

# Service Design Guidelines & Delivery Standards

2021 Revision

DRAFT



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# Executive Summary

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NFTA Metro's Service Design Guidelines and Delivery Standards, approved by the NFTA Board of Commissioners on March 25, 2021, provides a framework for transit network design and operation. This framework is derived from a commitment to NFTA Metro's mission and vision for regional coordination and enhanced quality of life through the application of public transportation.

This document has four main sections:

- The **Introduction** defines the service area and establishes service tiers for transit operation, separating the most important core services from the supporting services. A quick guide to understanding the document is included in this section.
- **Service Design Guidelines** establish general principles to guide staff in designing new and existing routes. For example, bus routes should be simple and direct; bus stop spacing should be context sensitive; and shelters, pedestrian connectivity, and bicycle infrastructure are crucial elements of a successful transit network. Equity is an important consideration in route design, and NFTA Metro's five-factor Transit Need Index provides a framework for evaluating the equitable distribution of service to the communities with the highest need for public transportation accessibility. Service design guidelines provide an aspiration for the transit service NFTA Metro should provide
- **Service Delivery Standards** establish the framework for determining service tiers and define evaluation metrics and other aspects of service operation. This section explains operational standards such as service hours of operation, frequency, defined peak and off-peak time periods, service productivity and capacity of transit vehicles. Some of these standards are delineated by service tier, while others are universal systemwide.
- In **Service Evaluation Process**, a procedure is established for how each service route is evaluated, and how service is changed. The evaluation is a six-step process that uses route and aggregate service tier statistics to determine performance. Low or high performance may lead to changes to operations or modification of service tier. Significant changes require the nine-step service change process, which has public outreach and board approval requirements.

After the major sections, there are **Frequently Asked Questions** (FAQs) that may answer common queries the reader may have about NFTA Metro service planning and operation.

This document has been written to be readable by the public while being applied internally. For any transit terminology that may not be familiar to the reader, a glossary of transit terms has been included in the **Appendix**.

# 1. Introduction

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## 1.1 Background

### What is NFTA Metro?

Niagara Frontier Transit Metro System, Inc. (**NFTA Metro**) is the state-granted public authority that coordinates and operates surface public transportation (also known as transit, or public transit) for the counties of Erie and Niagara in western New York state. NFTA Metro manages and operates Metro Bus, Metro Rail, and PAL (Paratransit Access Line) services for the community.

NFTA Metro is a division of the Niagara Frontier Transportation Authority (NFTA) that is responsible for air and surface transportation in Erie and Niagara counties.

### What are service design guidelines and delivery standards?

Service design guidelines and delivery standards are policies adopted by NFTA Metro to provide an objective basis for assessing the performance of existing transit service, identifying unmet transit service needs, designing, and evaluating new service proposals and recommending changes and/or improvements or reduction of current service. The NFTA Board of Commissioners (hereafter “NFTA Board”) initially approved service standards in 1992, reaffirmed them again in 1995 and revised them last in 2012. This document contains service design guidelines and delivery standards based on current best practices of the transit industry and the conditions of the Buffalo-Niagara region’s transportation needs.

### Why do we establish service standards?

Service standards allow NFTA Metro to meet key principles and framework that reflect the mission and vision of NFTA Metro.

#### ***Mission***

Enhance the quality of life of residents and visitors by providing the highest level of safe, clean, affordable, responsive, and reliable public transportation through a coordinated and convenient bus and rail system.

#### ***Vision***

Support the effective coordination and partnership with public and private entities in continuously improving transportation services to promote regional growth.



## 1.2 Service Overview

### Service area

The service area of NFTA Metro is defined as Erie and Niagara Counties in New York State, including the Cities of Buffalo, Niagara Falls, Lackawanna, North Tonawanda, Lockport and Tonawanda.

### Service tier definitions and standards

Metro Rail and Metro Bus are transit services provided by NFTA Metro. It is important to distinguish between the various existing and planned services to allow for the prioritization of service to areas of high ridership while allowing appropriate geographic connectivity.

#### SERVICE TIERS

##### CORE SERVICES

Tiers most important to maintaining regional transportation ridership and connectivity

###### METRO RAIL



A light rail line that operates in conjunction with the bus transit network

###### BUS RAPID TRANSIT



A high quality bus system that delivers fast, frequent, and high capacity service

###### FREQUENT



A primary route in a high-density municipality that has the highest ridership and demand

###### STANDARD



A route used to improve transit coverage in areas not serviced by frequent bus service, the objective of this service is to connect riders to frequent and higher levels of service

##### SUPPORTING SERVICES

Tiers that benefit regional transportation connectivity and efficiency

###### LIMITED STOP



A route variant that only services selected stops to reduce travel time for through-riding customers

###### SUBURBAN EXPRESS



A rush-hour bus route that serves downtown Buffalo to/from suburban park-and-rides or activity centers using highways

###### LOCAL EXPRESS



A faster variant of an existing bus route that follows the local route until near the City border, then uses highways to access downtown Buffalo

###### ON-DEMAND MICRO TRANSIT



A ride-hailing type of service that operates to increase coverage in an area not serviced by traditional fixed-route service

###### TROLLEY



A seasonal bus route that provides service as a circulator to promote connectivity of tourist destinations and hotel lodgings



## 1.3 Understanding this document

This document is written with the intent of informing internal entities, as well as educating the public. NFTA Metro will abide by the guidelines and standards set forth in this document to provide the necessary transportation service of the Buffalo-Niagara region. Members of the community and customers can understand the necessary steps taken to decide how service is provided by NFTA Metro by reading this document.

There are three major sections of this document: **Service Design Guidelines**, **Service Delivery Standards** and **Service Evaluation Process**.

**Service Design Guidelines** are general best practices for how the design of the transit network should look.

**Service Delivery Standards** provide a framework that is used to establish service tiers and performance metrics used to evaluate its operation of service.

The **Service Evaluation Process** is the procedure by which service performance metrics are measured, evaluated, and used to inform service planning decisions at NFTA Metro.

The last section of the document includes **Frequently Asked Questions**. These are common queries that NFTA Metro staff receive about the services provided.

Within this document are references to terms that may be unfamiliar to some readers. **Appendix A** is a glossary of terms that is used in this document and others released by NFTA Metro.

Up-to-date yearly analysis of the Transit Need Index and classification of service tiers can be found in the **Appendix**.

Other documents, laws or policies may be referenced in this document. These are colored and bolded for readers and look like this: **Referenced Document**. If the document is by NFTA Metro, it can be found on our website: <https://www.nfta.com/about/public-information>

NFTA Metro can be further contacted with any questions or comments.

Email us at [info@nfta.com](mailto:info@nfta.com) or visit our website.

## 2. Service Design Guidelines

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### 2.1 What are service design guidelines?

Service design guidelines establish general principles to guide staff in how new and existing routes are designed. Additionally, transit supportive facilities, geographic coverage and equity factors are considered for route planning. Service design guidelines are not rigid standards and provide room for flexibility as much as funding and geographical contexts may allow. Service design guidelines provide an aspiration for the transit service NFTA Metro should provide.



## **2.2 Route design**

### **Simple routes**

Routes should be designed in an easy-to-understand and consistent way. Customers should be able to tell where the route goes. As much as is feasible, routes should remain on major arterials with good pedestrian connectivity. Routes should be designed to connect major activity centers.

### **Direct routes**

Routes should be designed directly to and from major destinations without straying from major arterials to minimize passenger travel time.

### **Symmetrical routes**

Routes should be designed to operate in an easy-to-understand and symmetrical pattern, servicing the same corridors in both directions.

### **Variations**

When a route serving an area has the same start point but deviates course along its journey to serve other areas, this is known as a **variation**. Routes should not have more than 2 variations to allow for an easy-to-understand route network.

### **Coverage (transit access)**

Fixed-route transit should be designed to serve areas with density, walkability, continuity, and linear routing. Some routes are designed for geographic service coverage and may not serve dense/walkable areas due to established car-centric land use and development but are necessary to maintain regional connectivity. The conflict between serving areas with high transit propensity and serving more land area is continual and can be the reason for routes operating in less dense areas.

### **Multimodal connections**

Whenever possible, NFTA Metro routes should serve to connect multimodal forms of transportation.

This may include but is not limited to airports, train stations, intercity bus services, light rail, commuter rail, park-and-ride lots, car-share, and vanpool.

NFTA Metro routes should also serve key pedestrian areas and provide sufficient connection to bicycle facilities, bikeshare and other micro-mobility forms that can provide accessible means for first/last mile trips.



# ROUTE DESIGN

## DENSITY

Areas with more people going to and coming from destinations located near stops.



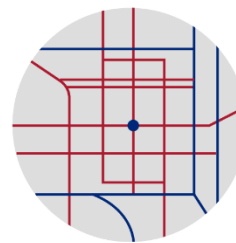
HIGH RIDERSHIP



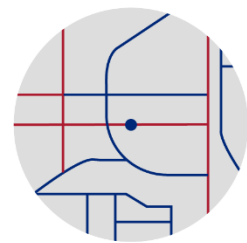
LOW RIDERSHIP

## WALKABILITY

Areas with more sidewalks, safer street crossings, and a connected street grid.



HIGH  
RIDERSHIP



LOW  
RIDERSHIP

## CONTINUITY

Routes that avoid traveling through long gaps of low-density development.



HIGH RIDERSHIP



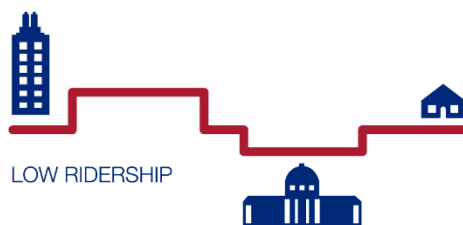
LOW RIDERSHIP

## LINEARITY

Routes that run frequently and in straight lines with few deviations.



HIGH RIDERSHIP



LOW RIDERSHIP

*Graphic Adapted from IndyGo (Indianapolis, IN)*

## 2.3 Bus stops

### Spacing

In most cases, NFTA Metro determines stop spacing by geography. Downtown Buffalo is the most dense, walkable, and accessible district of the service area. It also experiences the most traffic congestion, traffic lights, and highest number of transit transfers. For these reasons, stop spacing can be spread out to allow for riders to utilize alternative forms of transportation within Downtown, while also maintaining accessibility and efficiency of transit vehicles.

Higher-Density neighborhoods contain the most transit riders and have the highest residential density in the area. These areas are often served by more frequent bus routes that must maintain speed and time efficiency for transit to remain a viable transportation option. Higher-density municipalities have higher walkability and accessibility than lower-density municipalities. Therefore, they have less stops per mile than routes in less dense areas due to more potential for delay. Less stops allows the bus to move quickly through traffic at reliable time intervals.

In the outer-ring suburbs and rural areas of the service area, there are fewer riders and infrastructure is lacking for pedestrians. Because of these contextual features, it is important to be able to get as close to the destination as possible, requiring the highest stops per mile. However, speed efficiency is not lost due to a lower rate of ridership at these stops. The additional stops do not slow the buses and riders' time on-vehicle is not significantly affected.

<b>Geographic Context Dependent Service</b>	<b>Suggested Average Spacing (stops per mile)</b>
Downtown Buffalo	1,200 ft (4)
Higher-Density Municipality	950 ft (5)
Lower-Density Municipality	700 ft (7)
<b><i>Independent Services*</i></b>	
<i>Bus Rapid Transit</i>	¾ mile (1-2)
<i>Limited Stop</i>	¾ mile (1-2)
<i>Suburban Express</i>	Case-by-case
<i>Local Express</i>	Case-by-case
<b><i>*independent services are not geographically contextual in all cases and may have wider average stop spacing due to the nature of the service, despite their locations</i></b>	

**Downtown Buffalo** is defined as Goodell St/Edward St in the north, Michigan Ave in the East, Elmwood Ave/Lower Terrace in the West, the Buffalo River and South Park Ave in the South.

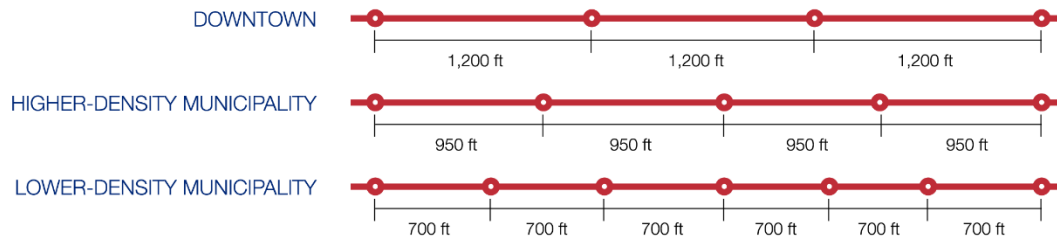
**Higher-Density Municipality** is defined as a municipality outside of Downtown Buffalo (see above) with significant population density (greater than 1,000 people per sq. mile), including some first-ring suburbs.

**Lower-Density Municipality** is defined as anywhere in Erie or Niagara County not found in the above geographies and/or has population density less than 1,000 per sq. mile.

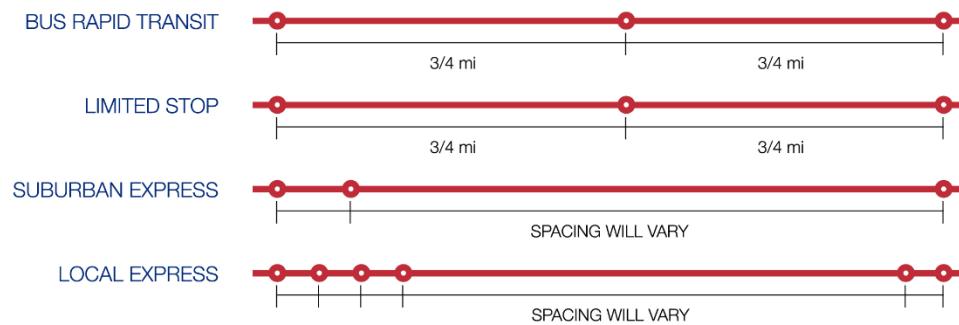
## BUS STOP SPACING

### DISTANCE BETWEEN STOPS

#### GEOGRAPHIC CONTEXT DEPENDENT SERVICE



#### INDEPENDENT SERVICES







## **Bus stop design**

### ***Symmetrical location***

Bus stops for inbound and outbound directions should be located within a visible and short walking distance of each other to ensure buses are serving the same geographic area both ways.

### ***Pedestrian accessibility***

Whenever possible, bus stops should be located on the curb of an ADA-accessible sidewalk. Bus stops should be supportive of pedestrian networks. They should be visible and accessible from both sides of the street.

### ***Bus bulbs and boarding islands***

Bus bulbs are curb extensions that align the bus stop with the outside of the parking lane. They help with the efficiency of the bus merging in and out of traffic and provide a visible cue for community members to board the bus. Bus bulbs can be at corners or mid-block.

Boarding islands are like bus bulbs but are separated by the sidewalk by a bicycle lane. Both infrastructure designs allow for a streamlined transit service with in-lane stops.

Bus bulbs and boarding islands should be in conjunction with high ridership stops on frequent routes.

Resurfacing, restriping, and road reconstruction projects provide key opportunities to incorporate transit safety and efficiency improvements into the streetscape. Ongoing coordination between transit agencies and City, State, and County departments of transportation is crucial.

### ***Where to stop?***

Buses can stop to the side of the street (pull-out stop) or in the travel lane (in-lane stop). The most appropriate place to stop depends on road geometry, local traffic situations and space. Passenger safety is always the first and most important consideration for where the bus will stop given its local context.

#### **Pull-out stops**

Pull-out stops have little impact on traffic if there is enough room for the bus to pull over completely. Often this is into the parking lane that is reserved for the bus to stop in. This is not compatible with bus bulbs or boarding islands. This allows the bus to come close to the pedestrian space for accessibility and safety.

#### **In-lane stops**

With an in-lane stop, the bus stops in the travel lane to let passengers off. This is preferable with bus bulbs and boarding islands. Otherwise, pull-out stops (see above) can be preferable to get riders closer to the pedestrian infrastructure.

#### **Far-side stops**

Far-side stops are where the bus stops after an intersection.

#### **Near-side stops**

Near-side stops are where the bus stops before an intersection.

### **Mid-block stops**

Mid-block stops are where the bus stops in the middle of a block and not near an intersection.

### **Signalized and four-way stop intersections**

Bus stops should be located after a signalized intersection (**far-side**) whenever possible. This makes for safer boarding and alighting for passengers and is more efficient.

### **Two-way stop intersections**

Bus stops should be located before/at the stop sign (**near-side**) for two-way stops whenever possible.

### **Roundabouts**

Bus stops should not be located within the travel lane of a roundabout whenever possible.

## **Transit supportive facilities**

### ***Transit centers***

Transit centers are locations where multiple bus routes meet to provide a vital connection point for transferring between lines or modes. These should provide riders with a safe, well-lit, and comfortable climate-controlled place to wait and purchase fares. They should provide bicycle parking. Transit centers should allow for the transfer to bicycle, bike-share, and other alternative mode transportation, as well as great pedestrian access.

In the NFTA Metro transit network, primary transit centers are located at the Metropolitan Transportation Center in downtown Buffalo, as well as the Niagara Falls Transportation Center and Portage Road Transportation Center in Niagara Falls. Many of the Metro Rail stations also serve as transit centers, notably University Station, which has connections to eleven (11) bus routes.

### ***Transit hubs***

Transit hubs are locations where multiple bus routes meet to provide a vital connection point for bus transfers. Transit supportive entities should be available at transit hubs, such as shelters, benches, digital schedule signage or heating elements. They should provide bicycle parking. Transit centers should allow for the transfer to bicycle, bike-share, and other alternative mode transportation, as well as great pedestrian access.

Black Rock Riverside Transit Hub is an example of a transit hub in the NFTA Metro transit network.

### ***Park-and-rides***

Park-and-rides are designed to promote transit use for people living outside of the central city by allowing riders to drive or get dropped off to nearby lots to then ride transit. They may not be served by transit where they live, but this allows riders to utilize the cost-saving benefits of transit.

Park-and-ride lots should be well-lit with streetlights and have a place for riders to wait (shelter or bench). Park-and-ride lots should be clearly identified.

NFTA Metro operates numerous park-and-ride lots across the service area. Suburban Express and Local Express routes should serve these lots.

## Transit supportive entities

### ***Shelters***

Bus shelters are important for customer comfort and safety, as they provide protection from the elements for passengers waiting to utilize the bus. There are currently 4,500 bus stops in the NFTA Metro network, with 250 shelters. Five percent of boarding locations within the network are served by a shelter.

NFTA Metro is committed to providing a comfortable experience and seeks to add additional shelters to provide better facilities to align more closely with peer agencies.

Large transit shelters should be provided at the highest ridership stops, whereas standard sized shelters are appropriate for less heavily utilized stops.

Bus shelters require significant capital and operating costs and are approved on a case-by-case basis. Providing shelters benefits current ridership, attracts new ridership and provides marketing and branding opportunities.

When adding new shelters, there are considerations that are measured when determining proper location. These include:

- Ridership (how many people board the bus in a location)
- Feasibility (space available for a shelter)
- Potential impact to adjacent properties (neighboring property owners' concerns)
- Visibility (whether the shelter can be seen by operators, vehicles and pedestrians; marketing opportunities)
- Geographic dispersion (distribution of shelters among bus routes and municipalities in the region, contributing to an equitable distribution)

NFTA Metro works with developers and other entities. Shelters provided by other parties may not be maintained by NFTA Metro or look similar to NFTA Metro's base shelter and are provided as a convenience.

Shelters are not permanent and may be moved at the discretion of NFTA Metro. Shelters at underperforming stops should be moved to better serve the highest ridership in the NFTA Metro transit network.



## ***Seating***

Seating at bus stops is provided by NFTA Metro and others with permission by owners of the right-of-way for the comfort and convenience of riders. It may be located in conjunction with a shelter, or unprotected. High ridership stops are good candidates for seating provided by NFTA Metro.

NFTA Metro works with its partners in municipalities and landowners to provide this convenience for the riding public.

## ***Bicycle facilities***

Bicycling can be used to complement and supplement transit services. Bicycling and transit support an affordable, equitable, sustainable, low-impact and community-friendly transportation journey. NFTA Metro strives to increase bicycle facilities to stops and transit supportive facilities.

All NFTA Metro buses have bike racks that can accommodate two bicycles on the front of the vehicle. Riders are permitted to bring bikes onto Metro Rail as well.

Bicycle parking in the form of permanent and secure bike racks should be provided at all transit centers, hubs, park-and-rides, and high ridership stops that contain a shelter and/or a bench.

NFTA Metro works with local municipalities, transportation agencies, bike-share companies, bike advocacy groups, landowners, and the community at-large to provide bicycle parking.

## ***Signage***

All NFTA Metro stops should display a sign showing the routes served and identify the Stop ID for wayfinding.

Other signage that may be seen at NFTA Metro stops includes digital real-time signage, informational signage, route change notices, and paid advertisement.

## ***Wi-Fi***

Wi-Fi is provided as a courtesy at some transit centers and on NFTA Metro buses. NFTA Metro is working to improve Wi-Fi access within the NFTA Metro network.

## ***Real-time information***

NFTA Metro is committed to keeping riders informed and connected with real-time information. NFTA Metro has chosen to integrate GTFS-R, an industry-standard real-time data format, into its operations.

GTFS-R allows for third-party developers to consume data distributed by NFTA Metro to inform riders of service changes, live bus locations and expected times of arrival adjusted to traffic conditions. Third-party developers typically integrate the data with trip planning to provide riders with a cohesive transit experience.

Riders can utilize some of the free applications listed at <http://metro.nfta.com>.





## **2.4 Infrastructure design**

### **Pedestrian connectivity**

NFTA Metro supports pedestrian connectivity to its transit centers, hubs, and stops. Whenever possible, roadway modifications to corridors with NFTA Metro routes should enhance pedestrian connectivity and safety. Coordination with municipalities and local transportation departments should encourage the development of a complete pedestrian network to link to transit.

### **Dedicated transit lanes and transitways**

Dedicated transit lanes provide exclusive access for transit vehicles for either portions of the day, or full time. These provide transit vehicles with a clear path outside of most vehicular traffic and are often combined with stop infrastructure like bus bulbs or boarding islands. They are most effective in areas with high traffic delays and significant curbside activity. Dedicated transit lanes can be located along the curb, between travel lanes and a parking lane, or in the center of the street.

In some cases, exclusive transit-vehicle roads are needed. This is called a transitway. Vehicular traffic is physically separated from transit vehicles, which have exclusive use and are protected.

Dedicated transit lanes and transitways are integral to providing light rail, and bus rapid transit (BRT) service in urban areas. They also can improve efficiency of frequent bus service in congested areas.

NFTA Metro should work with local municipalities, and state and county departments of transportation to establish dedicated transit lane infrastructure for all modes and explore transitway options for future modes.

Transit lanes and transitways should be differentiated visually by using road paint. Bus lanes should be red, whereas bike lanes should be painted green. This should follow NYSDOT and USDOT guidelines and regulations.

### **Active transit signal priority (TSP)**

Transit Signal Priority (TSP) modifies traffic signal timing or phasing when transit vehicles are present. This is done either conditionally for a late vehicle (where the light is held to allow the vehicle to catch up), or unconditionally where the signal will change upon any approaching transit vehicle. These are used to increase reliability and decrease travel time on implemented corridors. TSP is frequently combined with dedicated transit lanes for further efficiency.

### **Queue jump lanes**

Queue jump lanes provide preference for buses at intersections, giving the bus a “head start” over other traffic. This combines active signal priority with bus lanes, where a bus will be given a green light to “jump” ahead of the vehicular traffic at the traffic light, allowing the bus to be in front of traffic. This technique reduces delay and is used in Bus Rapid Transit designs.

## 2.5 Essential considerations

### Equity statement

NFTA acknowledges that transportation and mobility are connected to opportunity in the Buffalo-Niagara region. We are committed to providing public transit service that maximizes opportunity. We recognize that different neighborhoods have differing transit needs that are tied to income, poverty status, race/ethnicity, and automobile access.

This document guides staff in designing and evaluating transit service, as well as transit supportive infrastructure such as shelters and benches. One strategy NFTA Metro will use to hold itself accountable for how service changes affect the most vulnerable members of our community is to adopt a Transit Need Index within an equity framework, described below. This index will allow staff to understand how proposed changes may affect neighborhoods with a high transit need who may be most impacted (either positively or negatively) by service changes.

As a regional transportation leader, NFTA Metro will continue to work with partner agencies and local leadership to promote equity and opportunities for our community.

### Accessible inclusion

NFTA Metro serves a diverse population with different transportation needs. It commits to ensuring accessibility is among the most important factors when determining how the transit network is designed. Design should be accessible, inclusive, universal, and promote safety. The transit network should be understandable by members of the community regardless of age or ability.



### ***Title VI program***

NFTA Metro is committed to following the provisions established by **Title VI of the Civil Rights Act of 1964** (42 U.S.C. 2000d et seq.). Title VI prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance, including the Federal Transit Administration (FTA). NFTA Metro submits a compliance report every three years as outlined by FTA regulations.

### ***Public participation***

NFTA Metro welcomes community input on its service and operation. NFTA Metro has adopted a blueprint for how the public can engage with staff and provide input to influence service modifications. NFTA Metro promotes the active engagement of traditionally underrepresented populations.

### ***Americans with Disabilities Act (ADA)***

All Metro bus and rail facilities and vehicles must be in compliance with the Americans with Disabilities Act (ADA) design standards.

## **Transit Need Index**

NFTA Metro has developed a five-factor Transit Need Index based on demographic and employment information in accordance with industry best practices. The resulting maps highlight differing transit needs throughout Erie and Niagara Counties.

Data for the Transit Need Index is sourced from the United States Census Bureau American Community Survey (ACS) (using 5 year estimates) and Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) on the block group level for Erie and Niagara Counties.

All data is sorted into quartiles, with each quartile representing 25% of census block groups. Quartiles are assigned values 1 through 4, depending on how that value indicates higher transit need. Block groups scoring a 4 have the most significant need for transit based on the demographic data.

The indexes for the five factors are then added up and again displayed in quartiles, representing Low, Medium-Low, Medium-High, or High Transit Need.

The Transit Need Index will be updated on an annual basis.

### ***Origin data***

Four demographic indexes are created using origin data, or data that tells where people who need transit are living.

### **Median Income Index**

Median income is the middle-income value within the population of the block group. Lower median incomes indicate people who are more likely to need and utilize transit as a form of transportation.

This data is the only set that does not take density into account. This is because median is already a normalized value.

The 25% of block groups with the lowest median income are given a score of 4, while the highest are given a score of 1.

### **Minority (All but White-alone) Population Density Index**

Racial and ethnic minorities are more likely to utilize transit in Erie and Niagara counties due to historical issues of segregation and suburbanization.

This factor utilizes block group minority population (all races/ethnicities that are not White-alone) and normalizes the data by the area of the block group in square miles. This allows NFTA Metro to identify concentrations of minority populations.

The 25% of block groups with the highest density of minority populations are given a score of 4, while the lowest are given a score of 1.

### **Economically Disadvantaged Households Density Index**

Households that are at or below the federal poverty level for the Buffalo-Niagara region are “economically disadvantaged” and are more likely to require transit as a form of essential transportation.

This factor utilizes data for the number of households that falls at or below the federal poverty level, and then is normalized by the area of the block group in square miles to allow for staff to identify concentrations of disadvantaged residents.

The 25% of block groups with the highest disadvantaged households are given a score of 4, while the lowest are given a score of 1.

### **Zero Car Households Density Index**

Households without access to an automobile are more likely to require transit as a form of essential transportation.

This factor utilizes data for the number of households without access to an automobile and is normalized by the area of the block group in square miles. This allows NFTA Metro staff to identify areas of concentrated households without access to a vehicle.

The 25% of block groups with the highest density of zero car households are given a score of 4, while the lowest are given a score of 1.

### ***Destination data***

One demographic index uses destination data, or common destinations for people who need transit.

### **Low Income Jobs Density Index**

Residents who work low-income jobs are more likely to require transit to get to their place of employment. Low income jobs are jobs that pay \$1,250 a month or less according to the U.S. Census Bureau.

The data is combined at the block group level and normalized by area in square miles.

The 25% of block groups with the highest density of low-income jobs are given a score of 4, while the lowest are given a score of 1.

### ***Finalized Transit Need Index***

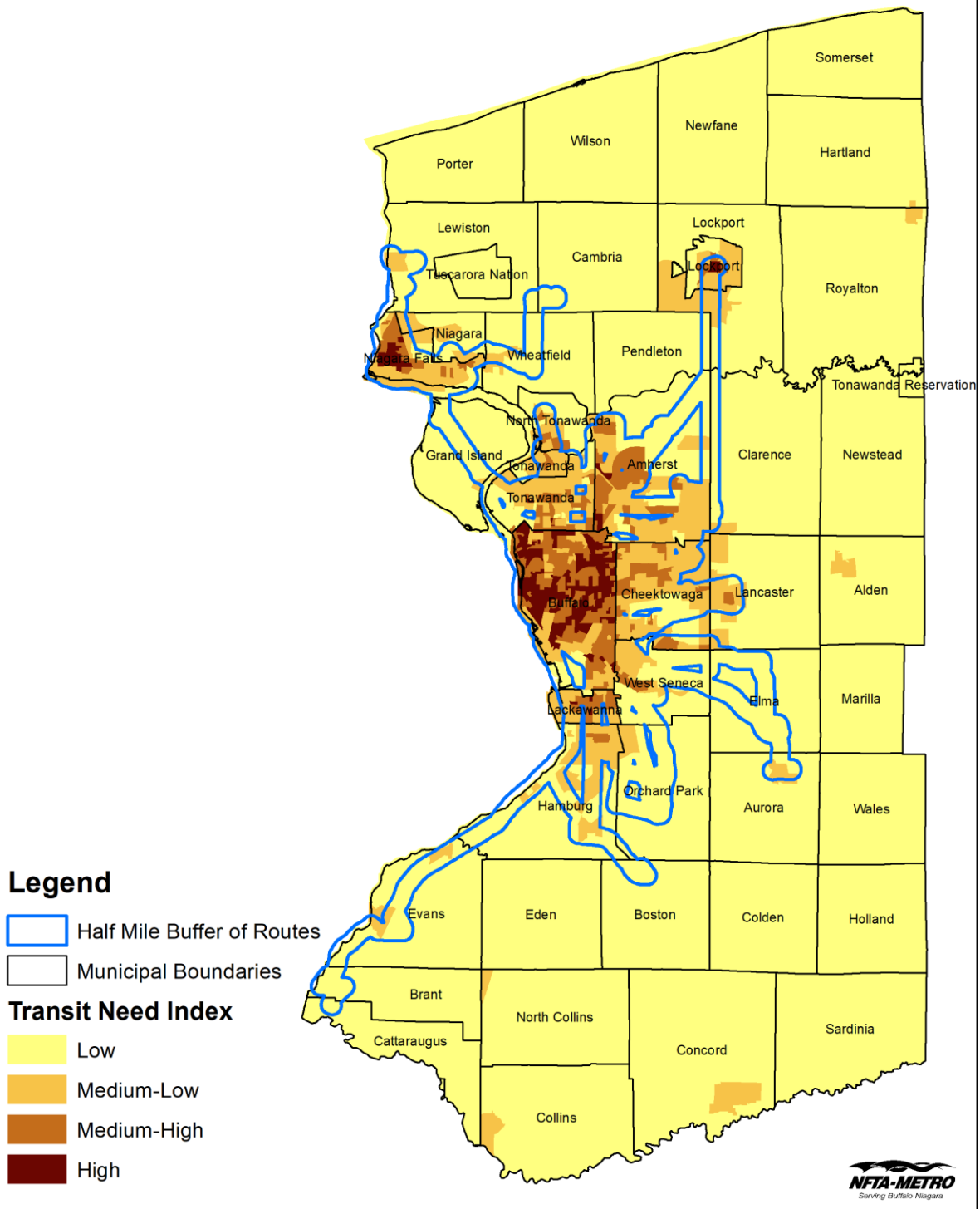
For all block groups, the total of each of the values scored for the five index factors are combined. The combined values are divided again into quartiles, representing roughly 25% of block groups each.

The 25% of block groups with the highest total values are considered “High Transit Need.” The 25% of block groups with the lowest points are considered “Low Transit Need,” with the middle 50% divided evenly into “Medium-Low” and “Medium-High” needs.

**The appendix of this document contains the most recent complete Transit Need Index analysis.**



# Transit Need Index



2021 Transit Need Index Map

## 3. Service Delivery Standards

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### 3.1 What are service delivery standards?

Service delivery standards provide a framework for establishing service tiers and defining metrics used to evaluate service performance. Service tier assignments are based on route performance, best practice and financial constraints.



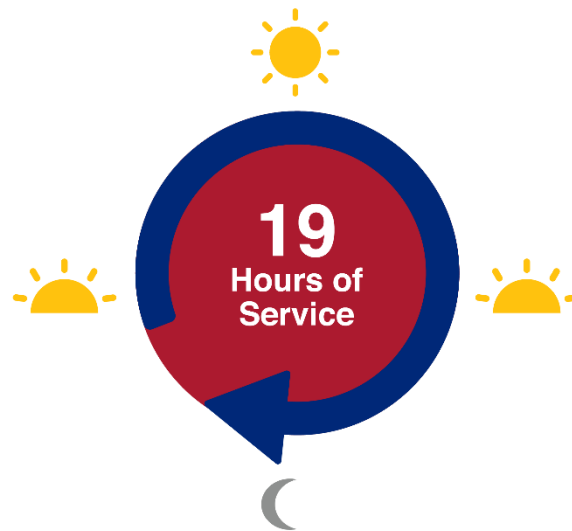
## 3.2 Service hours/Span of service

### ***What is it?***

Service hours refer to the timespan and number of hours that NFTA Metro is operating vehicles across its various tiers.

### ***Why is it important?***

Service hours affect NFTA Metro's availability to the rider. A longer span of service, with more service hours operated will allow the riding public to access transportation in more flexible ways. NFTA Metro must balance service availability with demand, while managing the cost of operation and maintenance of vehicles and facilities.



### ***What can riders expect?***

NFTA Metro operates service year-round, seven days a week, and up to 19 hours a day. Service hours may vary between and among service tiers, and route to route. By maintaining service span, NFTA Metro can be responsive to needs of transit dependent.

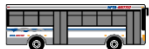
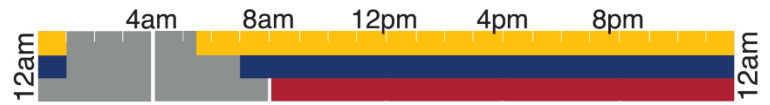
Ridership demand may determine a slightly altered service span on an individual route level.

<b><i>Service Tier</i></b>	<b><i>Weekday</i></b>	<b><i>Saturday</i></b>	<b><i>Sunday</i></b>
<b>Metro Rail</b>	5:30 AM – 1:00 AM	7:00 AM – 1:00 AM	8:00 AM – 12:00 AM
<b>Bus Rapid Transit</b>	5:30 AM – 1:00 AM	7:00 AM – 1:00 AM	8:00 AM – 12:00 AM
<b>Frequent</b>	5:30 AM – 1:00 AM	6:30 AM – 12:00 AM	7:00 AM – 10:00 PM
<b>Standard</b>	5:30 AM – 12:00 AM	6:30 AM – 12:00 AM	7:00 AM – 10:00 PM
<b>Limited Stop</b>	6:00 AM – 10:00 PM	None	None
<b>Suburban Express</b>	6:30 AM – 9:00 AM 4:00 PM – 6:30 PM	None	None
<b>Local Express</b>	6:30 AM – 9:00 AM 4:00 PM – 6:30 PM	None	None
<b>On-Demand Microtransit</b>	5:30 AM – 12:00 AM	TBD	TBD
<b>Trolley (seasonal)</b>	TBD	TBD	TBD

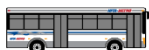
## SERVICE SPAN



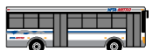
Metro Rail



Bus Rapid Transit



Frequent



Standard



Limited Stop



Suburban Express



Local Express



### 3.3 Service frequency

#### *What is it?*

Service frequency is the number of vehicles on a route within a time period, such as buses (or trips) per hour.

#### *Why is it important?*

Service frequency can determine how NFTA Metro customers use transit service, and how long they have to wait at stops and stations. Frequent routes allow riders to access transit without much need for planning ahead, adding flexibility and less door-to-door travel time. Less frequent routes may require riders to plan more to ride and wait longer for transfers.

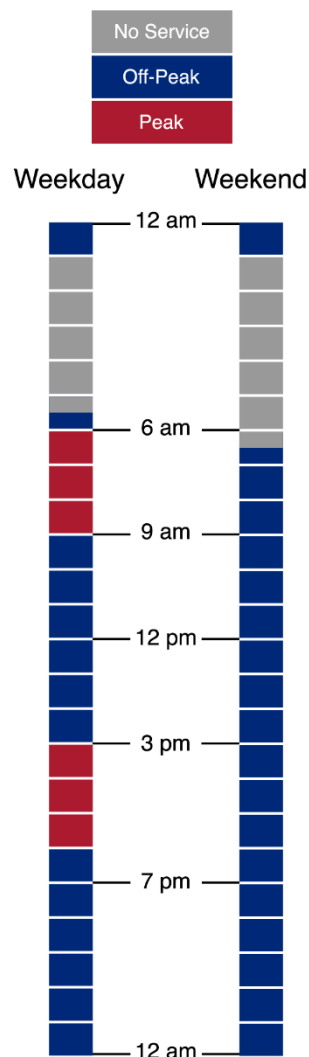
#### *What can riders expect?*

NFTA Metro provides transit service that balances regular, high-ridership service with routes designed to provide access to activity and job centers, medical services, educational facilities, and other key destinations throughout the Buffalo-Niagara area. For some routes, higher frequencies are offered during peak times to accommodate periods of high ridership, compared to nights and weekends.

**Peak Hours** are the hours that NFTA Metro experiences the highest demand for service and ridership. This is between 6:00 AM to 9:00 AM in the morning, and 3:00 PM to 6:00 PM in the evening. During these times, NFTA Metro provides frequent service to meet passenger demand.

**Off-Peak Hours** are those hours outside of the peak hours. NFTA Metro continues to provide service, however buses may not come as frequently because of lower ridership and demand at those times.

#### PEAK SERVICE HOURS



Ridership is a major factor in determining frequency for a particular route and service tier. High-ridership routes, like Metro Rail, Bus Rapid Transit and Frequent tiers will see the most frequent service in NFTA Metro's network. Adjusting service frequency can be a useful tool for NFTA Metro to address other standards, and to reallocate service.

## TRIPS PER HOUR (OFF PEAK)

### BUSES PER HOUR

METRO RAIL every 15 minutes



BUS RAPID TRANSIT every 15 minutes



FREQUENT every 20 minutes



STANDARD every 60 minutes



### Service Frequency Standards (headways)

<b>Core Service Tier</b>	<b>Peak</b>	<b>Off-Peak</b>
Metro Rail	10-12 min	15-20 min
Bus Rapid Transit	10-12 min	15-20 min
Frequent	10-15 min	20-30 min
Standard	30 min	60 min



## 3.4 On-time performance and service reliability

### *What is it?*

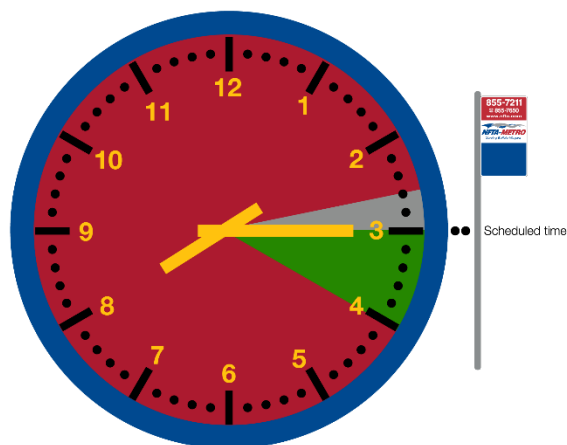
On-time performance is a measure of how frequently a transit vehicle arrives to its scheduled timepoints within the acceptable window of time.

NFTA Metro considers a service to be “on-time” if it departs from its scheduled stop up to two (2) minutes early, or up to five (5) minutes late from the designated time. Service reliability ensures that trips that are scheduled are serviced.

### *Why is it important?*

On-time performance gives NFTA Metro riders confidence in transit reliability and in accordance with published timetables. This is especially important for routes with less service frequency. Lower on-time performance can cause significant delay in riders’ travel time and disrupt the daily schedule. Late transit service can cause riders to wait longer than expected outdoors, which can be most impactful in the winter months. It is important for NFTA Metro to provide the trips that it has scheduled.

WHAT NFTA-METRO CONSIDERS “ON-TIME”



### *What can riders expect?*

Every effort will be made to ensure that all NFTA Metro vehicles operate on-time.

- To be in compliance with NFTA Metro’s service standards, 84% of transit vehicles must depart from a time point within the on-time range, or **higher than the previous year’s average on-time performance by service tier.**

NFTA Metro very rarely misses scheduled trips due to mechanical problems, or shortage of drivers or vehicles. System service cuts are monitored to ensure no routes or trips are disproportionately affected by service cuts.

- NFTA Metro maintains a minimum of 99% of all annual scheduled trips operating.

## 3.5 Service productivity

### ***What is it?***

Service productivity measures the efficiency of a bus route, which takes into account ridership and net costs associated with its operation.

### ***Why is it important?***

Service productivity is heavily considered when determining the operation of a transit route.

Highly productive routes serve more people and subsequently have the highest farebox recovery, or money paid for fares that offset the price of operating the bus. Routes that are highly productive will benefit as first preference for any upgrades to service.

### ***What can riders expect?***

NFTA Metro evaluates Core Services with a calculation of passengers per revenue hour. Passengers are counted by Automatic Passenger Counting (APC) devices installed onto all vehicles. Revenue hours are the number of hours that buses are operating on a route in a time period, such as day or year. Using passengers per revenue hour normalizes the data between routes of different lengths.

NFTA Metro evaluates Supporting Services with a calculation of passengers per trip, because within this category, ridership is less impacted by route length. A trip is each time a transit vehicle operates its full route in a single direction.

NFTA Metro also considers farebox recovery\* to guide decisions and evaluate productivity. Farebox recovery can show how much a transit route is paying for itself, or what the net costs are. Routes that have high farebox recovery are considered productive.

*\*farebox revenue is not the majority source of funding for any NFTA Metro routes.*



## 3.6 Service capacity

### ***What is it?***

Service capacity is the number of riders that NFTA Metro vehicles can safely accommodate. Due to a varied set of vehicles with different capacities, NFTA Metro analyzes passenger loads on a service tier level. Passenger loads refer to the relationship (ratio) of the number of actual riders counted on those vehicles to the total capacity of the transit vehicle (how many can be comfortably seated). This is reported as a percentage, where 100%



represents a full bus of seated riders. Percentages over 100% indicate that passengers may be expected to stand for a period of no longer than 15 minutes along the route of the vehicle. It is an industry-standard to provide passenger load guidelines over 100%.

### ***Why is it important?***

For the safety of riders and efficiency of the NFTA Metro network, decisions must be made on how many vehicles can serve a route in relationship to ridership. Given the natural budget constraints of public transit, NFTA Metro must balance the comfortability of riders with the amount of service it can provide.

### ***What can riders expect?***

NFTA Metro has identified the acceptable amount of passenger load to meet ridership demands for a given service tier. Riders can be expected to stand for up to 15 minutes of the duration of their trip without finding a seat. Routes that are consistently and significantly over-capacity may warrant larger capacity vehicles and/or higher service frequency to meet demand. During off-peak hours, riders may be more likely to sit for the duration of their trip.

- A typical 40-foot bus has a seated capacity (100%) of 38 passengers.
- A typical Metro Rail car has a capacity of 120 passengers; Metro Rail typically operates 3 cars per train.

**Maximum Passenger Load Guidelines**

<b>Route Type</b>	<b>Peak Hours</b>	<b>Off-Peak Hours</b>
<i>Metro Rail</i>	150%	130%
<i>Bus Rapid Transit</i>	140%	120%
<i>Frequent</i>	140%	120%
<i>Standard</i>	120%	110%
<i>Limited Stop</i>	140%	120%
<i>Suburban Express</i>	100%	N/A
<i>Local Express</i>	100%	N/A
<i>On-Demand Microtransit</i>	100%	100%



## 4. Service Evaluation Process

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### 4.1 Why do we evaluate or change service?

NFTA Metro operates on a budget like all public authorities and must make decisions that affect service. Public transportation services change due to changes in community needs, as well as available budget and operational feasibility.



## 4.2 How is service evaluated?

For all service evaluations, it is important to compare like-routes to each other. Therefore, NFTA Metro evaluates service tiers, as well as the individual routes. Service is evaluated at NFTA Metro annually and can change seasonally.

### ***Step 1 – Average route statistics***

To begin evaluation, data for each route is averaged by day type (weekday, Saturday and Sunday) for the entire year. For instance, daily ridership might vary depending on the time of year or day, but an average will allow the route to be compared to others.

Statistics Evaluated:

- **Average ridership**
- **Service productivity** (either average passengers/revenue hour, or average passengers/trip)
- **Average farebox recovery rate**
- **Average passenger load percentage**

### ***Step 2 – Average tier statistics***

Next, the collective average will be calculated from all of the routes that belong to a particular service tier, such as Frequent or Standard. This will allow for comparison among routes and create an average metric to compare the individual routes to.

Statistics Evaluated:

- **Average tier ridership**
- **Tier Service productivity** (either average passengers/revenue hour, or average passengers/trip)
- **Average tier farebox recovery rate**
- **Average tier passenger load percentage**

### ***Step 3 –Sort routes within tiers and compare***

During this comparison, routes will be sorted as above or below the service tier average statistic.

All of these sorted tiers will be compiled to analyze together.

#### ***Step 4 – Consider possible changes***

Routes are compiled and reviewed by NFTA Metro Service Planning staff further to understand how significant the deviation from the average is of a statistic for a route.

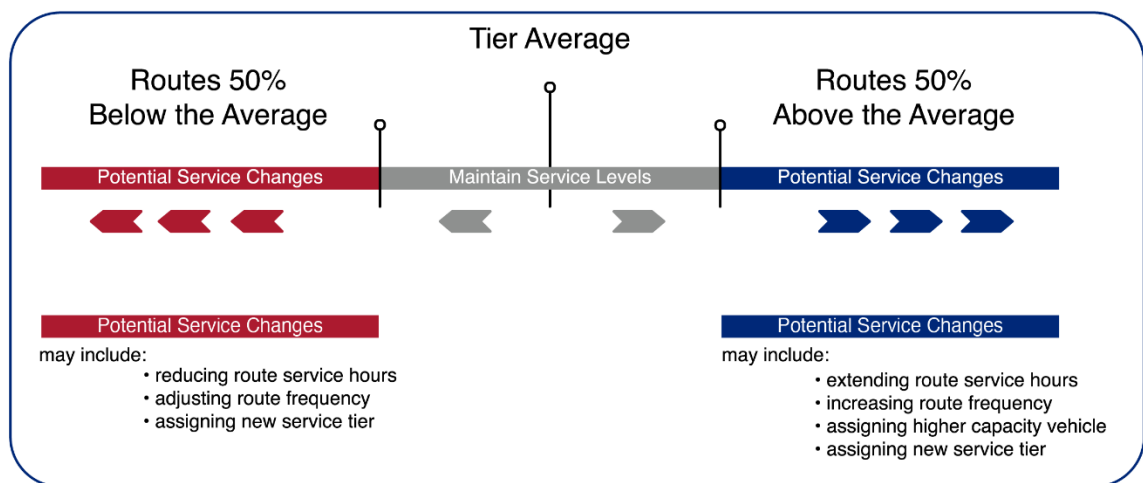
The 50% of routes that are **below the tier average** are considered underperforming and have the potential for service changes (route promotion and marketing, cuts, reduced hours, or possible reduction of service tier).

- Lowest 25% of routes in a tier are considered severely underperforming and are eligible for potential downgrade of service tier, service reduction or elimination

The 50% of routes that are **above the tier average** are high-performing and considered for potential service changes (extended hours, more frequency, or higher service tier).

Highest 25% of routes in a tier are considered for prioritization, investment, and tier upgrade.

#### **TIER EVALUATION**



#### ***Step 5 – Essential considerations***

Statistics can tell a compelling story, but they are not always used as a determinant for change. Other factors are considered that may be impactful for the route. This includes things like equity and environmental concerns, as well as providing “lifeline” transportation for those who have no other options. Referral to the **Transit Need Index** occurs at this stage to determine if the change has an impact on communities with higher transit needs. If there is a potential detrimental impact on high-need communities, this may be an overriding factor to maintain service at current levels.

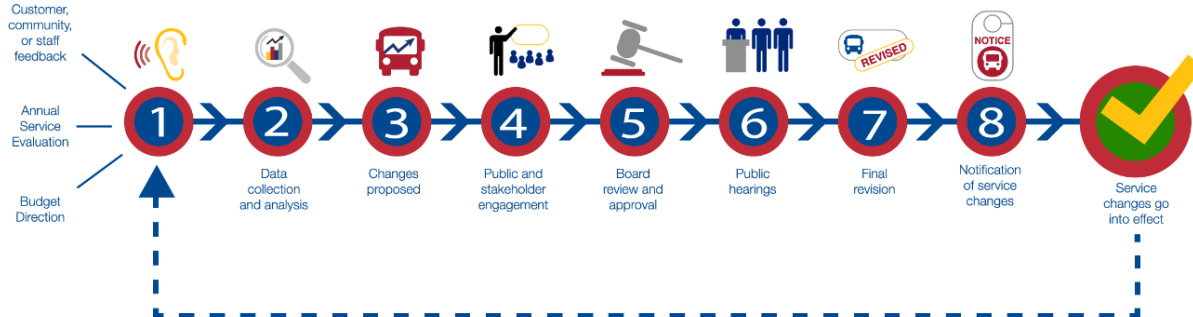
#### ***Step 6 – Finalize and implement changes***

Some decisions majorly affect service and therefore require public outreach, public hearings and board approval. Other decisions that may slightly but not significantly alter a route or schedule can be done on a day-to-day basis by NFTA Metro staff at their discretion.



## 4.3 Service change process

### SERVICE CHANGE PROCESS



## 4.4 Actions to improve ridership and productivity

NFTA Metro may take action to improve ridership and productivity on underperforming routes before routes are eliminated, such as:

- **Routing adjustments**, such as realignment or the discontinuation of unproductive segments of a route, or by reassigning its service tier.
- **Marketing and promotional strategies**, such as social media, a pop-up table at a local event, signage, leaflets, postcard mailings, and more. Furthermore, attracting ridership through local employers and the **Corporate Pass Program**
- **Operational adjustments**, including adjustments to the headways or frequency of service, the span of service, eliminating service at specific time periods or deleting specific trips.

## 4.5 New service proposals and cost recovery requirements

New service proposals or requests will be evaluated in terms of market potential, community or business support, public/private partnership opportunities, vehicle and operator availability and cost to determine the likelihood of meeting or exceeding performance standards, which are set by the average of a service tier. New service proposals are also considered based on any noticeable gaps in service to areas of High or Medium-High Transit Need in accordance to the Transit Need Index.

New or significantly modified routes require at least a year to mature and build ridership and will only be subject to the annual service performance evaluation after operating for a year.

## 4.6 Service reduction guidelines

Routes that perform below the tier average in evaluation statistics are underperforming. These underperforming routes are eligible for service and operational change. Changes may include trip cuts or reduction of revenue hours. Routes that are severely underperforming (in the bottom 25% of routes in their tier) may be downgraded to a lower service tier or eliminated. Considerations for equity using the Transit Need Index will be included in the decision process before route service reduction or elimination.

## 5. Frequently Asked Questions (FAQs)

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### ***Why can't a bus stop be located closer to my home or workplace?***

Bus stops are located along route corridors. If there are more bus stops along a route the bus must stop more often, which slows down the bus and often makes bus trips longer for passengers. NFTA Metro must balance bus stop access and passenger convenience with the desire to keep the bus in motion and minimize travel time.

### ***Why can't my bus route be changed to be closer to my home or workplace?***

For transit to serve the greatest number of people while maintaining efficiency and value, bus routes need to be direct with limited deviation. NFTA Metro buses serve major roads and try to maintain a simple direction of travel. NFTA Metro is not able to make major bus route adjustments exclusively based on individual rider feedback.

Door-to-door bus service is neither financially viable nor operationally possible for NFTA Metro to provide. For qualified individuals with limited mobility, NFTA Metro offers *PAL Direct* paratransit service. Please contact PAL Customer Service or see our website for more information.

### ***Why is my bus running late?***

Traffic, road construction, crashes, and weather-related events may delay the arrival of your bus. A lot of passengers boarding at a stop, and frequent bus stops also may delay the bus. NFTA Metro has committed itself to provide on-time performance at an acceptable level determined by these service standards. Routes are continuously monitored and adjusted when consistent reliability issues are seen by NFTA Metro.

### ***Why is my bus full or crowded?***

High demand and ridership for bus service along a route can be the reason for a full bus. NFTA Metro monitors passenger load to determine options for regularly full buses, which may include adding more buses to a route, or using a transit vehicle with more capacity.

### ***Why does my bus stop not have a shelter or a bench?***

NFTA Metro does not have the financial resources to provide shelters and benches at every stop location. Shelters and benches require significant dedicated capital and operating expenses. Due to these limited resources, shelter locations are prioritized to serve as many riders as possible; stops may not have room in the public right-of-way (municipal-owned street space) for a shelter, as well. NFTA Metro continues to evaluate shelter proposals continuously.

### ***Why don't buses run all the time?***

NFTA Metro does not currently have demand for 24/7 service, so this is not a feasible option at this time. However, NFTA Metro is dedicated to operating routes to provide reliable service for most routes every day. If additional funding becomes available or ridership increases, service hours may be altered for individual routes first.

### ***Why does my bus only arrive every hour?***

NFTA Metro considers many of factors when determining how frequent a bus runs. These include existing ridership, proximity to employment generators, available resources, adjacent land use, and development context. These are evaluated on a continuous basis and may be adjusted seasonally.

### ***Why is the bus so slow?***

Buses operate on the same roads as cars. They are impacted by the same delays as a private vehicle, like traffic. We are dedicated to the safety of our riders. Buses must allow for passengers to board and disembark safely at stops.

### ***Why is the bus running empty?***

NFTA Metro buses may have fewer passengers on them when they are beginning or ending a trip, or when they are headed to and from the garage. NFTA Metro strives to provide regular service for those who need it most as a “lifeline” for those without other means of transportation.

### ***Why aren't there buses out to rural areas?***

It is important for NFTA Metro to serve the largest population as possible with limited available funds. Service is most impactful in areas with existing high ridership and/or transit supportive land use (concentrations of housing or jobs). In many cases, operating a route into rural and low-population density areas is not efficient or financially viable.

### ***Why doesn't Metro Rail go to: the airport? The Tonawandas? The Southtowns? Niagara Falls? Etc.***

NFTA Metro is exploring expansion options as they become reasonably economically and operationally viable. Due to a limited capital budget, increasingly competitive federal and state funding, and a lack of density and existing ridership, NFTA Metro is presently unable to provide fixed light-rail service to all communities within the service area.

Community members who wish to see public transit infrastructure expanded in their area are encouraged to contact their local municipal, county, state, and federal representatives to call for additional funding and resources to provide enhanced transit service. NFTA Metro is supported by your tax dollars, in addition to farebox revenue and corporate contracts.

### ***Why are Metro Rail stops so far apart?***

Fixed light rail service is only efficient when stations are located at least a half-mile apart from one another. Additional stations and stops would make travel time longer for riders and would make Metro Rail less efficient, and more expensive to operate.

# Appendix

## Appendix A – Glossary of Transit Terms

Alighting	To step off a vehicle, i.e. to disembark a bus or rail car
AM peak	The portion of the morning where the greatest level of ridership is experienced, and most frequent level of service is schedules
APC	Automatic Passenger Counter
Arrival time	Time a vehicle is scheduled to arrive at a time point
Automatic Passenger Counter	Electronic device that is installed on a transit vehicle to accurately record boarding and alighting data
Base period	Off-peak period between AM Peak and PM peak
Boarding	To enter a vehicle for the purpose of taking a ride from one location to another
Bus rapid transit	Also called a BRT, busway or transitway, is a bus-based public transport system designed to improve capacity and reliability relative to a conventional bus system. It typically operates on a fixed-route with designated right-of-way, limited stop and operates similarly to a light-rail or streetcar.
Bus stop	A place where passengers can board or alight a vehicle, indicated by a route sign
Commuter	A person who travels regularly
Commuter rail	Dedicated heavy rail that operates during peak periods from outlying suburbs to the city center during the week
Deboarding	(see alighting)
Departure time	Time a vehicle is scheduled to depart from a time point location
DOT	Department of Transportation
Express Bus	A bus that operates a portion of the local route with or without limited stops and also operates a portion of the route via thruway or expressway
Fare Box	Device used to accept paper, coins, swipe cards, or mobile fare payments
Fare Box recovery ratio	Measure of the proportion of operating expenses covered by passengers' fares divided by operating expenses
Fare structure	A system set up to determine how much is to be paid by various passengers using a transit vehicle
Fixed route	Service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers between specific locations
Frequency	How often trips operate
FTA	Federal Transit Administration (formerly UMTA)
Headway	Defined by the scheduled time interval between vehicles operating in the same direction on the same route (or bus frequency)
Heavy rail	Electric rail transit system with exclusive right-of-way and high volume of passengers
Inbound	Trips traveling towards the City Center or a major hub
Intermodal	Trips involving more than one mode of transportation (also: multimodal)
Light rail	Electric rail transit with light volume of traffic capacity compared to heavy rail. May be exclusive or shared right-of-way (e.x. NFTA Metro Rail) May be abbreviated to: LRT or LRRT
Load Factor	Ratio of passengers actually carried versus vehicle passenger capacity (also Passenger load)
Local	A bus that operates its entire route via local thoroughfares
Micromobility	Range of small, lightweight vehicles operating at low speeds (<25 mph) and driven by users personally.
Microtransit	Form of demand-responsive transport using flexible routing and/or flexible scheduling; operate in an area not along a

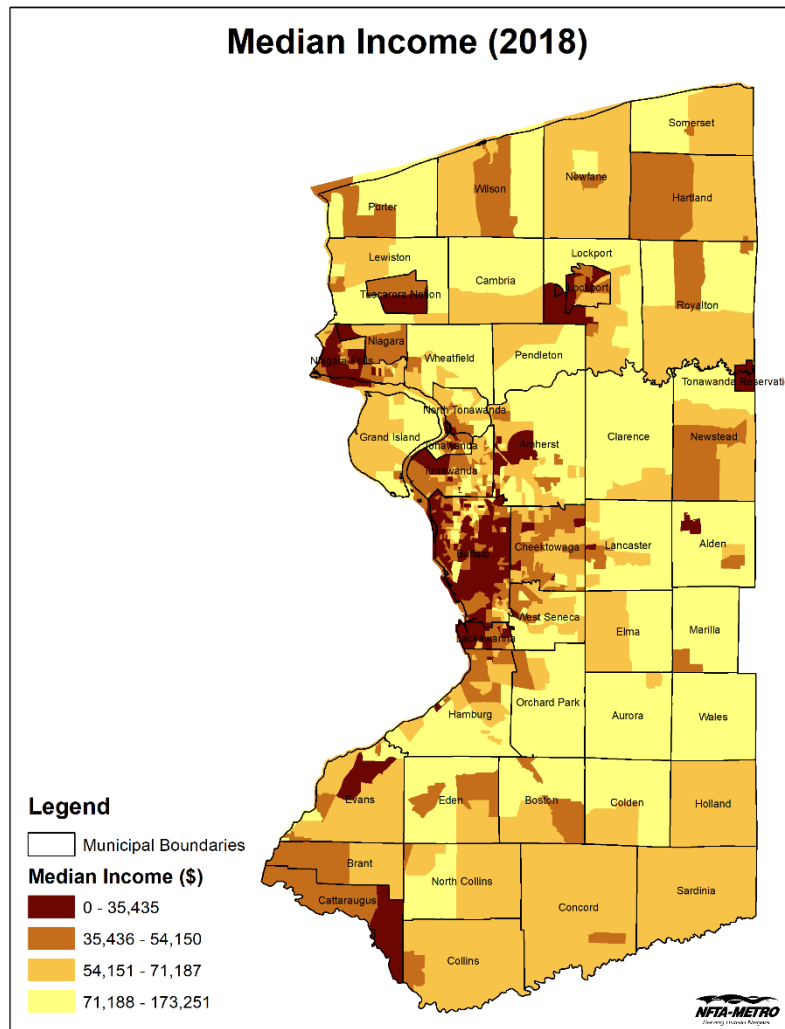
Multimodal	Seamless connectivity between different modes of transportation
NYSDOT	New York State Department of Transportation
Off peak period	See base period
On-time performance	Percentage of time buses arrive at their time points at their scheduled times
Operating assistance	Financial assistance for transit operating systems, such aid may originate with federal, local or state governments
Operating costs	All costs involved with running a transit system
Outbound	Trips traveling away from the City Center or a major hub
Paratransit	Comparable transit service required by the ADA for qualified individuals with disabilities
Park & Ride/Park-and-ride	Designated parking areas for automobile drivers who then board transit vehicles from these locations
Peak period	Morning and afternoon time periods when transit riding is heaviest
PM peak	Afternoon portion where the greatest level of ridership is experienced, and most frequent level of service is scheduled
Rapid rail	See heavy rail
Reverse commute	Trips in opposite direction to the main flow of traffic (ex. Traveling from the city center to the suburbs during commuting hours)
Ridership	The total number of a passengers on a trip
Route	Fixed service consisting of start and end locations with time points in between, typically covering a specific area, destination, or major roadway
Service area	An agencies' operating area, consistent with ADA requirements
Shelter	A structure located near a bus stop to provide protection from the elements for the convenience of passengers
Shuttle	A vehicle that travels back and forth over a particular route, usually a short route that provides connections between transit centers, employment center, etc
Span of service	The hours of service a route operates from the first trip on a route to the last trip
Time point	Points along a route that indicate when a vehicle will be there
Transfer	A point or location where two or more routes come together at the same or similar times to afford passengers to make a connection
Transit center	Location where multiple routes intersect or layover, providing passengers with transfer opportunities
Trolley	A bus whose appearance replicates a trolley
Transfer center or point	A fixed location, where passengers interchange from one route or vehicle to another
Trip	The one-way operation of a vehicle between a starting time point and an ending time point, typically indicated by either inbound or outbound
USDOT	United States Department of Transportation
Variant	Leg or branch of a route that does not follow the main route path

*This glossary has been adapted from NFTA Metro internal glossaries, and resources from the American Public Transportation Association (APTA).*

## Appendix B – Transit Need Index 2021

2021 Transit Need Index was created in January 2021 using Census data from 2018.

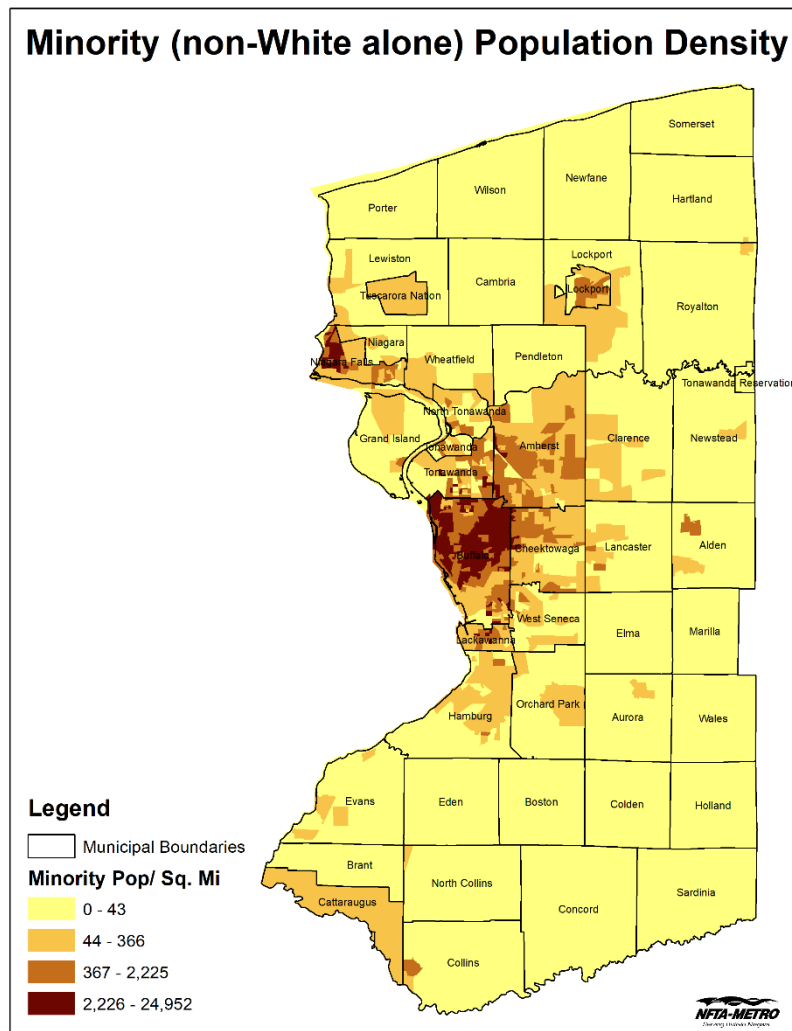
### B1. Median Income



The census block groups with the lowest median incomes are located primarily in Buffalo (in the East and West Sides), Niagara Falls, Lockport, Lackawanna, parts of Tonawanda by the Niagara River, Amherst by University at Buffalo, Cheektowaga and some rural villages (Alden and Derby) and tribal reservations (Tuscarora, Tonawanda, and Cattaraugus). The highest median income block groups are in suburbs like Amherst, Clarence, Aurora, Orchard Park and Wheatfield, with some blocks within the West Side and North Buffalo.

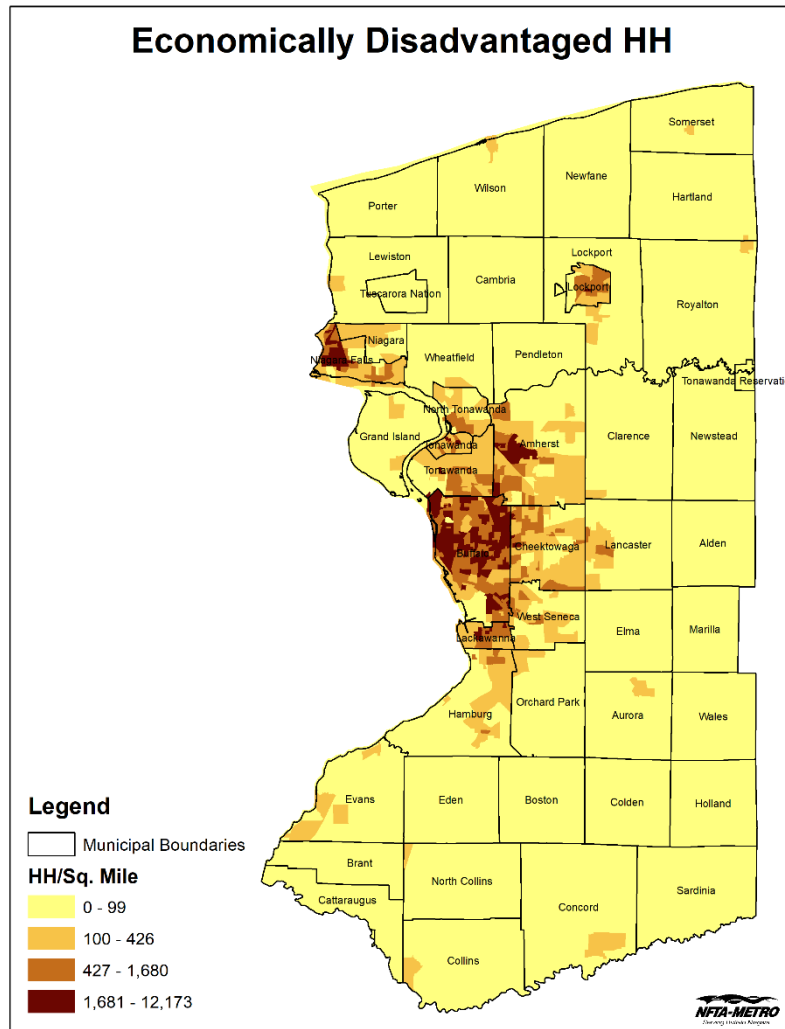


## B2. Minority (All but White-alone) Population Density



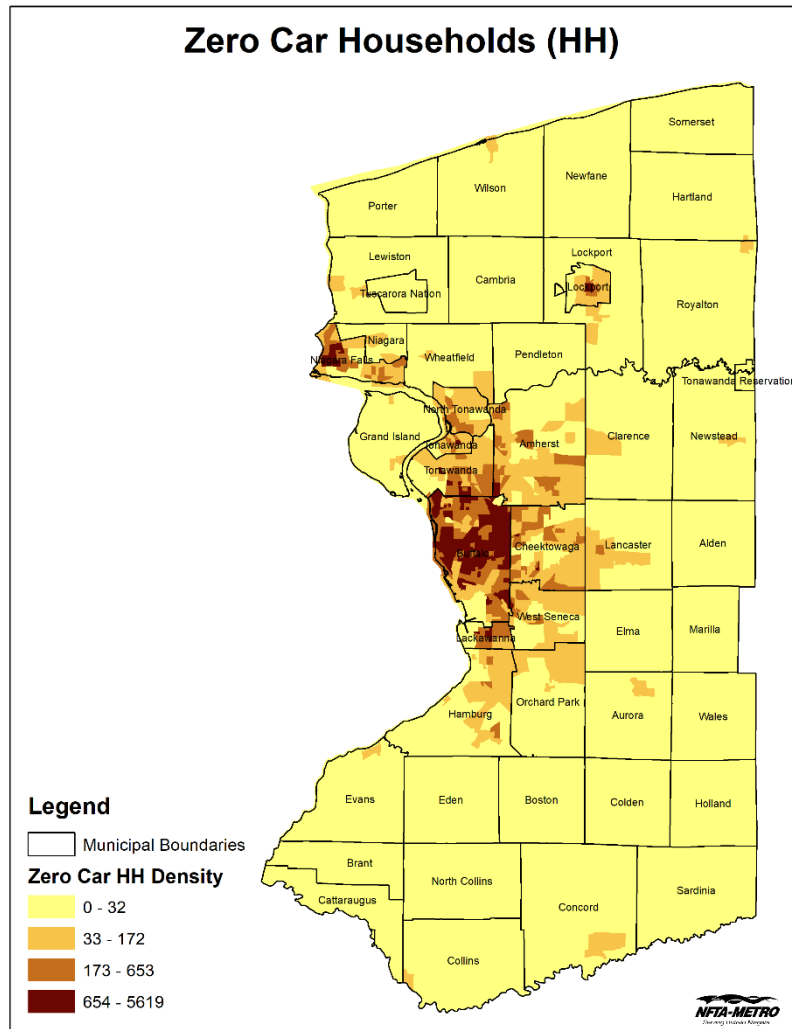
The census blocks with the highest density of minority populations are located primarily in Buffalo (West and East Side neighborhoods), Niagara Falls, Lockport (city), Lackawanna, Cheektowaga and Amherst. The census blocks with the lowest population density of minority populations are in suburban towns outside of the urban core.

### B3. Economically Disadvantaged Households (HH) Density



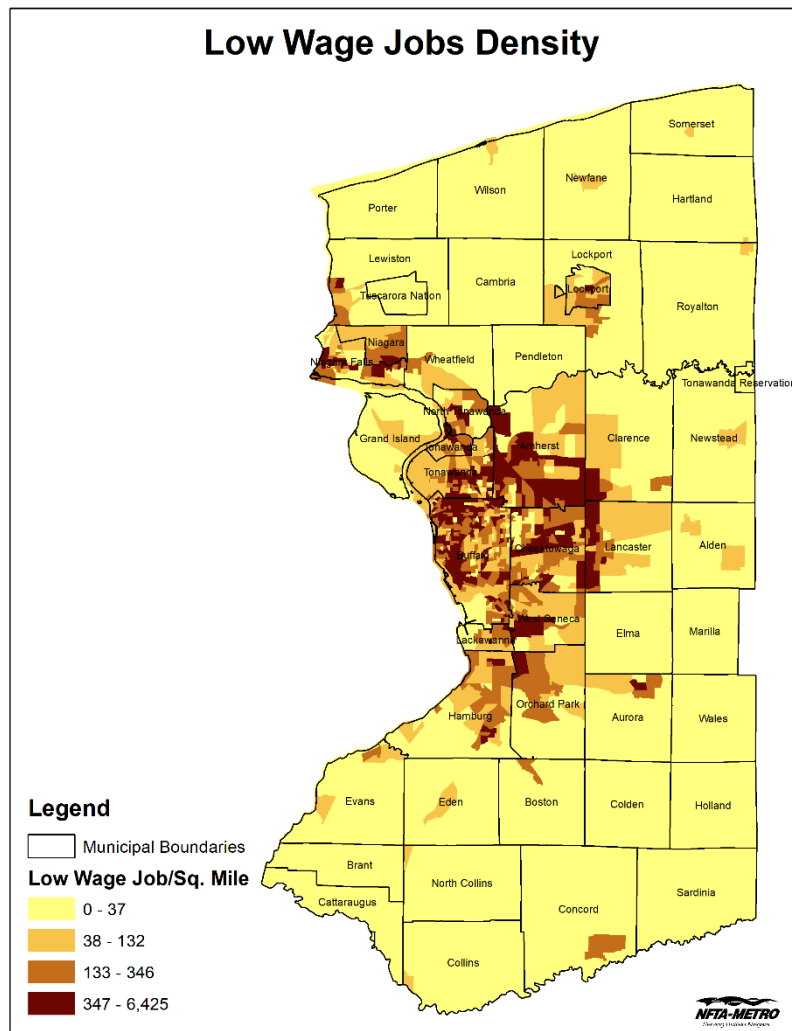
The census block groups with the highest density of economically disadvantaged households (HH) are in Buffalo (East and West Side, North and South Buffalo), Niagara Falls, Lackawanna and the University at Buffalo North Campus.

## B4. Zero Car Households (HH) Density



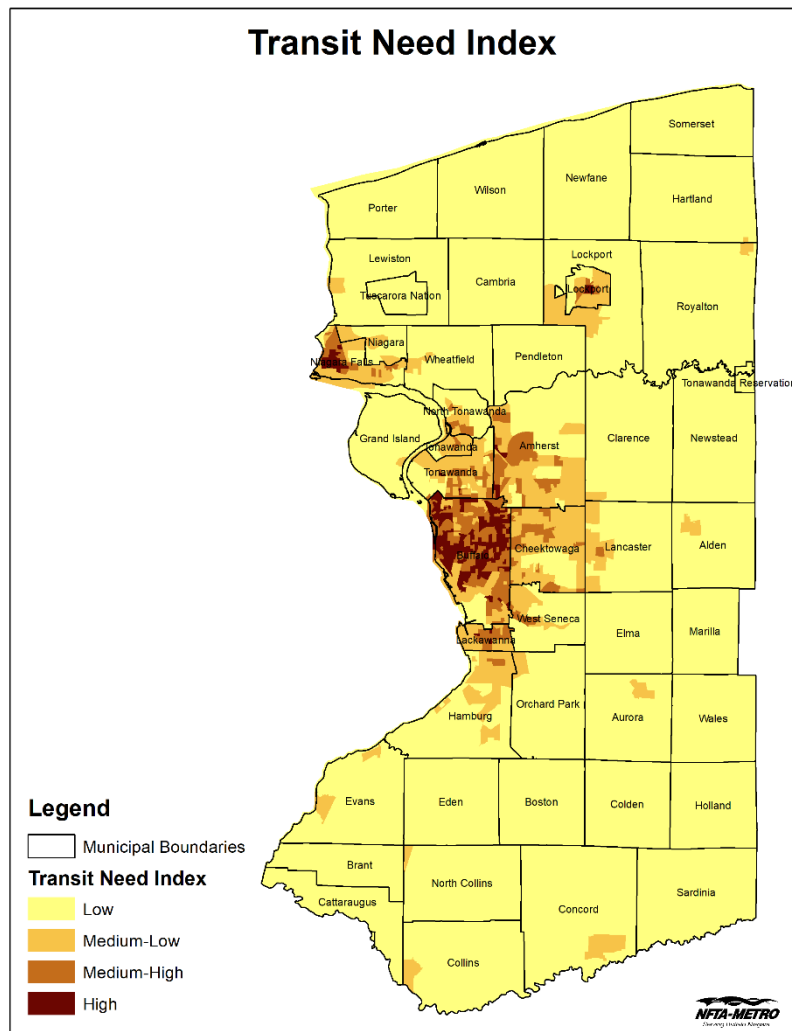
The census block groups with the highest concentration of households with zero cars are in the City of Buffalo (East and West Side neighborhoods), the City of Niagara Falls and the City of Lackawanna. The block groups with the lowest concentration are in the rural towns outside of the service area.

## B5. Low Wage Jobs Concentration



The census blocks with the highest concentration of low wage jobs (<\$1,250 per month) are located in Buffalo (West Side, North and South Buffalo), Cheektowaga, Amherst, Clarence by Transit Road, Town and City of Tonawanda, West Seneca, Orchard Park by the McKinley Mall and Erie Community College South Campus, the Village of Hamburg, Niagara Falls and Town of Niagara near Niagara Falls Blvd, North Tonawanda by River Road, and downtown Lockport.

## B6. Finalized Index



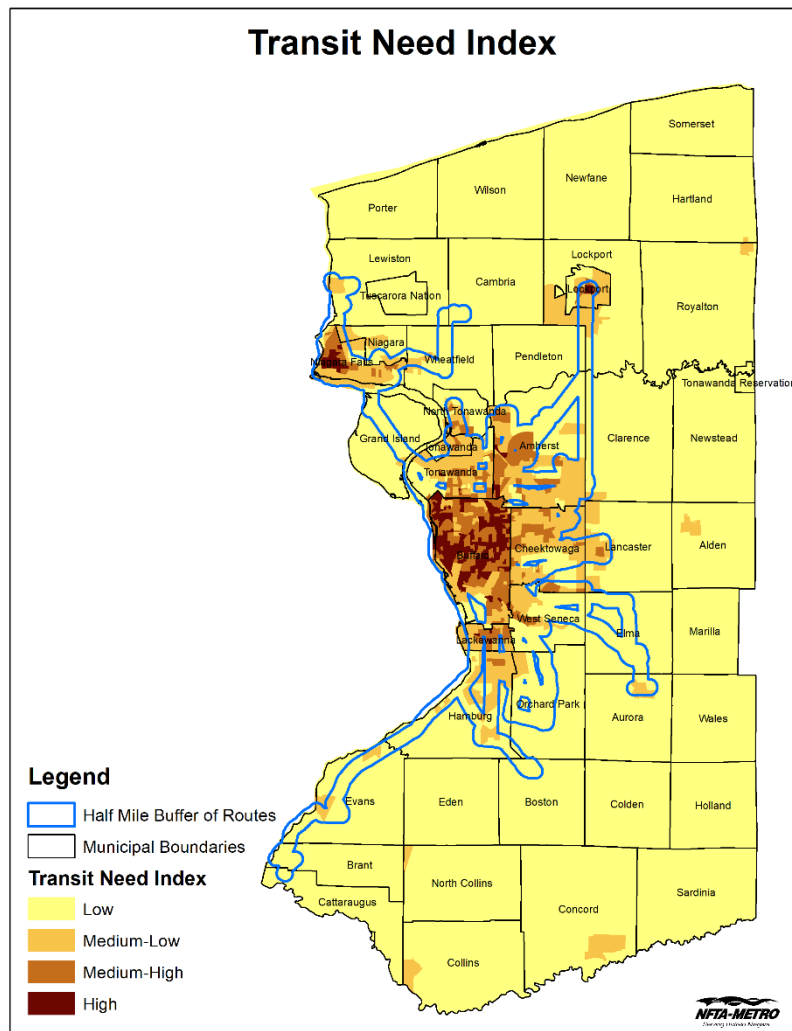
### High Transit Need

- Buffalo (primarily East Side and West Side; areas in South and North Buffalo)
- Lackawanna (along South Park Ave)
- Lockport, City (Downtown)
- Niagara Falls (near Hyde Park)

### Medium-High Transit Need

- Amherst
- Buffalo (areas in South and North Buffalo)
- Cheektowaga, near Walden/Airport
- Lackawanna
- Lancaster/Depew, Villages
- Orchard Park, near ECC/McKinley Mall
- Tonawanda, Town
- West Seneca surrounding Seneca St

## B7. Finalized Transit Need Index with Service Area Overlay



This is the finalized Transit Need Index map with a half-mile buffer of NFTA Metro routes. This shows that NFTA Metro services the region's High and Medium-High Transit Need communities, as well as a majority of Medium-Low communities with its fixed-route bus service.



## Appendix C - Current Service Tiers 2021

### Core Services

#### ***Metro Rail***

DL&W Station (*planned*) to University Station

#### ***Frequent***

3 – Grant  
5—Niagara Kenmore  
12 – Utica  
13—Kensington  
19 – Bailey  
20—Elmwood  
23—Fillmore Hertel  
24—Genesee  
25—Delaware  
26—Delavan  
32—Amherst

#### ***Standard***

1—William	35—Sheridan
2—Clinton	40—Buffalo-Niagara Falls
4—Broadway	42—Lackawanna
6—Sycamore	44—Lockport
8—Main	46—Lancaster
11—Colvin	47—Youngs Rd
14—Abbott	48—Williamsville
15—Seneca	49—Millard Suburban
16—South Park	50—Main Niagara
18—Jefferson	52—Hyde Park
22—Porter Best	55—Pine Ave
34—Niagara Falls Blvd	

## **Supporting Services**

### ***Limited Stop***

24L – Airport/Downtown Limited

### ***Suburban Express***

60—Niagara Falls

64—Lockport

66—Williamsville

67—Cleveland Hill

68—George Urban

69— Lancaster

70— East Aurora

72— Orchard Park

74 -- Hamburg

76 -- Lotus Bay

81 -- East Side

### ***Local Express***

24X—Genesee Express

### ***Trolley***

Niagara Falls Trolley (*seasonal*)

## **Acknowledgements**

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- COTA (Columbus, OH)
- IndyGo (Indianapolis, IN)
- King County Metro (Seattle, WA)
- LA Metro (Los Angeles, CA)
- MARTA (Atlanta, GA)
- National Association of City Transportation Officials (NACTO)
- Port Authority (Pittsburgh, PA)
- RTS (Rochester, NY)

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