstances. Table 6-1 below shows the routes which are defined as having a disparate impact on commuters and the mitigation efforts for each of those routes. Currently, no mitigation efforts are deemed necessary in comparison for maintaining the services in the current state, as the results are showing superseding positive impacts for those protected populations. Staff found that the previous services had a higher negative impact on those minority & low-income populations due to not being predictable nor reliable for those populations. The effects of reducing mileage and hours of the routes did have a negative effect on the previous scheduled miles and hours within those census tracts, however as stated before the customers are now receiving more reliable and predictable service which serves as mitigation to the reduction in hours, and must be accessed as a balancing positive impact upon those populations.

**Table 6-1: Mitigation by Route**

|  |  |  |  |
| --- | --- | --- | --- |
| **ROUTE NAME** | **ROUTE NUMBER** | **LOW-INCOME | MINORITY DESIGNATION** | **MITIGATION|PLAN** |
| Sprinter Airport | 5 | YES | YES | See Comments |
| Tuskegee Rd | 8 | YES | YES | See Comments |
| Central Ave | 9 | YES | YES | See Comments |
| West Blvd | 10 | YES | YES | See Comments |
| North Tryon Street | 11 | YES| YES | See Comments |
| South Tryon | 16 | YES | YES | See Comments |
| Monroe Rd.  | 27 | YES | NO | See Comments |
| Freedom Drive | 34 | YES | YES | See Comments |
| Davidson Shuttle | 290 | NO | NO |  |

The route changes were chosen due to the frequency of service and due to the number of missed trips during the worker shortage. By reducing service on the bus routes, C.A.T.S. determined that although the reduction of service resulted in negative hours and miles of service, the reduction resulted in more reliable and predictable service for all passengers along the bus routes, which effectively mitigated the effects of the service reduction.

Below **Table 6-2** shows that passengers per hour increased on all of the bus routes considered for the major service change, however none of the bus routes reached capacity which would be an indicator of problems with scheduling and frequency of service. Meaning, the resulting data shows that potential anticipated negative impacts such as lack of seating/standing space on vehicles, and missed pickups due to overcrowding at vehicle capacity was not reported as occurring. When comparing the impacts of original route scheduling versus the current scheduling, the least intrusive alternative appears to be the current scheduling that is showing a clearly better circumstance for patrons. Therefore, the changes appear to provide both more reliable and predictable service which was a concern based upon public comments found in Section 3 of the document.

**Table 6-2 Passengers Per Hour**

|  |  |  |  |
| --- | --- | --- | --- |
| **Route** | **Weekday Before** | **Weekday After** | **Percent Change** |
| 5 | 19.37 | 31.98 | 65.10% |
| 8 | 14.09 | 21.71 | 54.15% |
| 9 | 18.82 | 28.14 | 49.56% |
| 10 | 14.74 | 20.86 | 41.55% |
| 11 | 16.65 | 25.48 | 53.03% |
| 16 | 13.38 | 23.44 | 75.23% |
| 27 | 12.31 | 21.03 | 70.90% |
| 34 | 11.45 | 17.32 | 51.27% |

**Appendix A**

# METROPOLITAN TRANSIT COMMISSION BOARD APPROVAL