NFTA-METRO

Paratransit Study

Service Expansion Analysis

January 2025

NELSON NYGAARD

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1 INTRODUCTION

This report describes the service expansion analysis undertaken for the NFTA-Metro Paratransit Expansion Study. The study was initiated with funding from the State of New York in response to a request from paratransit advocates to evaluate expansion in the Buffalo-Niagara region and to use the study findings as the basis for evaluating paratransit service across Upstate New York. The study's goals for NFTA-Metro's Paratransit Access Line (PAL) service include:

- Improve efficiency and effectiveness
- Enhance the overall customer experience
- Identify new and improved service delivery opportunities
- Evaluate service area expansion
- Ensure compliance with the Americans with Disabilities Act (ADA)

1.1 PHASES

The approximately 2-year study was completed in three phases:

- Phase 1 – Evaluation, research, and engagement to recommend improvements
- Phase 2 – Estimation of future demand, costs, and options for delivering paratransit, including expanded service area
- Phase 3 – Implementation plan design

1.2 CONSULTANT TEAM

Nelson\Nygaard Consulting Associates, Inc. served as prime contractor. The following firms served as subcontractors:

- Thatcher Consulting
- Thomas Procopio, Independent Consultant
- Marine Tiger Technologies (DBE)
- Highland Planning (DBE)
- The Setroc Group (SDVOB)

1.3 FINDINGS AND DOCUMENTATION

The consultant team's findings are documented in two reports, which were posted on the project website (www.nftametroparatransitstudy.com), copies of which are available from NFTA:

- Existing Conditions (April 2024)
- Peer Practices (August 2024)

1.4 STUDY OUTREACH

Throughout the study, NFTA and the consultant team engaged with an NFTA-appointed External Stakeholder Committee and others. The committee was composed of PAL riders, advocates, and representatives from local foundations, public agencies, and disability organizations. See Figure 1. Prior to the first committee meeting, the team conducted pre-engagement interviews with committee members to gather initial input on key areas of concern and seek ideas about broader engagement throughout the study. Study outreach also included email communications with PAL customers, additional advocate and customer interviews, a project website, and two rounds of public meetings.

Figure 1 PAL Study External Stakeholder Committee Members

Name	Affiliation
Mindy Cervoni	Community Services for Every1
Jeannette Grimaldi	Deaf Access Services
Frank Cammarata	Erie County
Jordan Bellassai	Health Foundation of Central/Western NY
Aaron Carlson	Hearts and Hands
Nick Hester	Niagara County Department of Mental Health
Stephanie Speaker	PAL rider and paratransit advocate
Mike Billoni	Advocate for Stephanie Speaker
Jill Turchiarelli	People, Inc.
Ray Zylinski	Visually Impaired Advancement (VIA)
Todd Vaarwerk	WNY Independent Living

1.5 CURRENT CHALLENGES

The consultant team comprehensively reviewed PAL service by evaluating the current organization structure, service policies, eligibility for PAL service, performance statistics,

operational practices, resources, and customer service. The team also studied comparable paratransit peers and reviewed national practices to identify recommendations for improvement. As noted, the team interviewed current PAL customers and advocates and obtained additional input during two rounds of public meetings. Findings are documented in the April 2024 Existing Conditions report and the August 2024 Peer Practices report. Summarized below are some ongoing PAL service challenges, which NFTA is working to address:

1.5.1 Inefficient Operations

The efficiency of PAL service delivery is in part constrained by current trip scheduling policies and practices and in part due to use of older technology. NFTA is evaluating acquisition of updated scheduling software.

1.5.2 Driver Shortage

NFTA faces an ongoing shortfall in PAL drivers with positions unfilled drivers on long-term leave resulting in a shortage of more than 25 drivers. Hiring and retaining new drivers is limited in part to current work rules for new hires. The shortage of drivers has led to increased overtime for existing drivers and contributed to lower PAL on-time performance. NFTA is continuing to recruit new drivers.

1.5.3 Fleet Shortage

NFTA's PAL fleet is aging, and the number of available spare (backup) vehicles needs to be increased. Maintenance issues with the current fleet have led to shortages during afternoons when those starting PM shifts cannot begin work until the AM shift drivers return to the garage. During the 2023 site visit, NFTA had to close an average of three vehicle runs per day due to vehicle issues. NFTA has been working to acquire replacement vehicles.

1.5.4 Limited Maintenance Capacity

The PAL fleet is maintained at the Frontier Garage, which does not have additional capacity. The shortage of available vehicles to meet service demands in the afternoon is in part due to challenges in repairing the aging fleet. See Chapter 2 for more information on this issue.

1.5.5 Implications for Service Expansion

The consultant team provided recommendations to NFTA to improve efficiency and address some of the challenges with PAL service delivery and NFTA has implemented some

improvements and is evaluating others. See Chapter 3. Some of the ongoing challenges can be addressed in the short term while others will take longer to implement. Almost all require additional resources and NFTA must address these challenges before it can expand service.

2 SERVICE EXPANSION ANALYSIS

2.1 INTRODUCTION

This chapter presents the detailed analysis of service expansion. It begins by describing the current PAL paratransit service area and service spans (times when PAL is available). It describes the service needs and expansion input NFTA obtained from stakeholders, outlines the data sources and methods used to estimate demand for expanded service, and estimates the costs of providing additional paratransit service.

This chapter also discusses considerations that NFTA and other transit agencies must address when delivering expanded paratransit service and suggests ways to address some of these challenges, including ways to expand maintenance capacity and deliver additional service.

2.2 PAL SERVICE ATTRIBUTES

PAL service attributes include the service area (where PAL trips are permitted) and service span (when PAL trips may take place).

2.2.1 Service Buffers and Service Area Types

For the purposes of this study, the existing service area and service expansion areas are categorized into buffers and types.

PAL service buffers refer to the total distance on either side of Metro Bus routes and Metro rail stations as follows:

- **1.5-mile buffer**: 0.75 miles on each side of a bus route, which corresponds to the ADA requirement to provide complementary paratransit within 0.75 miles of local fixed-route bus service and rail stations. This is also known as Core Service.
- **3-mile buffer**: 1.5 miles on each side of a bus route–the first of two expansion scenarios evaluated for this study
- **6-mile buffer**: 3 miles on each side of a bus route–the second of two expansion scenarios evaluated for this study

Existing PAL service types include:

- Core Service: 1.5-mile buffer around local routes and rail stations where PAL service is offered, as required by ADA
- Express Corridors: 1.5-mile buffer around express commuter routes, which operate on non-holiday weekdays during peak periods and where PAL service is offered. Offering PAL service beyond the Core Service area exceeds the current ADA requirements.

2.2.2 Spans of Service

In public transportation, the span of service refers to the time of the first passenger pickup to the time of last passenger drop-off on a bus route or rail line. The spans are important because PAL service complements fixed-route service spans, which is consistent with the ADA requirements. In other words, PAL service is provided when fixed-route service is operating within the 1.5-mile buffer of a fixed route. PAL service is not available before a fixed-route service begins or after fixed-route service ends within the buffer.

On weekdays, Metro Bus routes operate from as early as approximately 4:30 a.m. to as late as approximately 1:30 a.m., a span of 21 hours. On Saturdays, Metro Bus routes operate from as early as approximately 5:30 a.m. to as late as approximately 1:30 a.m., a span of 20 hours. On Saturdays and Sundays, Metro Bus routes operate from as early as approximately 5:30 a.m. to as late as approximately 1:30 a.m., a span of 20 hours. Three weekday routes do not operate on Saturdays or Sundays.

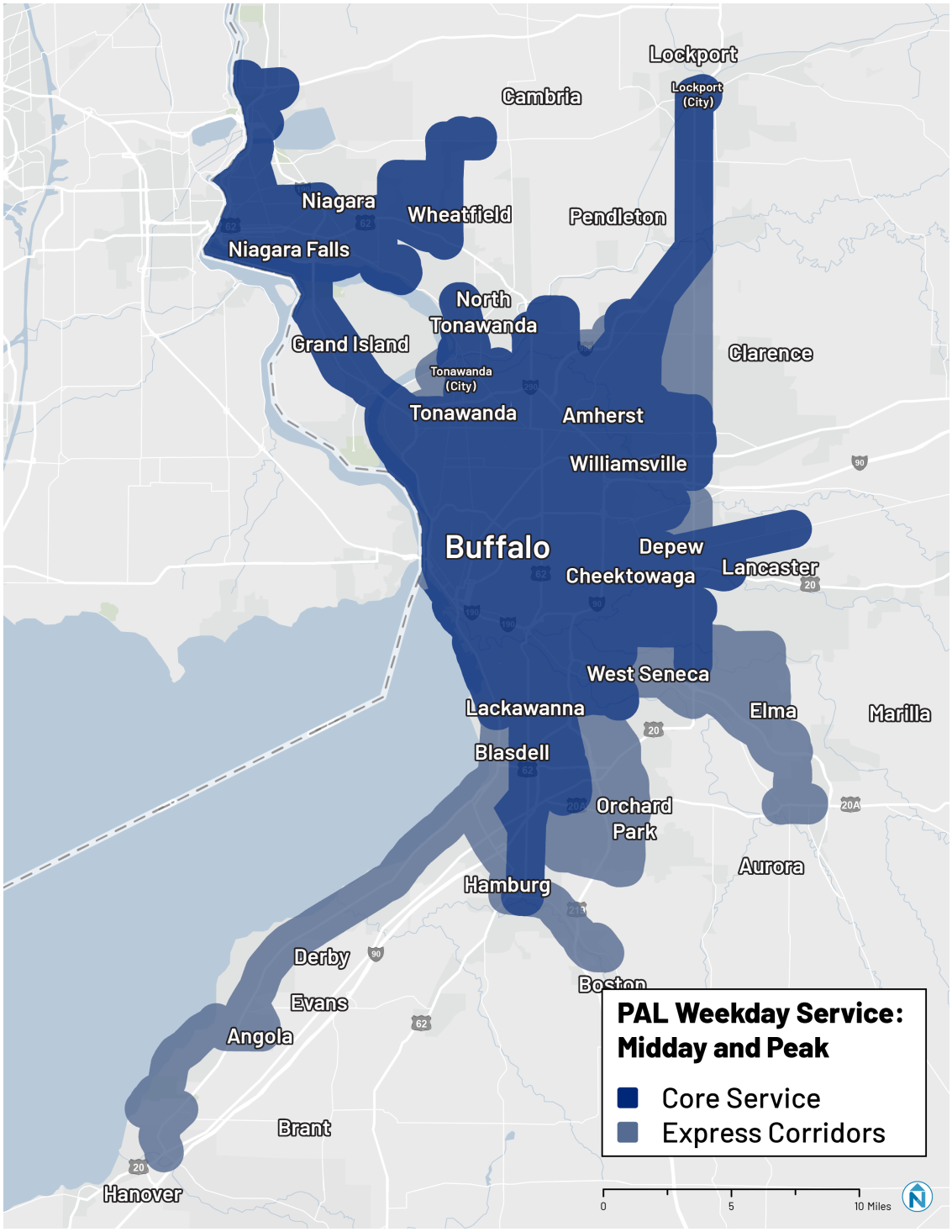
In the Express Corridors, which only operate on weekdays during peak commuting times, ten routes operate at different times between approximately 6:30 a.m. to as late as approximately 8:30 a.m. and between approximately 4 p.m. to as late as 8 p.m. Most express routes operate for between one and 1.5 hours in both peak periods. As noted, while NFTA provides PAL service in these areas during these times, this exceeds the ADA requirements.

2.2.3 Existing Service Area

Figure 2 shows the weekday PAL service area, including Core Service and Express Corridors during morning and afternoon peaks.

Figure 3 shows the PAL service area on weekday evenings, reflecting less service than during the day. Varying PAL service hours by corridor can make the service difficult to understand and use. Riders typically do not consult fixed-route timetables before planning trips and requesting trips. Instead, they typically make plans and request trips and may then discover the times they want to travel are outside the service hours.

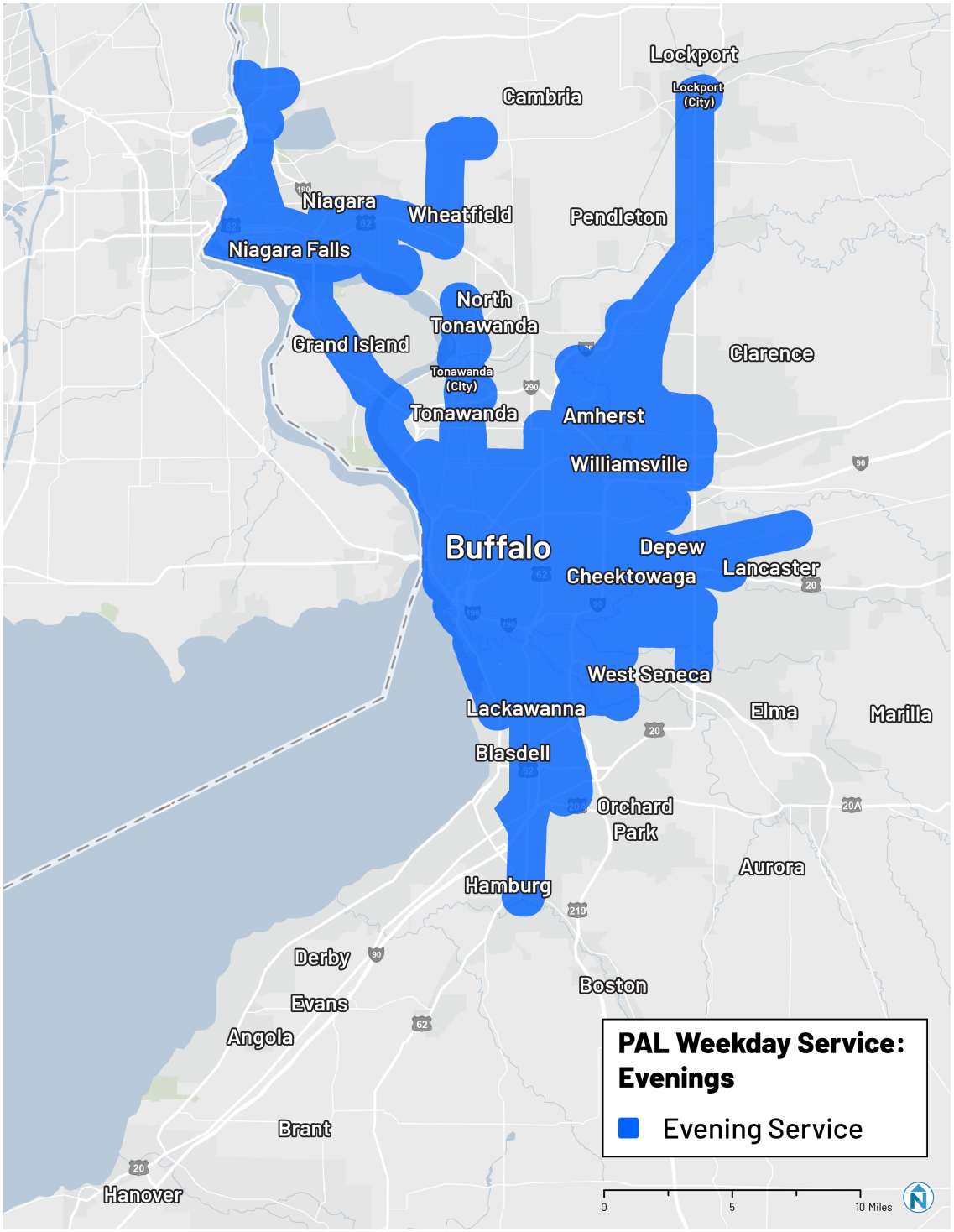
Figure 2 PAL Weekday Service (Midday and Peak)



Weekday peak service: between approximately 6 a.m. and 9 a.m. and 3 and 6 p.m.

Midday service: between approximately 9 a.m. and 3 p.m.

Figure 3 PAL Weekday Evening Service



Weekday evening service: after approximately 8 p.m.

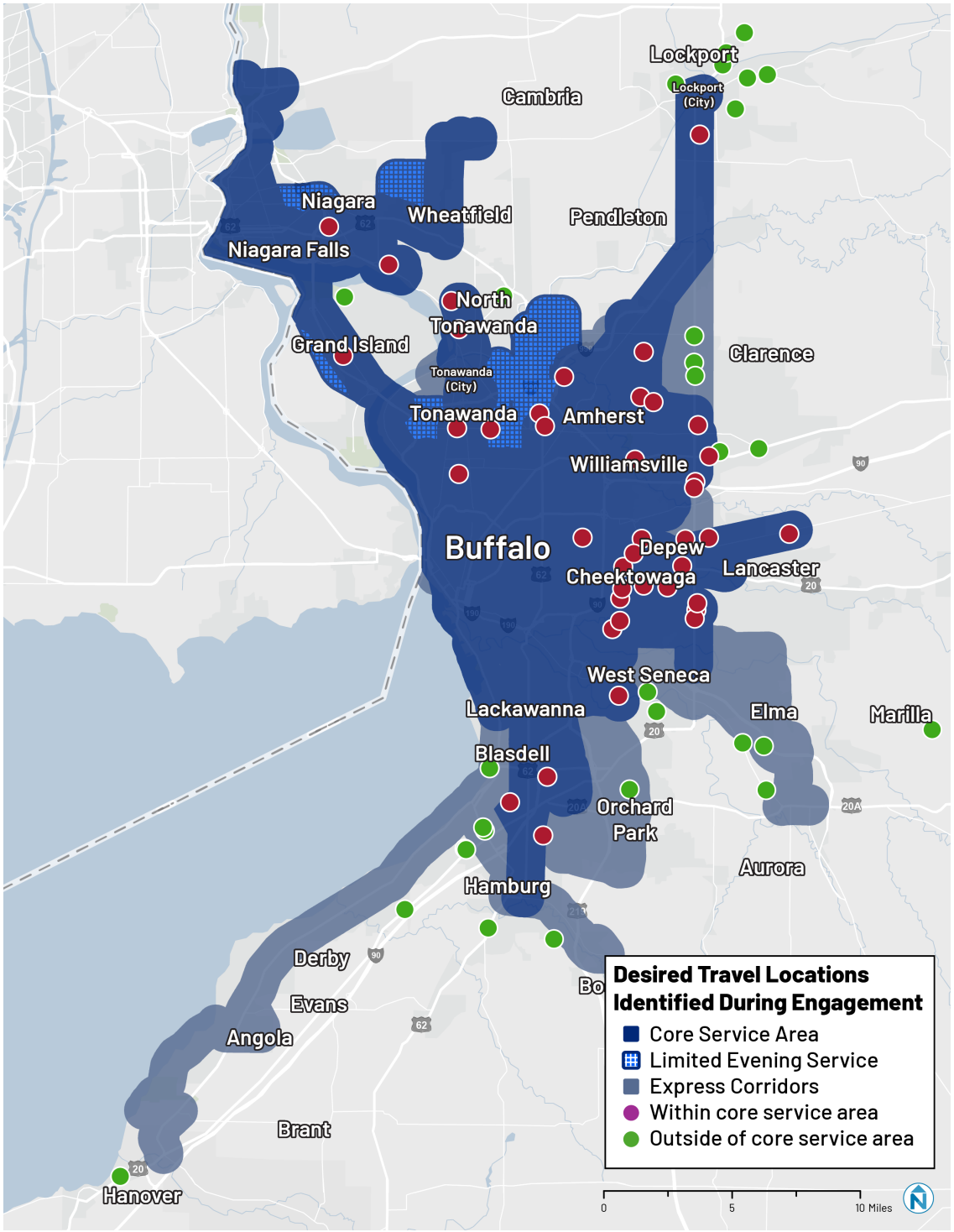
2.3 CUSTOMER TRAVEL NEEDS

An important component of the service expansion evaluation is understanding where and when PAL customers wish to travel and what transportation services are available to meet those travel needs. The consultant team met with staff from the Greater Buffalo Niagara Regional Transportation Council GBNRTC to ask about other transportation needs and services in the region. GBNRTC provided the team a copy of the 2023 Coordinated Human Services Transportation Plan (CHSTP),[1] and offered additional insights regarding unmet transportation needs in the region.

The team also sought input from PAL customers and others through the engagement process. This included several meetings with the External Stakeholder Committee, two public meetings, and individual follow-up interviews. The team asked customers where and when they wish to travel. This input helped to determine how customer wishes align with current PAL service. The team then plotted this information on maps (see Figure 4) to show which specific locations participants identified relative to the current PAL service areas. Several locations requested by customers have PAL service today, indicating that some customers do not understand the PAL service area. Other requested locations lack service late at night or on weekends or are within the express corridors. To address these concerns, NFTA is proposing changes to the core PAL service area and service span. See Chapter 3.

[1] https://www.gbnrtc.org/s/2023-GBNRTC-Coordinated-Human-Services-Transportation-Plan-FINAL.pdf

Figure 4 Desired Travel Locations Identified During Engagement



Limited evening service: locations within 1.5-mile buffers of bus routes without late-night service, generally after 8 p.m.

2.4 METHODS AND DATA SOURCES USED

The consultant team used the following methods to estimate future ridership, resources, and costs associated with service expansion.

2.4.1 Estimating Future Ridership

To forecast future PAL ridership in the expansion areas, the consultant team used a model developed for the Transit Cooperative Research Program (TCRP),[2] which estimates ridership based on population in each buffer (1.5-mile buffer (Core Service), 3-mile buffer, and 6-mile buffer). This model is derived from data obtain from 28 participating transit agencies using information such as population, base paratransit fare, percentages of applicants determined conditionally eligible, the use of trip-by-trip conditions, poverty, rate, and size (minutes) of the customer pickup window. For the NFTA analysis, population both within and beyond the 1.5-mile buffer served as the most usable variable. More information on how to use the model is available in the TCRP report.

2.4.2 Estimating Future PAL Service Hours

Using existing PAL ridership patterns by time of day and day of week, the team estimated hourly ridership under each scenario to forecast the total revenue vehicle hours (RVH) of additional PAL service.

2.4.3 Estimating Additional Vehicle Needs

Using a published simulation model,[3] the team estimated the number of vehicles required each hour to serve added the riders under each scenario. This model relies on hourly demand, service area size, average operating speed, and the maximum allowed on-board travel time (as a factor of direct travel time) to estimate how many additional vehicles would be needed.

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[2] Koffman, D., *TCRP Report 119: Improving ADA Complementary Paratransit Demand Estimation*, Transportation Cooperative Research Program, Transportation Research Board, National Research Council, Washington, D.C., 2007.

[3] Fu Liping, *"A Simulation Model for Evaluating Intelligent Paratransit Systems,"* Transportation Research Record: Journal of the Transportation Research Board, No. 1760, TRB, National Research Council, Washington, D.C, 2002

2.4.4 Cost Inputs

The consultant team used data from the most recent year of NFTA-Metro PAL service (FY 2024 to set the base service cost at $109.51 per RVH. For vehicles, the team used a base cost for lift-equipped paratransit cutaway vans of $140,000, which is derived from recent vehicle procurements in the public transportation industry.[4]

2.4.5 Inflation Factors

Because service expansion will take time, to account for inflation, the team consulted published sources (U.S. Bureau of Labor Statistics, and Construction Analytics) to establish annual cost adjustment factors as follows (see Figure 5):

1. Labor cost escalation (RVH) (Bureau of Labor Statistics (BLS)
2. Vehicle cost escalation (paratransit cutaways) (BLS)
1. Construction cost escalation (for new facilities or facility modifications) (Construction Analytics)

Figure 5 Inflation Factors Applied to Existing and Expanded PAL Service Costs

Area	Annual Increase	Source	Notes
Labor	3.8%	Changing Compensation Costs in the New York Metropolitan Area (BLS)	Fully allocated labor costs, including benefits
Vehicles	3.5%	PPI Commodity Data (BLS)	Motor vehicles and equipment, seasonally adjusted
Construction	4.2%	Construction Inflation 2024	Excludes deflation in recession years 2008-2010, only applies to nonresidential buildings

The team applied these inflation factors to the first year of assumed service (2030), discussed further below.

2.5 SCENARIOS AND FORECASTS

Figure 6 illustrates the core service area and the 3-mile buffer service expansion area. Figure 7 illustrates the core serviced area and the 6-mile buffer service expansion area.

[4] For reference, see Resolution-2024-12-Purchase-of-Paratransit-Vehicles-1.pdf, which priced year 2024 Star Trans Senator II accessible vehicles at $137,672. This value was rounded up.

Figure 6 Expansion to 3-mile Buffer

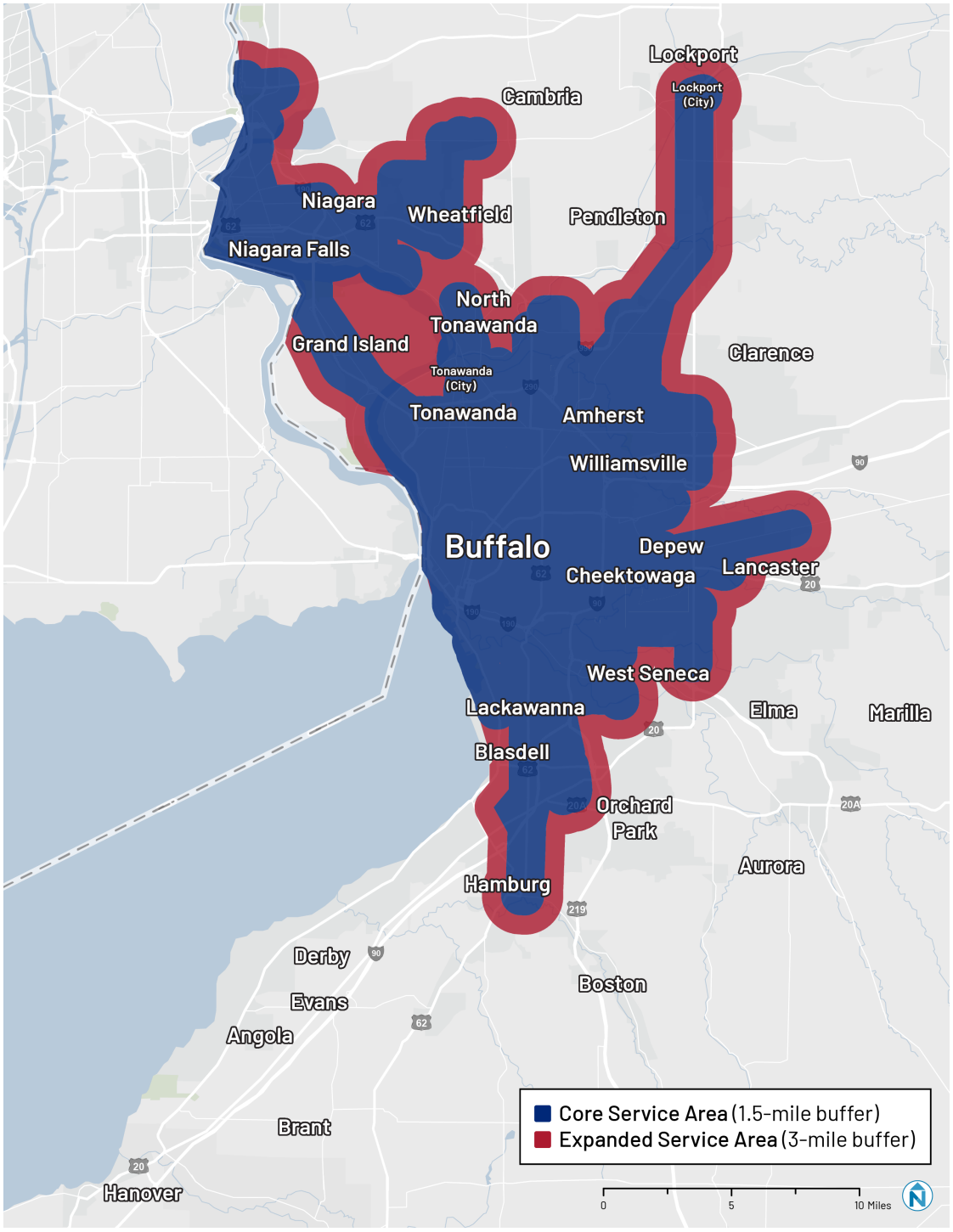
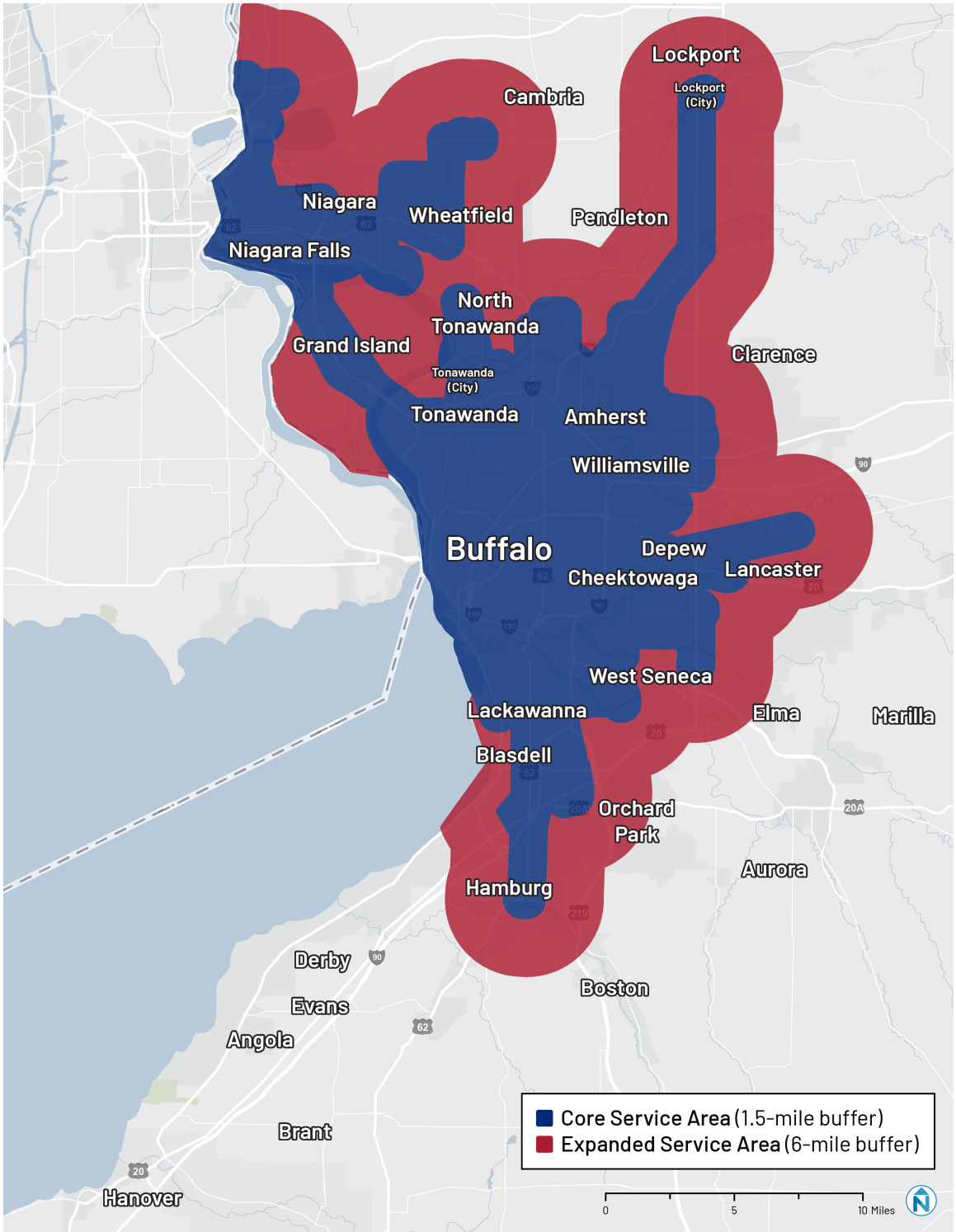


Figure 7 Expansion to 6-mile Buffer



2.5.1 Area, Population and PAL Trips

Figure 8 summarizes the area, population, and estimated PAL trips associated with Core Service and expanded service. Expansion from Core Service (1.5-mile buffer) to a 3-mile buffer will add 111 square miles to the service area, a 42% increase, and serve 109,400 (14%) more residents. Expansion from Core Service to a 6-mile buffer will add 256 square miles to the service area, a 98% increase, and serve 185,300 (24%) more residents. Annual PAL trips are projected to increase by 30,200 (16 percent) under the 3-mile buffer scenario and by 51,800 (28 percent) under the 6-mile buffer scenario.

Figure 8 Area, Population, and Annual PAL Trips Under Expansion Scenarios

Service Area/Scenario	Area (Square Miles)	Population	PAL Trips
1.5-mile buffer (Core Service)	262	784,500	186,900
3-mile buffer (Core Service+ 1.5-mile expansion)	367	893,900	217,400
Increase over Core Service	**105 (40%)**	**109,400 (14%)**	**30,500 (16%)**
6-mile buffer (Core Service+ 3-mile expansion)	518	969,800	238,700
Increase over Core Service	**256 (98%)**	**185,300 (24%)**	**51,800 (28%)**

2.5.2 Revenue Vehicle Hours and Vehicles

Figure 9 shows the non-rounded increase in vehicle hours and vehicle and operator needs under the two expansion scenarios. The increased amounts serve as the base values to which inflation factors and unit costs are then applied. Also shown is the change in trips per RVH. The decreased trips per RVH compared with Core Service indicates a reduction in service efficiency, a result of providing additional PAL service across a larger geographic area.

Figure 9 Annual Vehicle Hours and Vehicle Needs Under Expansion Scenarios

Service Area/Scenario	Revenue Vehicle Hours (RVH)[1]	Trips per RVH	Vehicles[2]	Operators[3]
1.5-mile buffer (Core Service)	109,469	1.76	64	90
3-mile buffer	133,221	1.63	78	104
Increase (decrease) over Core Service	**23,752 (22%)**	**(0.13)**	**14 (21%)**	**14 (16%)**
6-mile buffer	159,116	1.50	93	114
Increase (decrease) over Core Service	**49,647 (45%)**	**(0.26)**	**29 (46%)**	**24 (27%)**

[1] RVH values differ slightly from FY 22-23 hours presented in Existing Conditions report due to use of a sample month as a basis for the annual estimate.

[2] Vehicles required to meet daily pull-out needs.

[3] Operators required for anticipated increase in RVH.

2.6 ADDITIONAL ASSUMPTIONS

2.6.1 Delivery of ADA-Required PAL Service

The analysis assumed that NFTA will continue to deliver PAL service as it does today and continue to meet its obligations as required by the ADA regulations.

2.6.2 No Trip Conditions

The analysis also assumed that expanded PAL service will be limited to ADA paratransit-eligible customers and operated with similar policies. One exception is for PAL riders with eligibility conditions that limit when customers can use PAL, namely for certain trips that customers can complete on fixed-route (bus or rail). Because fixed-route service does not operate in the expansion area, no trip conditions would apply and customers with eligibility conditions would be able to travel in expansion zones without any trip conditions.

2.6.3 Same Service Delivery Model and Resources

The consultant team also assumed PAL service in the expansion zones would be provided by NFTA employees driving PAL vehicles. Doing so would require resources for vehicles and equipment, drivers, maintenance facilities, and staff to oversee the entire paratransit operation. As service grows, other associated agency resources such as technology, licenses, and internal capacity must growth with it.

2.6.4 Selection of 2030 as Horizon Year

To estimate future costs, the consultant team selected a 2030 horizon year. This horizon year permits NFTA to address its ongoing challenges with driver and vehicle shortages and offers sufficient time to implement service improvements before considering service expansion. See the implementation discussion in Chapter 3.

No Population Growth

The team researched regional population forecasts for 2030 for the core, 3-mile, and 6-mile service areas, which showed no population growth. Accordingly, no adjustments to the population were needed to account for a 2030 forecast. This does not mean that PAL demand within the core service area will remain unchanged. PAL is a demand-response service and NFTA is obligated to serve trip requests. In addition, the age of the population is not a factor in the demand estimate.

2.7 OPERATING AND VEHICLE COST ESTIMATES

Using the estimated additional revenue vehicle hours and vehicle needs for the two expansion scenarios, the consultant team applied the annual inflation factors to arrive at operating and vehicle cost estimates for 2030. These cost estimates do not include construction or other capital costs for maintenance capacity expansion. Instead, the cost estimates focus on the cost to expand paratransit service from the required Core Service (1.5-mile buffer) to serve a 3-mile buffer and to serve a 6-mile buffer. As shown in Figure 10, expanding to a 3-mile buffer is forecast to cost an additional $5,542,199 over ongoing PAL operating costs. This includes $3,132,559 in net operating costs (after accounting for fare revenue) and $2,409,639 in vehicle costs.

Expanding to a 6-mile buffer is forecast to cost an additional $11,584,517 over ongoing PAL operating costs. This includes $6,593,121 in net operating costs (after accounting for fare revenue) and $4,991,396 in vehicle costs.
In subsequent years, operating costs are projected to escalate 3.8% percent per year and vehicle costs would escalate at 3.5% per year. Because only one-fifth of the required fleet would need to be replaced each year, annual vehicle costs under either scenario would be lower than the 2030 figure.

Figure 10 Operating and Vehicle Costs in 2030 Under Expansion Scenarios

Scenario	3-Mile Buffer		6-Mile Buffer	
	Hours (RVH)	Vehicles	Hours (RVH)	Vehicles
Increase	23,752	14	49,647	29
Unit cost in 2024	$109.51	$140,000	$109.51	$140,000
Annual inflation	3.8%	3.5%	3.8%	3.5%
Inflation adjustment	25%	23%	25%	23%
Subtotal cost	$3,253,452	$2,409,639	$6,800,366	$4,991,396
Less fare revenues	($120,893)		($207,245)	
2030 cost with inflation	$3,132,559	$2,409,639	$6,593,121	$4,991,396
Total cost (2030) *		**$5,542,199**		**$11,584,517**

*Estimates do not include costs for expanding maintenance capacity.

2.8 ADDRESSING MAINTENANCE AND OPERATIONAL CAPACITY NEEDS

NFTA maintains its entire PAL fleet at Frontier Garage, which lacks capacity to accommodate any PAL fleet expansion. Expanding maintenance and operational capacity would require additional study, including consideration of the following:

- Meeting state requirements for reducing carbon emissions by replacing existing fleets with zero-emission vehicles (ZEVs)
- Modifying and/or constructing new facilities to fuel or charge ZEVs
- Determining electric vehicle charging requirements and coordinating with local utilities
- Estimating future space needs for PAL-related operations in the context of Big Bus operations
- Determining the impacts of possibly relocating PAL and Big Bus fleets, including assessing costs for increased deadhead hours and miles and addressing service inefficiencies

In this context, the consultant team developed order-of-magnitude cost estimates for two possible options for adding maintenance capacity to accommodate a larger PAL fleet:

2. Relocate PAL maintenance and operations from Frontier Garage to Babcock Garage ($5,760,000)
3. Construct a dedicated PAL facility ($90,000,000–$100,000,000)

These options are briefly described below.

2.8.1 Relocate PAL Maintenance and Garage-Level Operations to Babcock Garage

Based on input from NFTA maintenance staff, one possible capacity expansion option is to relocate the entire PAL fleet to Babcock Garage[5] and move some fixed-route buses to the Frontier and to Cold Spring garages. Although further investigation of this option is needed, the following discussion presents preliminary estimates of relocating PAL operations.

[5] An expanded Babcock Garage facility may also be used to house the planned Bailey Avenue bus rapid transit (BRT) service, currently under study.

Fleet Reallocation

To make room for PAL vehicles, some fixed-route buses currently assigned to Babcock would need to be reassigned to Cold Spring and Frontier garages. Babcock currently houses 83 buses of which 33 would need to be moved to Frontier. Ten of the CNG fueled vans currently at Frontier would need to be replaced with diesel-fueled vans or continue to be fueled at Frontier as there is no CNG fueling at Babcock.

Facility Renovations

Like Frontier Garage, Babcock would become a 24/7 operation. A new 20,000-gallon gasoline fuel tank for gasoline-paratransit vans would be needed at Babcock. New fuel dispensers and a new canopy would also be needed. Existing maintenance pits would need to be filled in and new lifts would be required for van maintenance

Items and Preliminary Costs

Based on staff input, items and order-of-magnitude costs to adapt Babcock Garage to support PAL operations with an expanded fleet include:

- Fuel tanks
- Canopy for outside fueling
- Fuel dispensers
- Pit conversions (filling in pits and purchasing bus lifts)
- Identifying parts storage space or expanding existing structure, and
- Purchasing automated storage retrieval systems for the parts inventory

Figure 11 presents quantities and preliminary costs for this option.

Figure 11 Items and Preliminary Costs for PAL Fleet Relocation and Expansion

Item	Cost (2030 Dollars)
Bus lifts (4)	$256,000
Filling in pits (4)	$256,000
Automated storage retrieval systems (2)	$640,000
Expansion for item storage area	$3,200,000
Fuel tank, outdoor canopy with fire suppression, fuel dispensers	$1,152,000
Miscellaneous	$256,000
Order-of-magnitude estimate	**$5,760,000**

Note: These costs do not include acquiring additional PAL vehicles or increased operations.

2.8.2 Construct a Standalone PAL Facility

The consultant team also investigated constructing an entirely new facility for PAL operations. A new facility would house all PAL vehicles, non-revenue vehicles, PAL operations, and a potential eligibility assessment center. For the purposes of this investigation, the team consulted comparable bus maintenance facility studies to develop a cost estimate. Such studies estimate costs for buildings (administration, operations, maintenance, storage, and parking), land and site work, and soft costs (permitting and entitlements, design, and contingencies). Using local land and construction costs, the team estimated the cost of a new standalone facility. Assuming completion by 2030 and accounting for inflation, constructing a new facility could cost between $90,000,000 and $100,000,000. Note considerable further study would be required to pursue this option.

2.9 SUMMARY OF EXPANSION COSTS

Figure 12 summarizes the operating and capital costs for service expansion for each scenario and for maintenance capacity expansion. As noted, the maintenance expansion cost estimates are subject to further study and refinement.

Figure 12 Summary of Service Expansion Operating and Capital Costs

Scenario	3-Mile Buffer	6-Mile Buffer
Added operations cost (2030)	$3,132,559	$6,593,121
Added vehicles cost (2030)	$2,409,639	$4,991,396
Subtotal added cost	**$5,542,198**	**$11,584,517**
Estimated cost (2030) to relocate PAL operations to Babcock Garage	$5,760,000	
Estimated cost (2030) to construct new PAL maintenance facility	$90,000,000-$100,000,000	

Notes

- Existing PAL operations and vehicles costs are not included.
- Maintenance facility cost estimates are preliminary.
- Operations and vehicle costs would increase annually.

2.10 ALTERNATIVE SERVICE DELIVERY

As discussed previously, NFTA first needs to address ongoing PAL service challenges before expanding service beyond the Core Service area. This includes continuing to acquire replacement PAL vehicles and increasing the number of available spare vehicles, filling vacant driver positions, and expanding in-house maintenance capacity. Addressing these needs internally will take time.

An alternative approach is to consider using third-party contractors (vendors) to deliver some or all portions of PAL service. Use of vendors is the predominant practice throughout the U.S. public transportation industry[6] with almost all agencies hiring vendors to deliver portions of paratransit service. Some agencies use vendors to supplement directly operated service and most use vendors to operate the service under contract. Both approaches are described below.

2.10.1 Non-dedicated Service Providers (NDSPs)

The use of NDSPs to supplement directly operated paratransit service is common throughout the U.S. Recently, transportation providers such as UZERV and Silver Ride have partnered with transit agencies. These companies recruit and train drivers to work with customers with disabilities and work with agencies to integrate trip dispatching and communications by linking to an agency's scheduling software.

Operating Costs

With an NDSP model, a third-party vendor or vendors would enter a contract to cover a portion of paratransit service under the current delivery model (reservation-based, not same-day). For the purposes of this analysis, the consultant team developed 2030 cost estimates for contracting with NDSPs for both expansion scenarios (3-mile buffer and 6-mile buffer). Assuming use of NDSPs and based on market research of per-hour and per-mile costs, Figure 13 presents low and high estimates of this option. As shown, operating costs are estimated to range between $1,590,000 and $1,830,000 for service in the 3-mile buffer area and between $2,970,000 and $3,400,000 in the 6-mile buffer area.

Figure 13 Estimated Annual NDSP Operating Costs (2030)

Scenario	3-Mile Buffer	6-Mile Buffer
Estimated annual trips	30,500	51,800
Annual costs (low estimate)	$1,590,000	$2,970,000
Cost per non-WAV trip	$52	$57
Annual costs (high estimate)	$1,830,000	$3,400,000
Cost per non-WAV trip	$60	$66

[6] According to the National Transit Database, only three of the top 50 U.S. transit agencies (ranked by ridership) provide complementary paratransit service directly without vendor support (Saint Louis, Missouri's Metro, Cincinnati, Ohio's Southwest Ohio Regional Transit Authority, and NFTA-Metro.

Notes

- Presumes a minimum of 100 trips per day, excluding wheelchair accessible vehicle (WAV) trips.
- Costs would increase annually.
- Would require staff oversight (see Other Costs).

Other Costs

Contracting with an NDSP would require additional oversight to ensure NDSP drivers are delivering high-quality service and meeting their obligations under the contract. For the purposes of analysis, upon execution of contract with NDSP, administration would require up to two full-time employees to oversee the contractor, depending on the size of the service expansion area. This is estimated to cost approximately $103,000 annually with benefits.

Need for Additional Study

Contracting with NDSPs to provide supplemental reservation-based service would require additional study to address possible obstacles, including:

- Using third-party contractors instead of exclusively using in-house staff for paratransit service would require negotiation with the labor union to ensure existing drivers and staff do not lose work opportunities.
- As noted in the section above, additional staff would need to be hired to manage an NDSP contract.
- To attract potential NDSP bidders, NFTA would need to contract for a minimum number of trips, typically at least 100 per weekday.
- Because supplemental providers are unlikely to offer trips in wheelchair accessible vehicles (WAVs), NFTA would likely need to use its own fleet and drivers for all WAV trips. Since WAV trips currently comprise 11.5% to 12.5% of total PAL trips today, accommodating WAV trip requests could cost between $175,000 and $190,000 in the 3-mile buffer area, and between $300,000 and $320,000 in the 6-mile buffer area.
- Additional staff resources would be needed to monitor contracts with NDSPs to ensure consistent service delivery, proper data collection, and high-quality customer service and demand management, including ensuring that paratransit service delivery standards are consistent across providers and clearly understood by customers.

2.10.2 Dedicated Service Providers (DSPs)

The top 25 largest U.S. transit agencies use DSPs to provide all or a portion of their complementary paratransit service. How each agency uses DSPs varies considerably, as

documented in a Transit Cooperative Research Program study.[7] As with the NDSP option, consideration of a DSP for PAL service is just for analysis purposes. To pursue this option, NFTA would first need to negotiate with its labor union.

The consultant team assumed that were NFTA to engage a DSP, it would be for paratransit operations only; eligibility and customer service would remain in-house functions. In addition, the team assumed NFTA would:

- Add sufficient staff to manage a DSP contract and ensure proper compliance with the ADA, and
- Continue to own the paratransit fleet, cover the cost of fuel and a portion of the insurance, and administer the DSP contract.

Operating Costs

The consultant team developed cost estimates for contracting with a DSP for Core Service and for both expansion scenarios (3-mile buffer and 6-mile buffer). According to NTD research into 2023 transit agency operating costs,[8] agencies that contract for paratransit service are on average spending 18.8% less per revenue vehicle hour (RVH) than agencies that directly operate paratransit service, including contract management costs. Research also indicates that up to 15% of the total cost is for administration. The net savings then is approximately 3.8%. To compare these services using the same horizon year, the team inflated 2023 costs to 2030. Figure 14 presents the operating costs for Core Service, the 3-mile buffer, and the 6-mile buffer and compares costs for service provided under the current model and costs for service provided using a contracted DSP.

Figure 14 Estimated Annual DSP Operating Costs (2030)

Service Area/Scenario	RVH	NFTA	DSP	Difference
1.5-mile buffer (Core Service)	107,421	$13,713,069	$13,403,577	$309,492
3-mile buffer addition	23,752	$3,132,559	$2,963,683	$168,876
6-buffer addition	49,647	$6,593,121	$6,172,301	$420,820

Need for Additional Study

As with an NDSP, contracting with a DSP would require additional study by NFTA to address possible obstacles, including:

[7] TCRP Synthesis 135, *ADA Paratransit Service Models: A Synthesis of Transit Practice*, by Will Rodman and William High, Nelson\Nygaard Consulting Associates, 2018.

[8]

- Using third-party contractors instead of exclusively using in-house staff for paratransit service would require negotiation with the labor union to ensure the DSP would provide similar wages and benefits.
- As noted previously, additional staff would need to be hired to manage a DSP contract.
- Additional staff resources would be needed to monitor contracts with DSPs to ensure consistent service delivery, proper data collection, and good customer service.

3 RECOMMENDATIONS

3.1 INTRODUCTION

As discussed during the September 2024 public meetings, to expand PAL service without changing the service delivery model, NFTA must first:

- Fill open vehicle driver positions and then hire additional drivers
- Acquire replacement PAL vehicles and then acquire additional vehicles
- Find additional capacity to maintain an expanded fleet

Accordingly, this chapter presents a high-level summary of proposed improvements and strategies and presents a timeline for implementation.

3.2 ONGOING IMPROVEMENT INITIATIVES

There are two key initiatives based on the consultant recommendations that are currently under consideration.

3.2.1 Technology Improvements

NFTA is evaluating technology strategies for improving PAL service delivery. This may include updating or replacing its paratransit scheduling and dispatching software (PSDS).

3.2.2 Service Area and Span Enhancement

In addition, NFTA is also evaluating establishing a consolidated core service area and standardizing service hours. Based on the consultant's recommendation, the consolidated core service area would reduce customer confusion about where and when PAL service is offered. PAL service would be made available to eligible customers throughout the core area whenever any fixed-route bus service is operating, not just when local service is offered within the 1.5-mile buffer. NFTA is also evaluating the team's recommendation to expand the service spans in express corridors and to make them consistent. Figure 15 illustrates this recommended service area, showing the customer-requested locations and Figure 16 shows the recommended service hours.

Figure 15 Recommended Consolidated Core Service Area

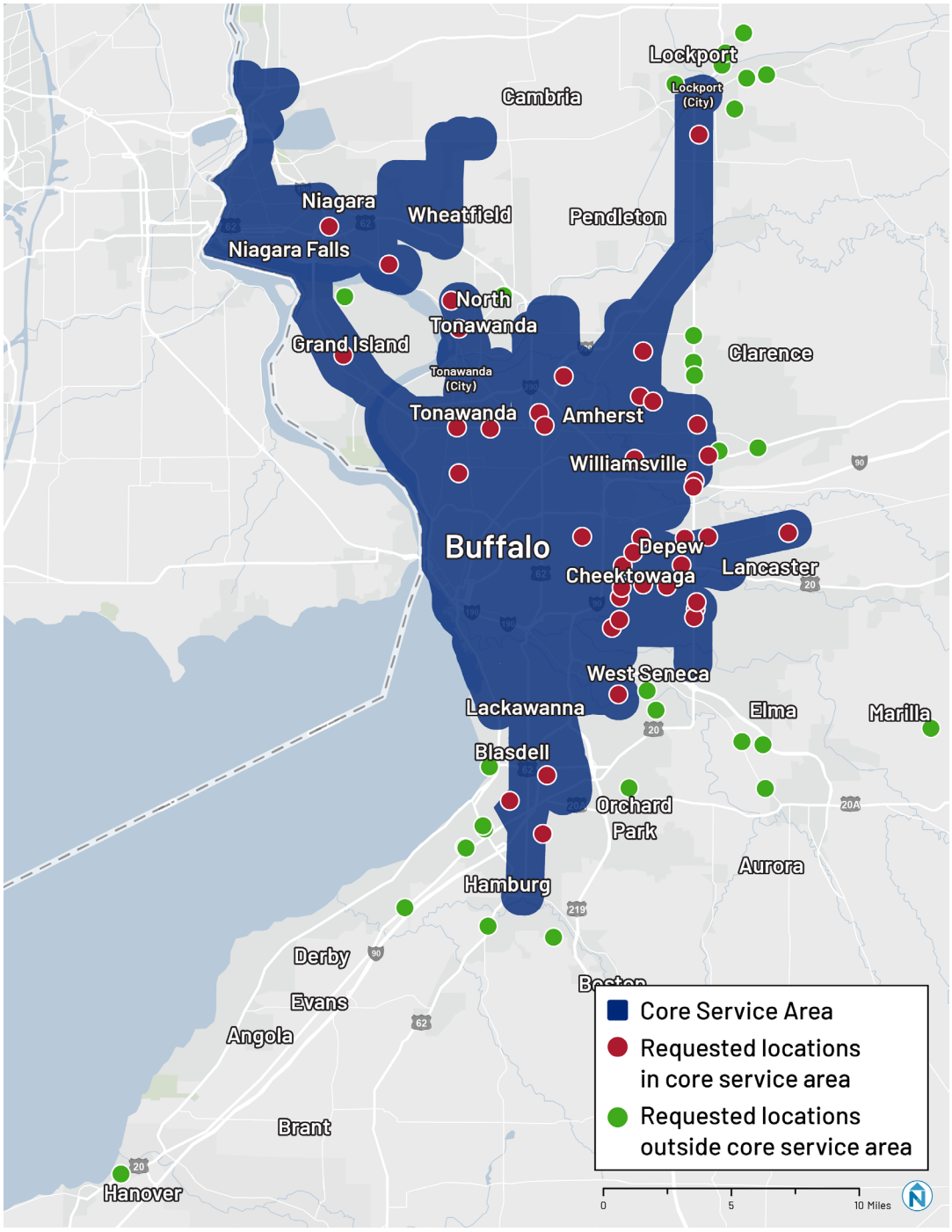


Figure 16 Recommended PAL Core Service and Express Corridor Spans

Service Zone	Weekdays	Weekends and Holidays
Core Service	4:30 a.m. to 1:30 a.m.	5:30 a.m. to 1:30 a.m.
Express Corridors	6 a.m. to 8:30 a.m. and 4 p.m. to 8 p.m.	No service

3.3 ADDITIONAL RECOMMENDATIONS

To address ongoing service delivery issues and to build capacity the consultant team has provided recommendations for the following topics covered in the Existing Conditions report:

- Eligibility
- Service policies
- Operational practices and organization
- Resources

Some recommendations can be implemented in the short-term while others will take several years. See timeline discussion below.

3.3.1 Improve Eligibility Practices

The consultant team recommends that NFTA invest in improving its eligibility process and practices to clarify who is eligible for PAL and obtain more information from applicants and their treating professionals. This strategy will likely lead to PAL conducting in-person applicant interviews and potentially conducting functional assessments. The goal of improving eligibility practices is to ensure that PAL is limited to individuals whose disabilities prevent them from traveling to/from bus stops or rail stations or from riding fixed-route transportation, ensuring that PAL serves its "safety net" function.[9]

3.3.2 Negotiate Trip Requests When Necessary

As discussed in the Existing Conditions report, transit agencies are permitted under the ADA to negotiate trip times within one hour before and one hour after requested pickup times in a way that meets customers' underlying trip needs. The consultant team recommends that NFTA negotiate trip requests when necessary. This will lead to more realistic schedules and improved on-time performance.

[9] See FTA ADA Circular Section 9.4.1 Strictly Limiting Eligibility https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/Final_FTA_ADA_Circular_C_4710.1_1.docx

3.3.3 Improve Operational Efficiencies

The consultant team recommends reworking driver and trip schedules, adding additional supervisors, expanding capacity, and restructuring roles in the Operations Control Center, and investing in technology upgrades. These measures will enable the PAL team to negotiate certain trip requests within the ADA parameters and to develop more realistic and manageable daily schedules. In turn this will improve on-time performance and increase customer satisfaction. The team has also provided suggestions to improve driver retention.

3.3.4 Invest Additional Resources in PAL

To implement the team's recommendations to improve eligibility, change service policies, and increase efficiency will require additional resources and time, including hiring new personnel, acquiring new systems, and improving oversight. These recommendations are in addition to ongoing efforts to hire drivers and acquire replacement vehicles.

3.4 TIMELINE

If funding is made available for service expansion, the consultant recommends the following implementation timeline:

- Near-term (end of 2025): improve service delivery
- Medium-term (2026–2029): build capacity for service expansion
- Long-term (2030 and beyond): expand service

3.4.1 Tracking Progress

Over the coming months and years, the team recommends that progress toward these goals be tracked at meetings of the Accessibility Advisory Committee, which meets monthly on the last Thursday of each month. The following are suggested topics, some of which are currently reported:

- On-time performance
- Drivers available (including number of unfilled positions, employees on long-term leave, etc.)
- Number of operable vehicles (including how many are on order and when they are expected)

The team also recommends sharing updates on addressing maintenance capacity challenges and other programs aimed at improving service efficiency and service delivery, including the potential for using non-dedicated service providers for supplemental PAL service.

4 CONCLUSION

This report summarizes the service expansion analysis undertaken for the NFTA-Metro Paratransit Expansion Study. Providing PAL service beyond the minimum required under the Americans with Disabilities Act would allow current customers to travel to destinations not currently served and increase travel opportunities for existing or new PAL customers who reside outside the existing 1.5-mile buffer. Providing PAL service to destinations in the 3-mile or 6-mile buffer would also increase operating and capital expenses and require additional drivers, vehicles, and maintenance capacity.

NFTA cannot implement expanded service until it first addresses ongoing challenges (driver shortages, long lead times to acquire new vehicles, and service inefficiencies). This report identified ways for NFTA to address some of the challenges by hiring non-dedicated service providers to supplement existing PAL service or by hiring a vendor to operate PAL service under contract. Using third-party contractors instead of exclusively using in-house staff for paratransit service would require negotiation with the labor union.

In the interim, NFTA is evaluating establishing a consolidated core service area and standardizing service hours. Based on the consultant's recommendation, the consolidated core service area would reduce customer confusion about where and when PAL service is offered.

The consultant team also provided NFTA with specific recommendations to improve PAL service covering technology, staffing, eligibility, and the trip reservations process.