

Next Wave Final Report *(Draft)*

BATA Transit Master Plan
October 2022



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Introduction



Next Wave

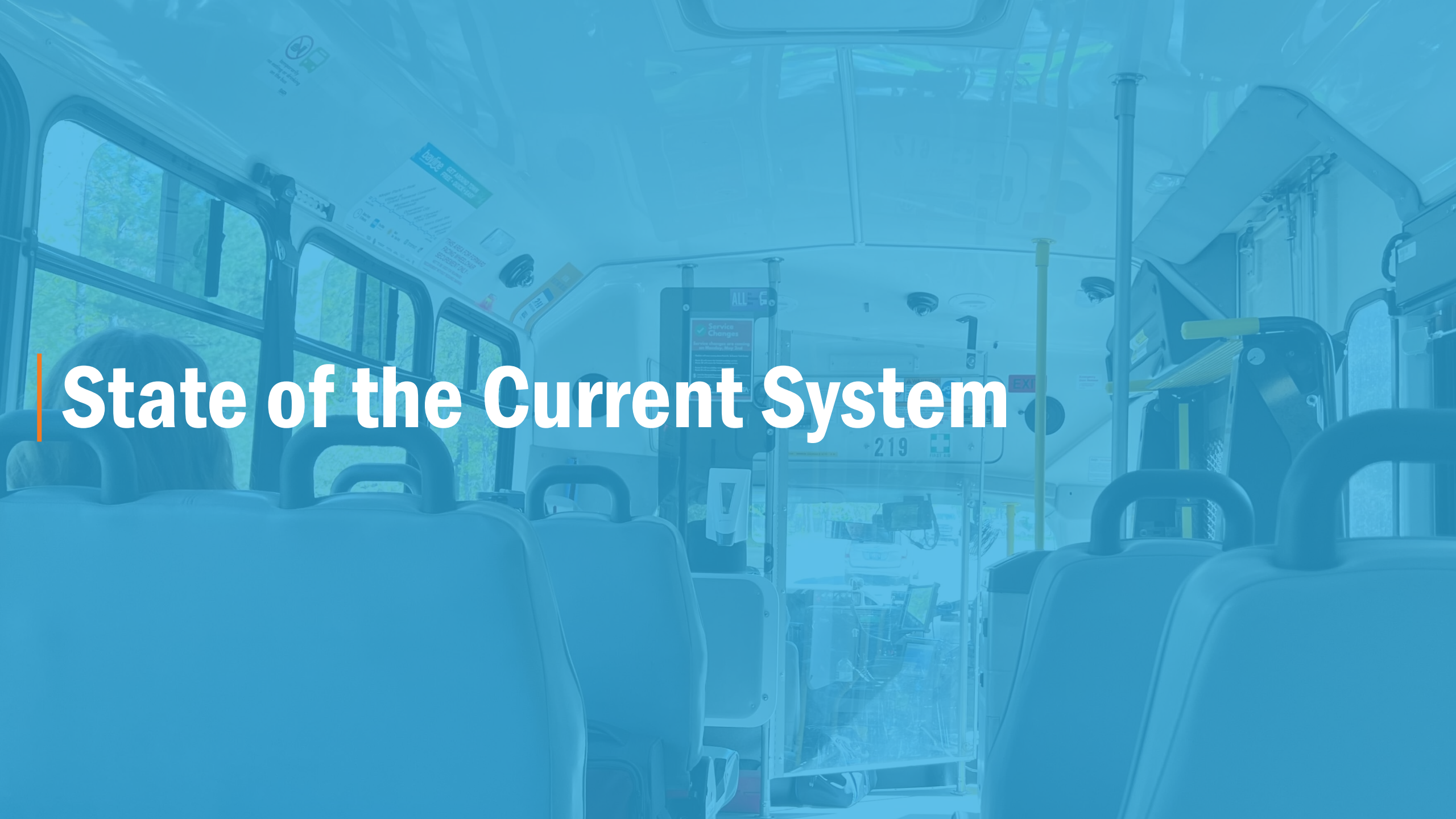
BATA Next Wave is a Transit Master Plan (TMP) that will provide a roadmap to guide the agency's priorities for the next five to ten years. This plan will help to identify how best to use the agency's resources to maximize the benefits that transit can bring to the community.

BATA Next Wave evaluated variables unique to the region, assess transit demand, identified potential opportunities, and built off BATA's recent successes, and made recommendations based on guiding principles, stakeholder and community input, and technical analyses.

This effort will prepare BATA for future challenges while also improving transportation options, helping our community's residents be better connected to jobs, services, and educational opportunities.

The report begins with a summary of the Next Wave State of the System findings. More detailed information of this project's market and service evaluation can be found in this project's State of the System report. Public and stakeholder outreach efforts are summarized, followed by project goals. Recommendations are then presented for both the fiscally-constrained 5-year plan and an unconstrained 10-year plan.


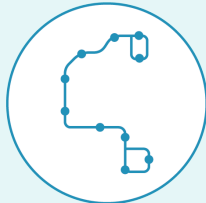
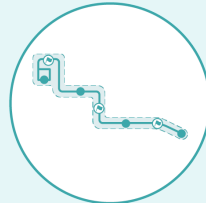
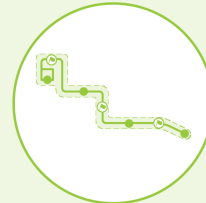
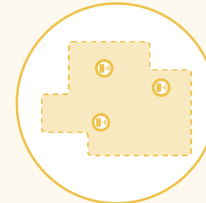
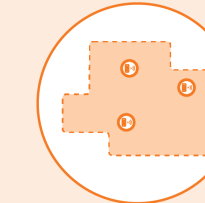












State of the Current System

Full System Overview

BATA's full system includes six distinct service types, each specifically tailored to the need of the area it serves. The **Bayline** and **City Loops** provide fixed route service in the Traverse City area. The **Village Loops** provide deviated fixed route service (up to ¾ mile deviation) between Traverse City and rural Grand Traverse and Leelanau Counties. **Seasonal** routes are operated to support special events (i.e. Cherry Festival) or seasonal activities (i.e. Bike n Ride). **Link On-Demand** provides curb to curb service within Traverse City, similar to Uber or Lyft. **Village Link** provides curb to curb service for rural Grand Traverse and Leelanau counties. Unlike Link On-Demand, Village Link trips must be scheduled in advance. The following pages present Fall 2019 BATA service characteristics.

BATA SERVICE TYPES	<p>Bayline</p> <p>Free, frequent bus service operating in the busiest parts of Traverse City.</p> 	<p>City Loop</p> <p>Local bus service operating in and around Traverse City.</p> 	<p>Village Loop</p> <p>Regional bus service connecting to villages and townships in Grand Traverse and Leelanau counties.</p> 	<p>Seasonal</p> <p>Special seasonal and festival services like Ski n Ride, Bike n Ride, Cherry Festival Shuttle, etc.</p> 	<p>Link On-Demand</p> <p>On-demand, app-based ridehailing service like Uber or Lyft that operates within Traverse City.</p> 	<p>Village Link</p> <p>Demand response service operating in Grand Traverse and Leelanau counties outside of Traverse City.</p> 
FREQUENCY	15-20 min	30 minutes	60+ minutes <small>*Routes 16 and 31 operate at peak period only</small>	Varies	On-Demand <small>Up to one day in advance</small>	Dial-a-Ride <small>Up to one week in advance</small>
HOW TO RIDE			 OR 	 OR 		
WHERE TO RIDE	Traverse City	Traverse City	Within 3/4mi of fixed route	Within 3/4mi of fixed route	Grand Traverse & Leelanau counties	Grand Traverse & Leelanau counties

Fall 2019 - City

Traverse City Service Levels

Bayline

- Daily, every 15 min
- Operated from Woodland Creek to the Meijer located along Hwy 31 daily, every 15 minutes.

Routes 1 and 2

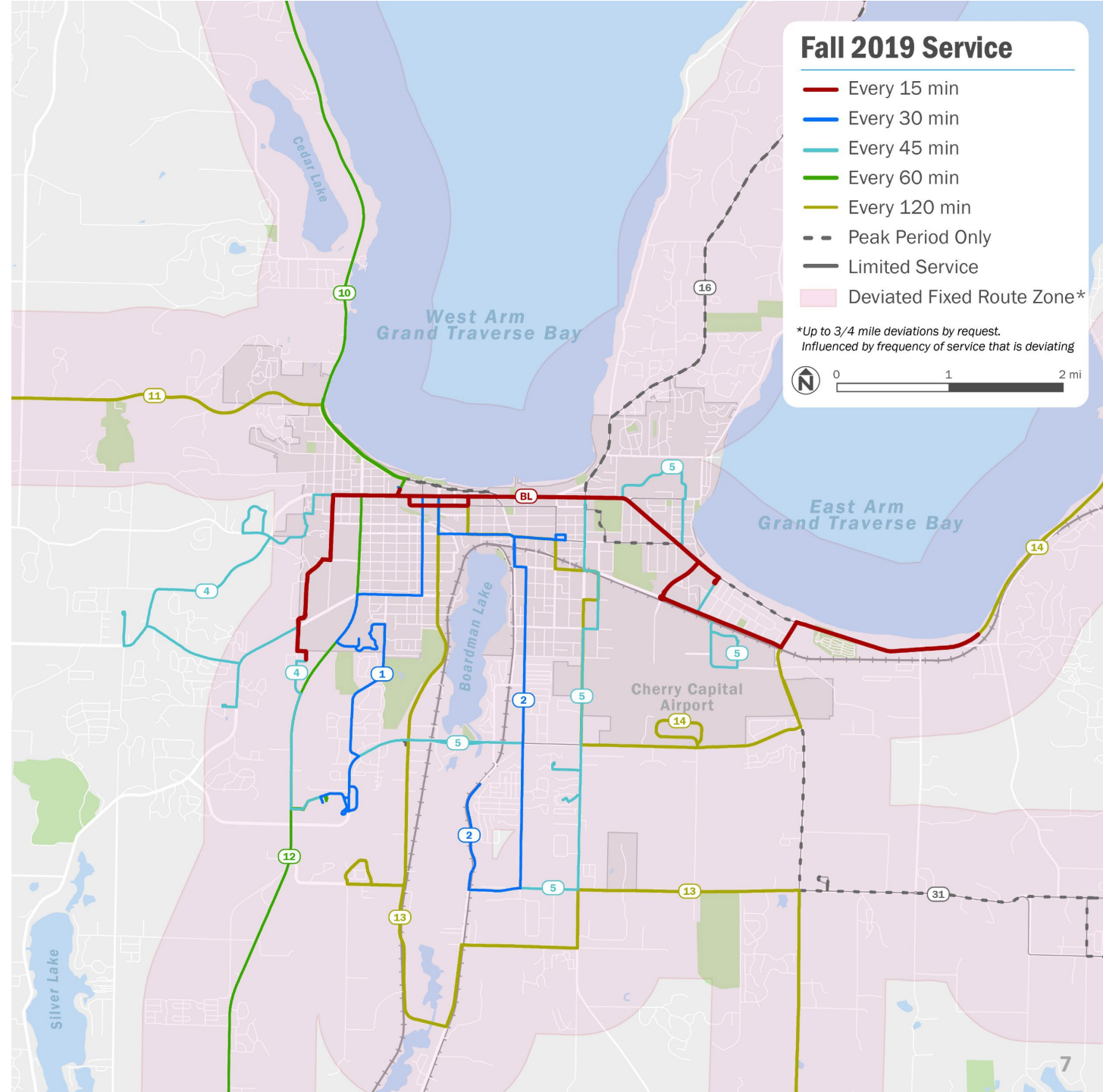
- Daily, every 30 minutes.

Routes 4 and 5

- Daily, every 45 minutes.

Link On-Demand

- Daily
- Normal service at \$6/trip



Service Reductions

By the Fall of 2021, the COVID-19 pandemic and the national bus driver shortage required BATA to adjust alignments and reduce service levels. Continued impacts from these events required further service reductions in the Spring of 2022.

The service reductions that BATA was forced to make amounted to considerable reductions in total revenue hours delivered. The Fall 2021 changes resulted in a 26% reduction from Fall 2019 service levels. The additional reductions in Spring 2022 furthered the reduction to 63%.

BATA is actively working to restore service as staffing levels permit. The following pages present Fall 2021 and Spring 2022 service information.

Revenue Hours					
	Fall 2019	Fall 2021	Spring 2022	2019-2021 % Reduction	2019-2022 % Reduction
Bayline	28,800	28,700	11,500	-0.3%	-60.1%
City Loops	33,800	22,800	10,100	-32.5%	-70.1%
Village Loops	32,100	24,200	12,200	-24.6%	-62.0%
Flex Loops (Routes 16 & 31)	2,000	2,000	2,000	-	-
Total	96,800	77,700	35,800	-20%	-63%

Fall 2021 - City

Traverse City Service Levels

Bayline

- Daily, every 15 min
- Extended from Meijer to the Grand Traverse Mall

Route 4

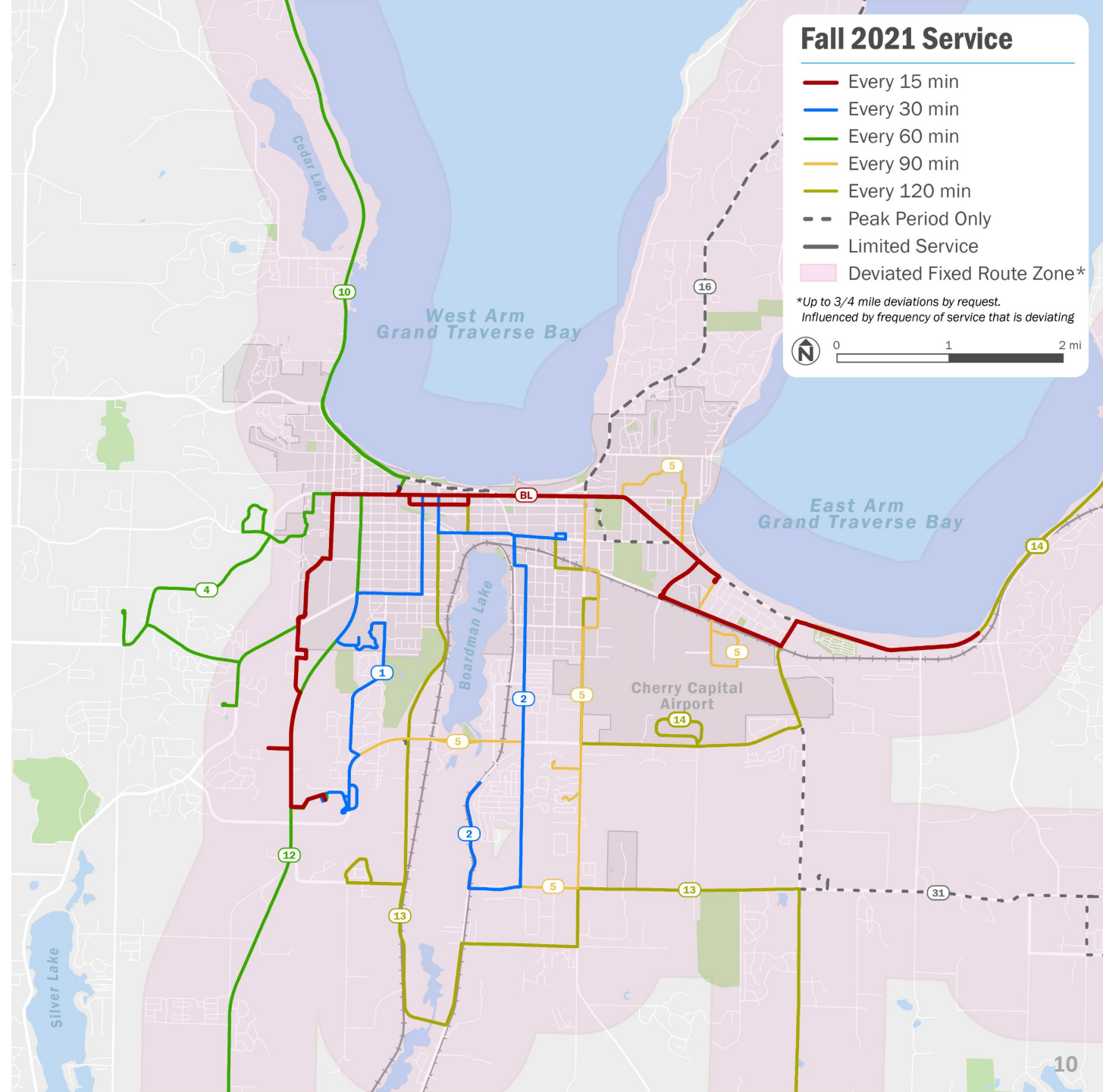
- Weekdays, every 60 min
- Truncated from the Grand Traverse Mall to Meijer. Frequency was reduced to every 60 minutes on route 4.
- In October, midway through the study period, Route 4 was suspended entirely.

Route 5

- Daily, every 90 min

Link On-Demand

- Daily
- Expanded service at \$3/trip



Fall 2021 - County

County Service Levels

Routes 10 & 12

- Daily, roughly every 60 min

Route 11

- Suspended

Routes 13 & 14

- Daily, roughly every 120 min

Routes 16 & 31

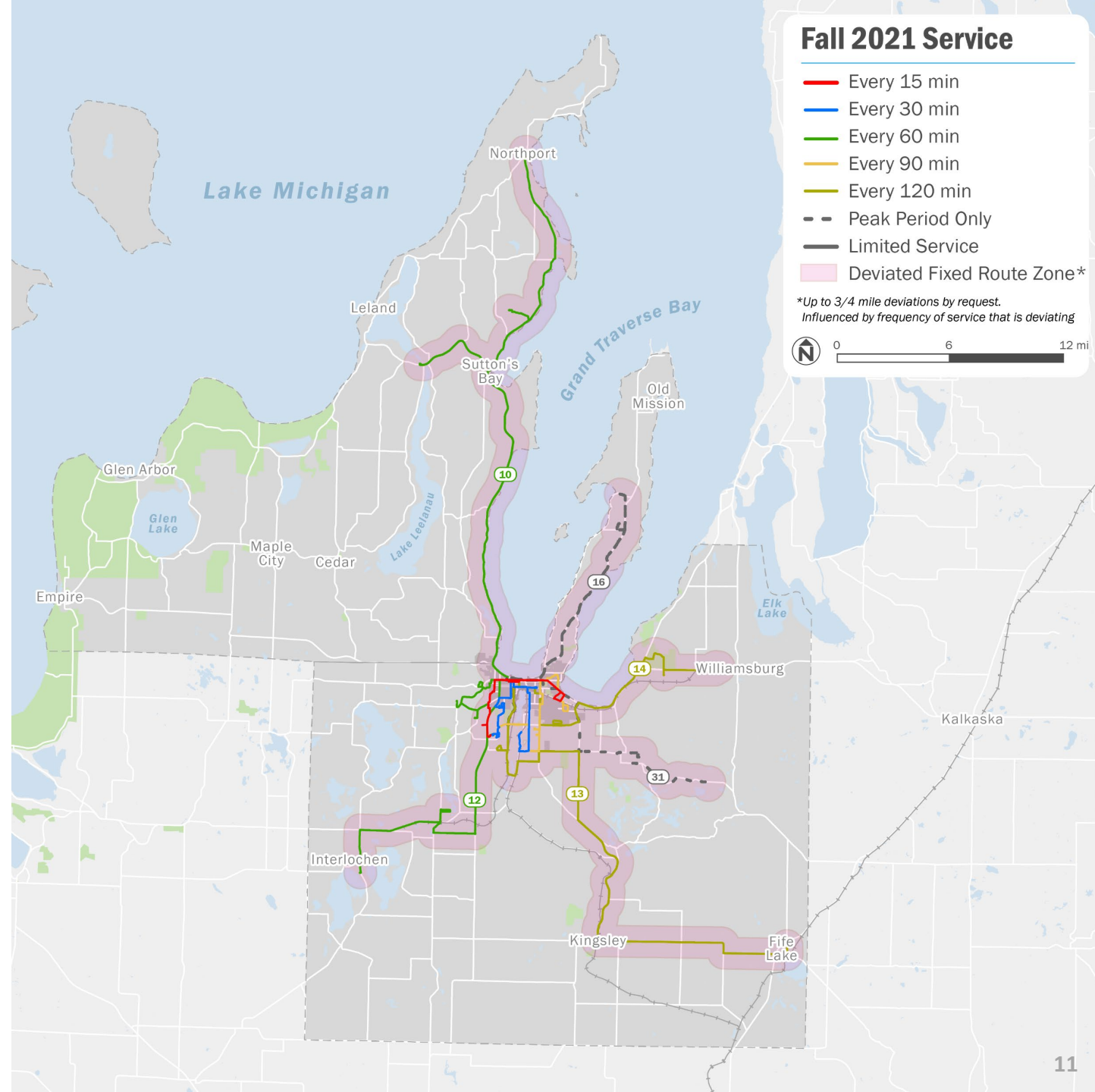
- Weekday peak periods when school was in session

Leelanau Loop

- Suspended

Village Link

- Daily (added weekend service)



Spring 2022 - City

Traverse City Service Levels

Bayline

- Weekdays, every 20 min
- Truncated at both ends

Routes 1 & 2

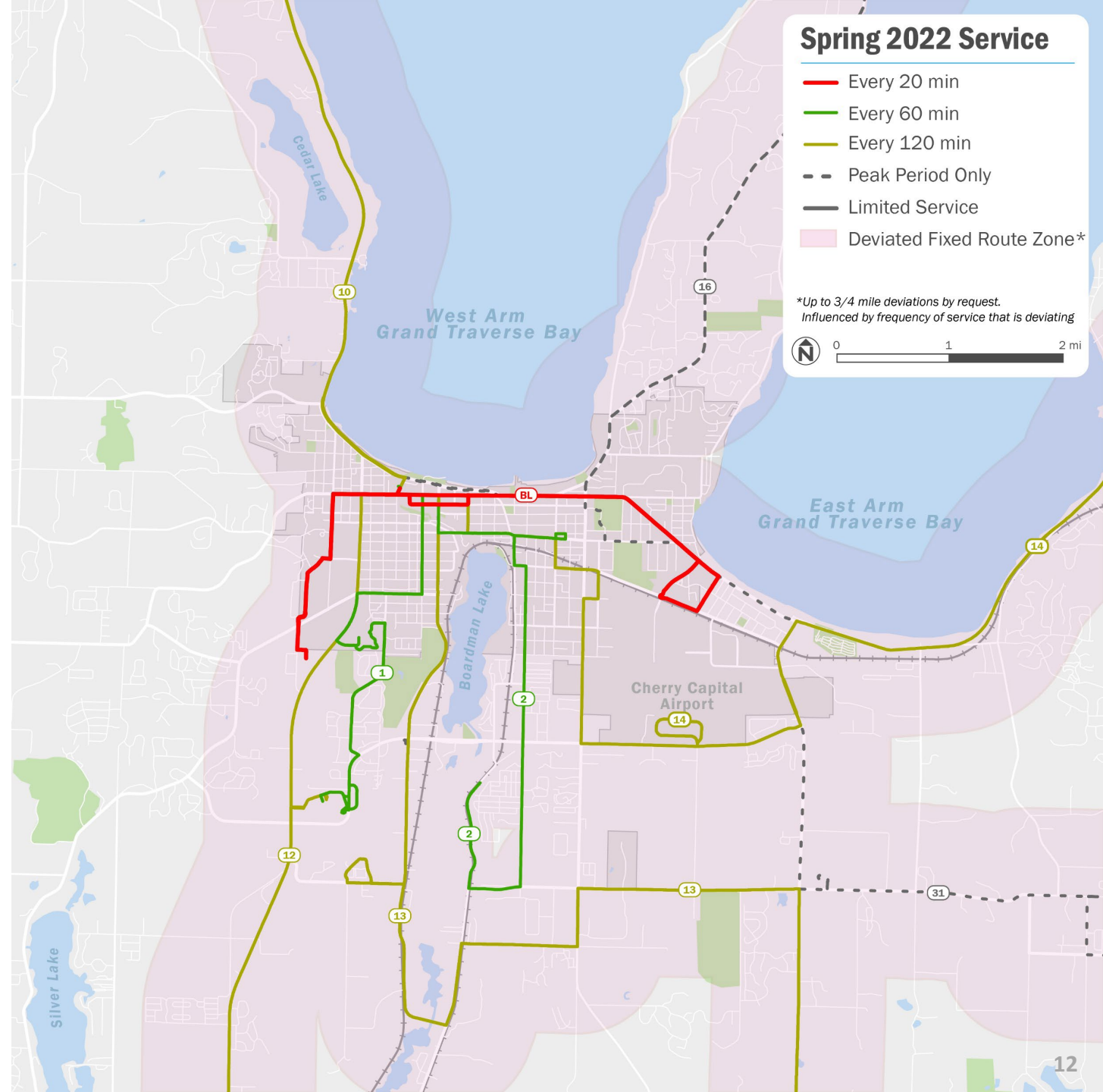
- Weekdays, every 60 min.

Routes 4 & 5

- Suspended

Link On-Demand

- Daily
- Expanded service, at \$3/trip



Spring 2022 - County

Spring 2022 (County Service Levels)

Routes 10, 12 & 14

- Weekdays, every 120 min

Route 11

- Suspended

Route 13

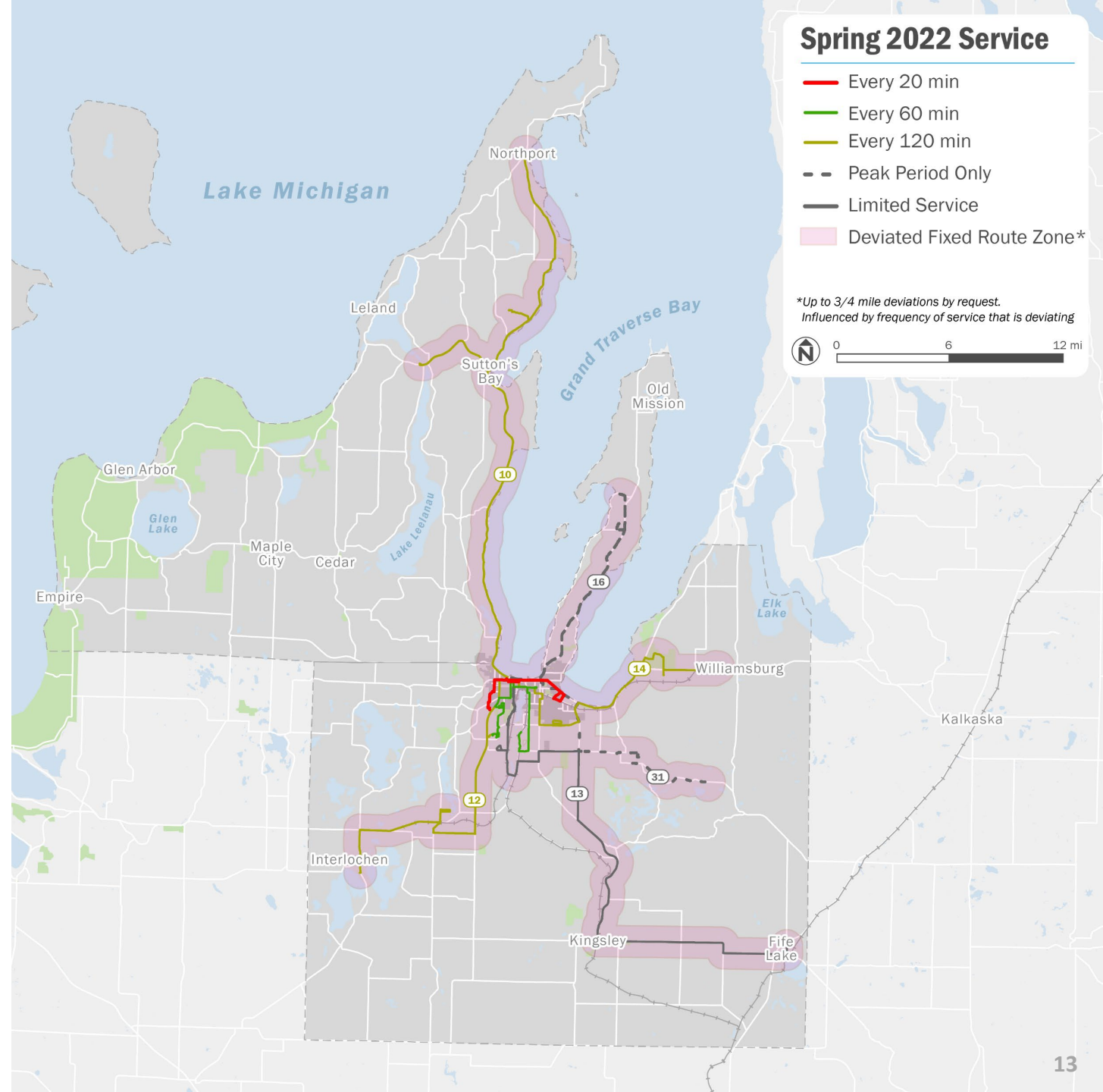
- Weekdays, select trips

Routes 16 & 31

- Weekday peak periods when school was in session

Village Link

- Daily





Market Analysis



Overview

Understanding underlying patterns of transit demand is important to helping BATA invest in high-quality services that will continue to be successful and beneficial to the community. This analysis will help BATA better understand patterns that affect transit demand – in turn creating a guidance for investments to deliver high-quality transit services for the community.

Demographic data was used to highlight where transit service should be most effective. Higher density areas support more frequent transit service. A composite demand score was calculated adjusted population density and employment density to show a combined transit demand measure.

The following pages present results of the composite demand analysis completed for the BATA service area. Further details on the market analysis methodology and results is provided in **Appendix A** in this project's **State of the System Report**.

Transit demand is strongly driven by the following factors:

-  Population density and demand
-  Socioeconomic characteristics
-  Employment density and demand
-  Development patterns
-  Activity centers
-  Travel patterns
-  Visitors and tourism

Transit-Supportive Density based on Composite Demand

Higher Density



> 30 people + jobs per acre



15- to 30-minute service



Medium Density



15-29 people + jobs per acre



30- to 60-minute service



Lower Density



< 10 people + jobs per acre



60+ min service and microtransit

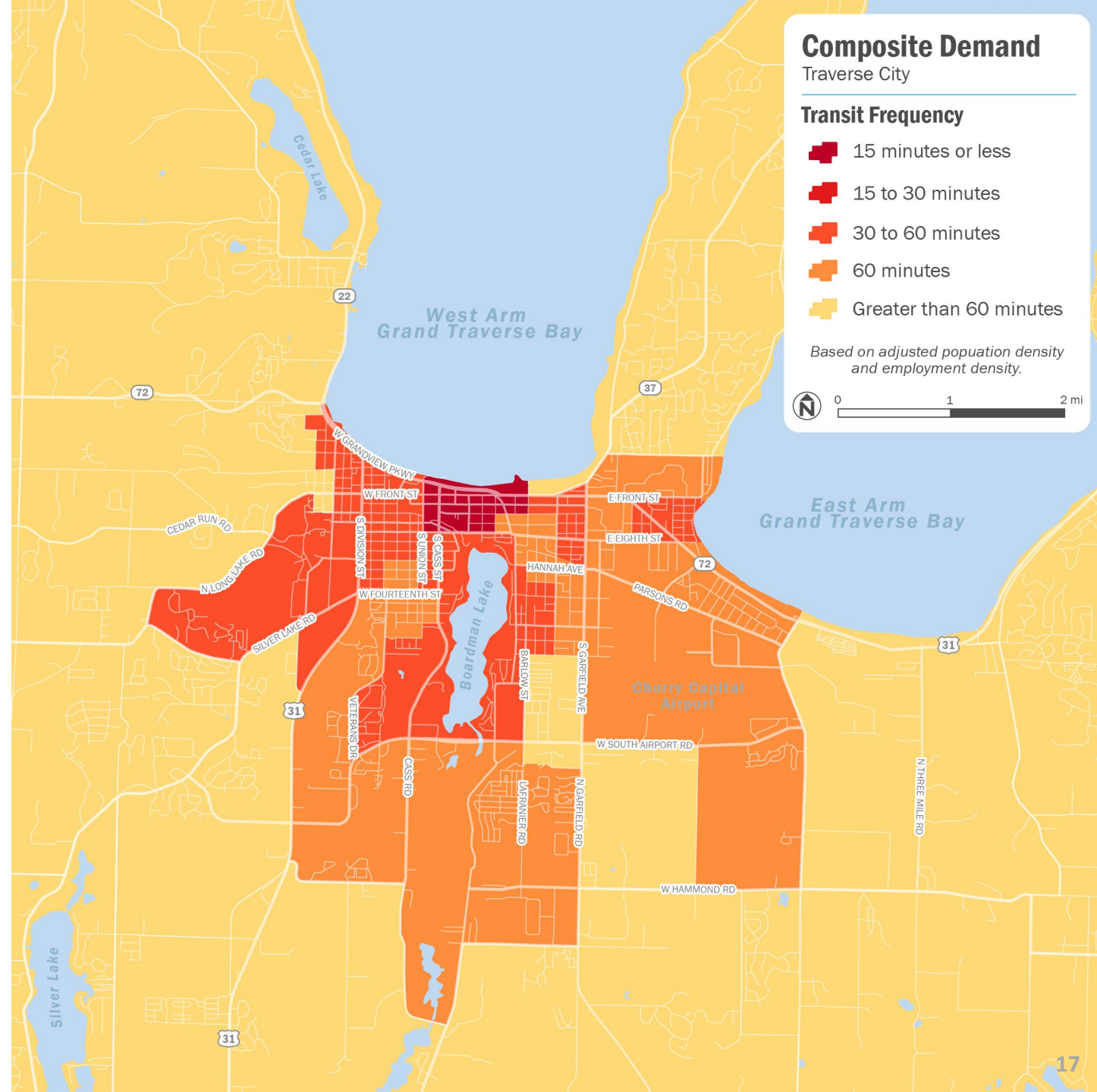


Composite Demand

Most of the Traverse City area averages about 2 to 4 people and jobs per acre. However, composite demand in Traverse City shows higher levels of service due to its higher concentration of jobs, a variety of land uses, and greater transit propensity.

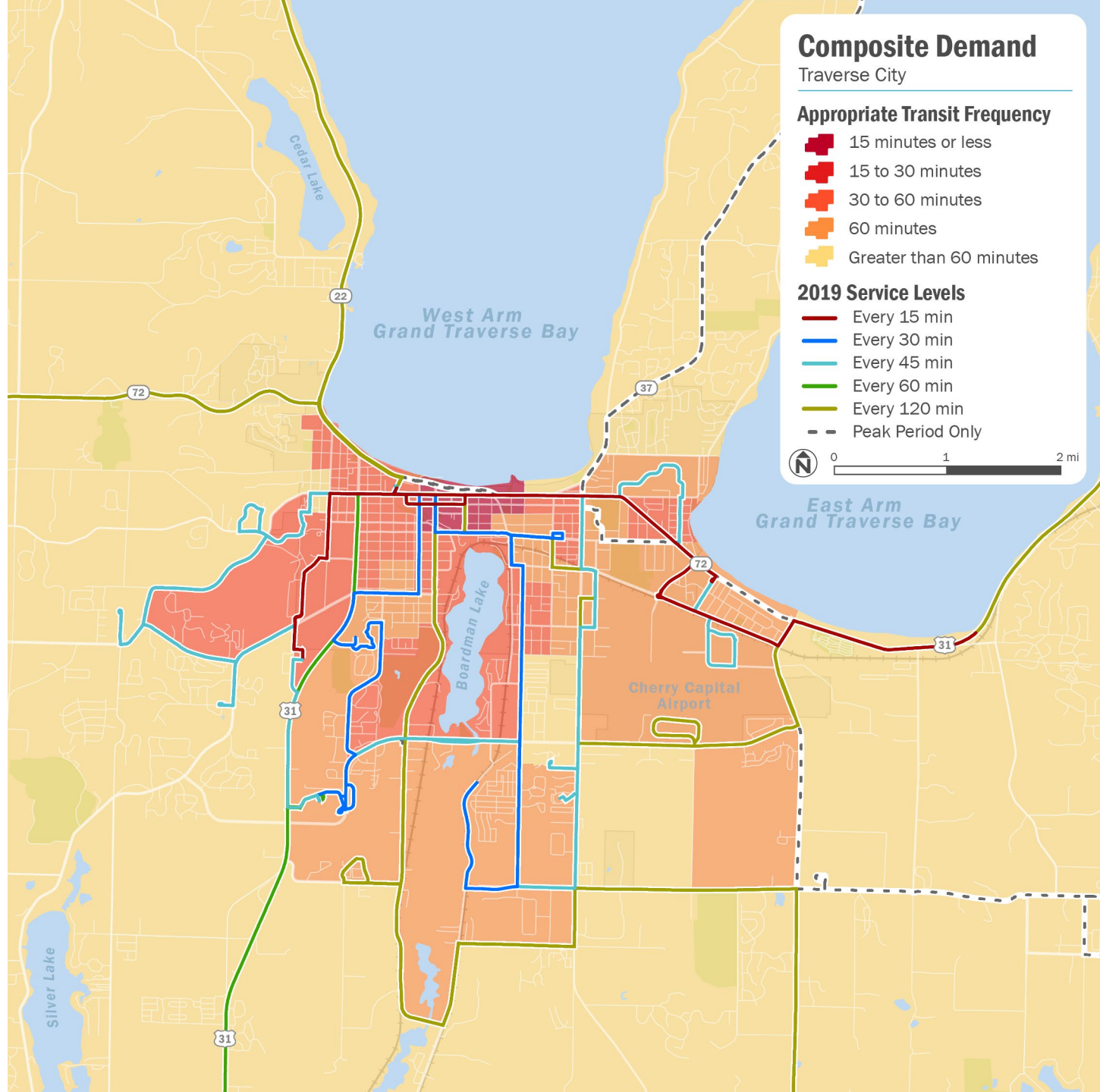
Nearly all of Downtown is supportive of 15- or 30-minute transit service, with southern block groups falling in the 60-minute service range. These areas contain large retail clusters and big box stores, Cherry Capital Airport, and a cluster of industrial warehouses and business parks. Housing located in these blocks is mostly low density and single family, but there are also pockets of retail, medical, and educational destinations.

Outside of the Traverse City area, all areas fall in the 60-minutes or greater service range.



Market Analysis Findings

When we overlay the fixed route transit service with the composite demand results, we can see that before the COVID-19 pandemic BATA service (Fall 2019) was well-aligned with expected frequencies and the demand for transit in the area based on population, propensity for transit, and job density.



The image shows the interior of a transit bus, viewed from the passenger side. The seats are upholstered in a light-colored material with horizontal ribbing. The bus has large windows with "EMERGENCY EXIT" labels. The background outside the window is a bright, hazy landscape, possibly a beach or coastal area. The entire image is overlaid with a semi-transparent orange filter.

Transit Service Assessment: Fixed Route Service

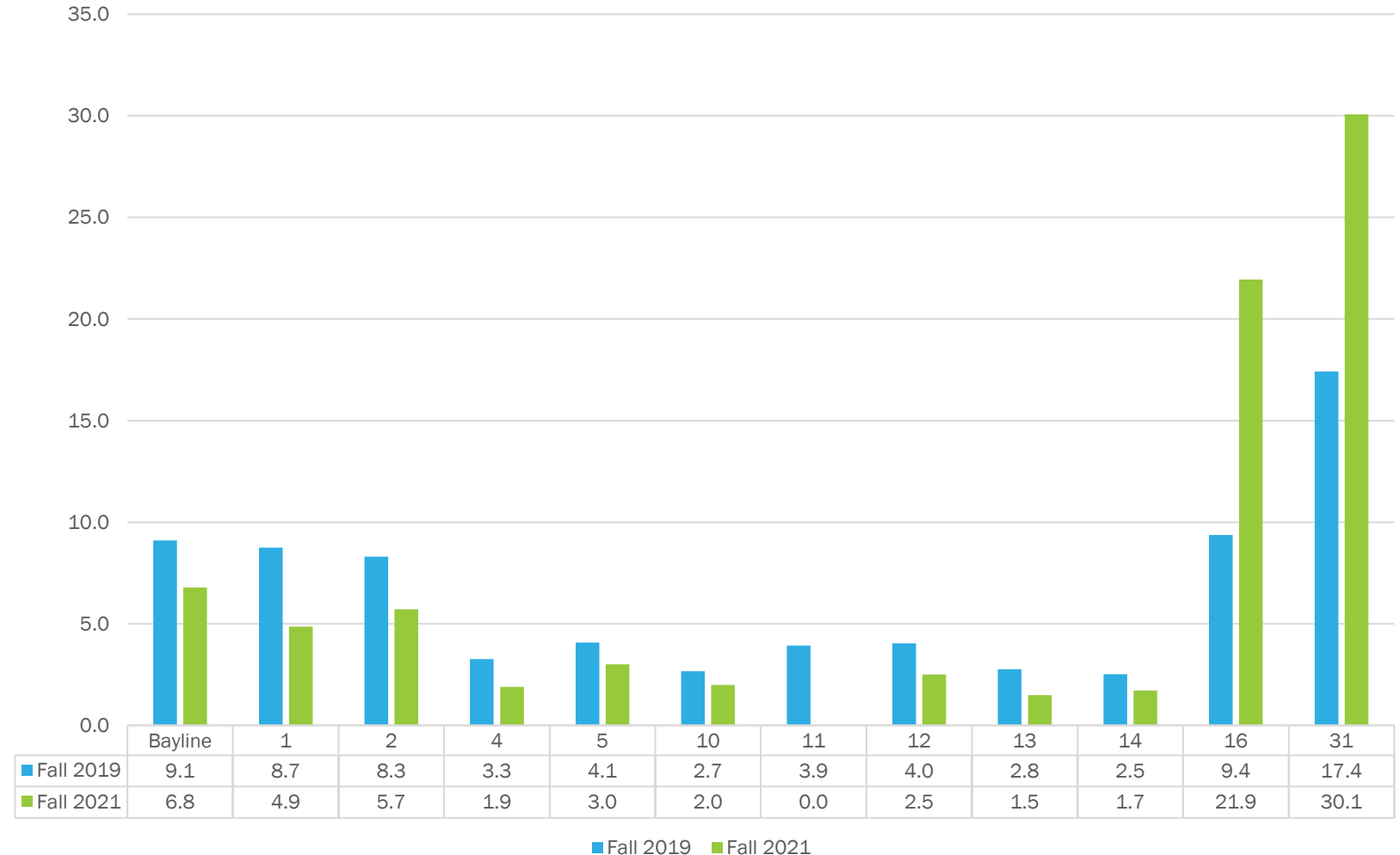
Average Daily Ridership

From Fall 2019 to Fall 2021 fixed route ridership decreased at a higher pace than service reductions. The City and Village Loops experienced the largest share of ridership loss, and the Flex Loops experienced the smallest loss at 17%. The Village Loops experienced modest drops in weekend ridership.

	Fall 2019			Fall 2021			% Change		
	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday	Weekday	Saturday	Sunday
Bayline	728	553	409	384	296	224	-47%	-47%	-45%
City Loops	685	374	246	325	173	139	-53%	-54%	-44%
Village Loops	327	253	181	142	175	151	-57%	-31%	-16%
Flex Loops (16 & 31)	86	0	0	71	0	0	-17%	-	-
Fixed Route Total	1,826	1,069	836	925	644	514	-49%	-40%	-39%

Weekday Boardings Per Revenue-Hour

Observation of route level productivities show that routes 16 and 31 were the most productive in the system¹ in Fall 2019 and Fall 2021. After these routes, the Bayline, Route 1 and Route 2 are the most productive. It is notable that, despite operating considerably more frequently, the Bayline shows comparable productivity figures to routes 1 and 2.



¹Both routes provide limited service that is targeted towards school trips, resulting in productivities higher than can be reasonably achieved from more traditional, fixed route services

Ridership / Revenue Hours

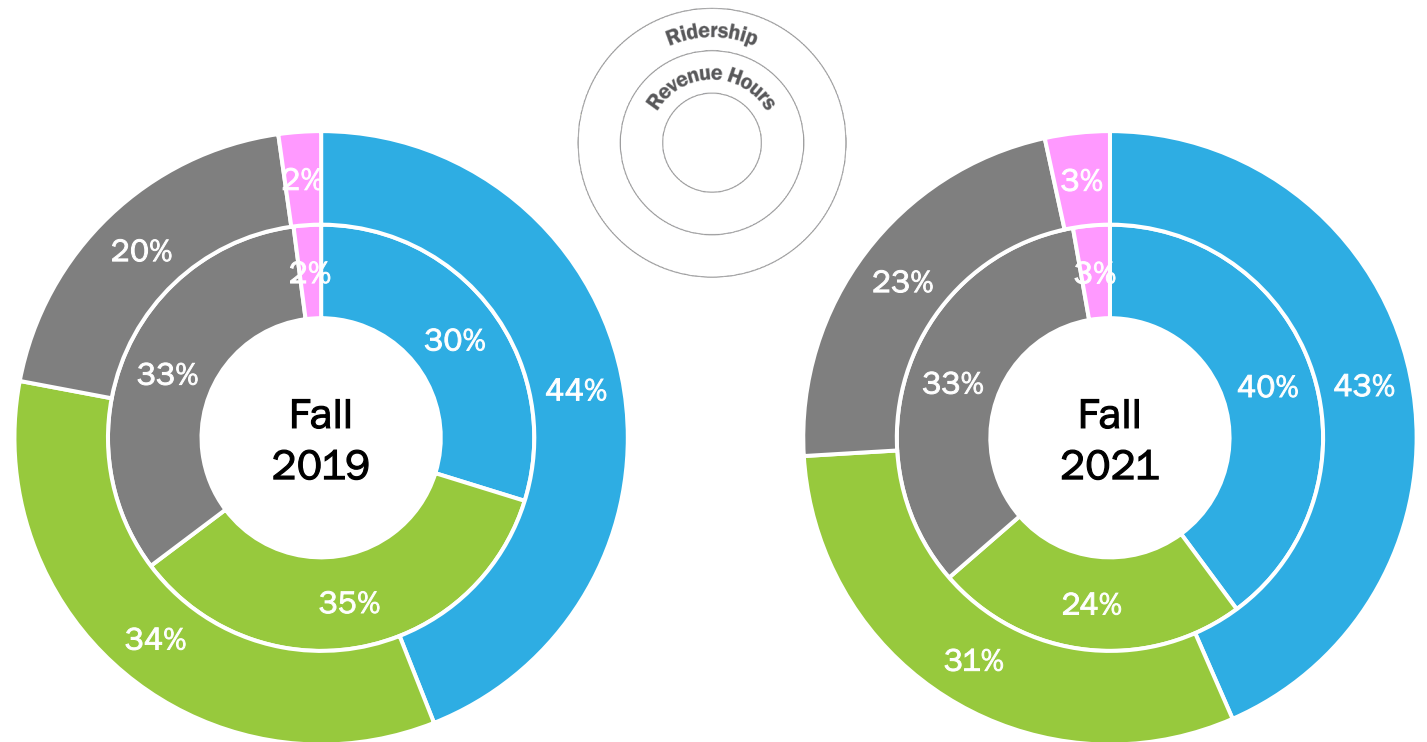
The graphs on the right compare the share of revenue hours dedicated to a service with the share of overall fixed route ridership it contributes. The table below shows this ratio:

$$\frac{\text{Ridership Contribution}}{\text{Revenue Hours Spent}}$$

A ratio above 1 suggests the service yields more ridership than it consumes service hours, and a ratio below 1 suggest the opposite.

Route Class	2019 Ratio	2021 Ratio
Bayline	1.33	1.08
City Loop	0.97	1.29
Village Loops	0.61	0.70
Flex Loops	1.00	1.00

Bayline	City Loops
Village Loops	Flex Loops (16 & 31)



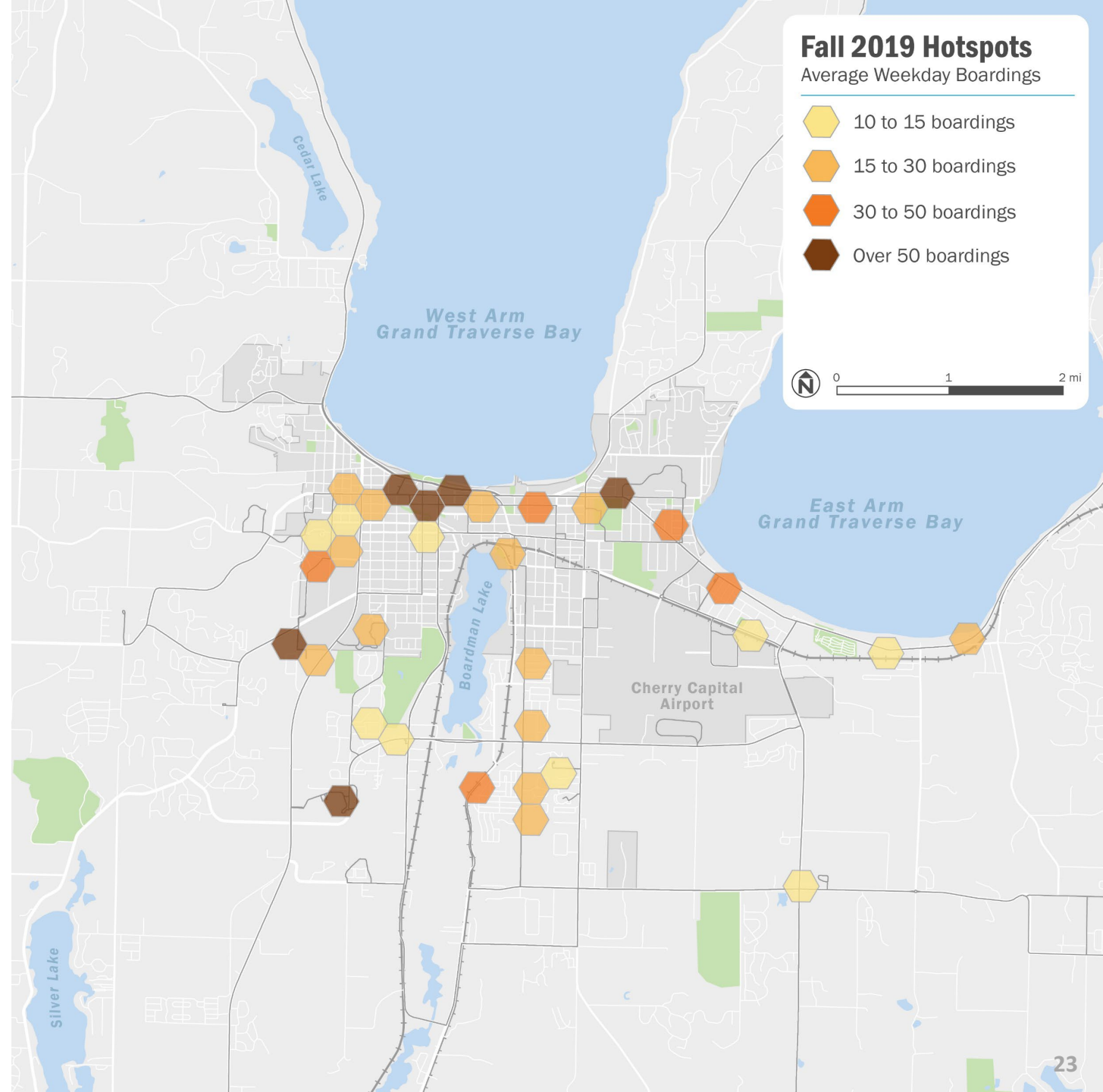
Fall 2019 Ridership Hotspots

A hotspot analysis was conducted for the Fall 2019 and Fall 2021 time periods to observe if there were any locations where ridership was concentrated. Comparing these two analyses highlights the key locations in the region from a transit perspective. In Fall 2019 within the urban core, there were 5 locations with over 50 average weekday boardings shown below.

Location	Average Weekday Boardings
Hall Street Transfer Station	448
Grand Traverse Mall	146
Downtown Traverse City	132
Northwestern Michigan College/Civic Center	99
Meijer	66

Additionally, in Fall 2019, there were 7 locations outside of the urban core (not shown) that presented as ridership hotspots. They are shown below.

Location	Average Weekday Boardings
Woodland School	27
Northland Foods (Kingsley)	17
Maple City	16
Blue Vase Book Exchange	12
Old Mission Peninsula School	12
Homestead Resort	10
Suttons Bay Library	10



Fall 2021 Ridership Hotspots

In Fall 2021 within the urban core, there were 3 locations with over 50 average weekday boardings shown below.

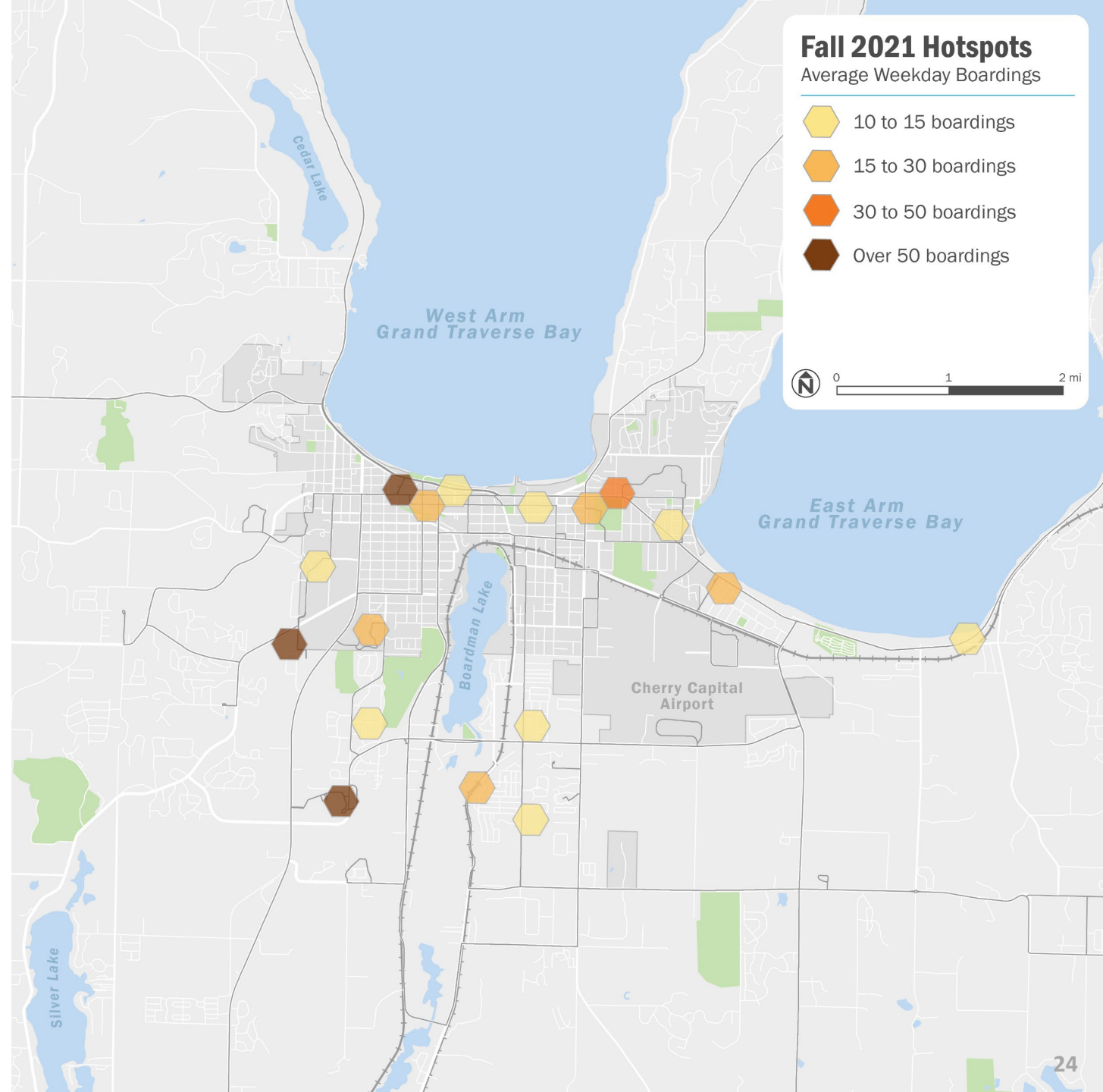
Location	Average Weekday Boardings
Hall Street Transfer Station	221
Grand Traverse Mall	98
Meijer	51

Although the magnitude decreased, all three of these locations were Hotspots in the Fall of 2019 as well. Both hotspots that dropped below 50 remained as hotspots of a lesser intensity.

Outside of the urban core (not shown) two hotspots remained and are shown below.

Location	Average Weekday Boardings
Woodland School	20
Old Mission Peninsula School	13

From Fall 2019 to Fall 2021, within Traverse City, key transit destinations decreased in magnitude, but stayed relatively constant. Outside of Traverse City, the two schools served by the Flex Loops remained as key transit destinations, and all other locations fell below 10 average weekday boardings. However, frequency decreased significantly outside of the urban core, making transit considerably less attractive.



Fixed Route Service

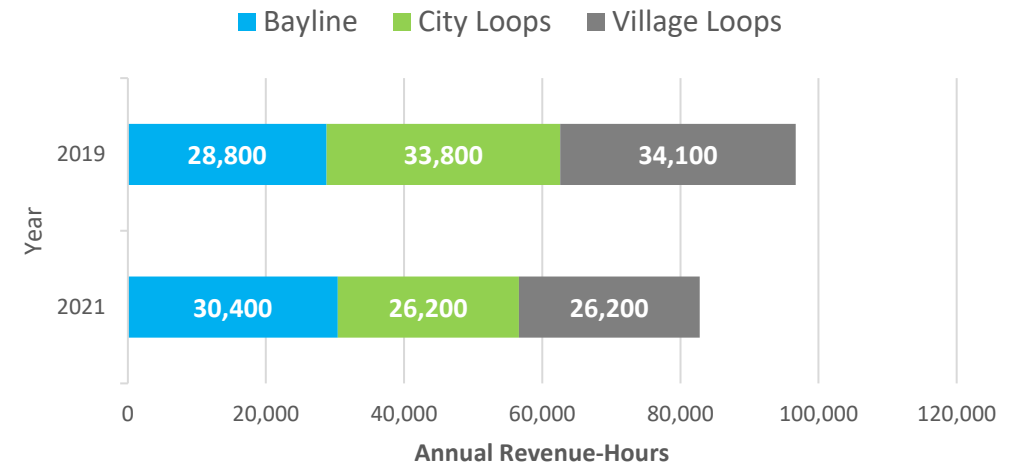
Service Levels

- The national bus driver shortage combined with the COVID-19 pandemic required BATA to significantly reduce its service levels from Fall 2019 to Spring 2022
- Of the services with reductions, Bayline service hour reductions were the least and City Loop service hour reductions were the most
- BATA is actively engaging in hiring efforts to support service restoration and was able to restore some service in Summer 2022

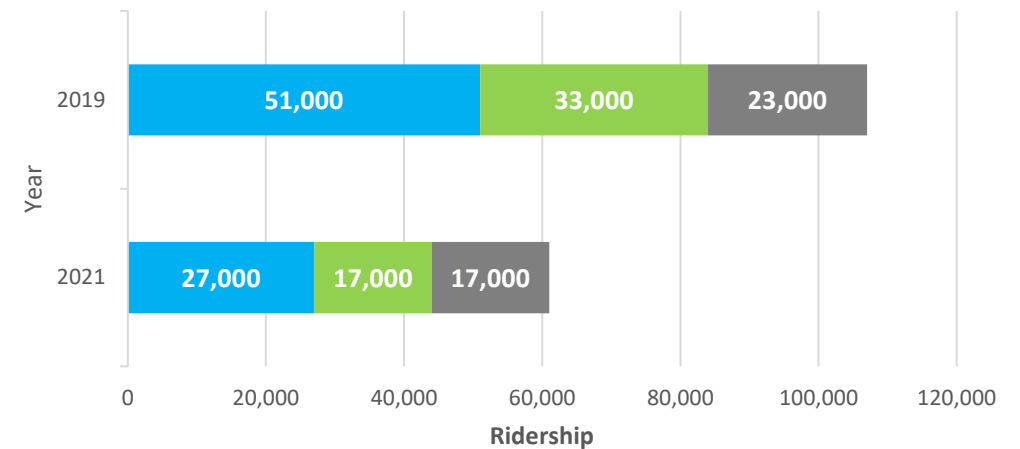
System Level Performance

- From Fall 2019 to Fall 2021, systemwide ridership decreased at a rate faster than revenue hours (43% vs. 18%)
- Top ridership hotspots decreased in magnitude, but were generally still the top locations
- The cost per passenger trip for Village Loop service is significantly higher than for Bayline and City Loop service

Annual Revenue-Hours



Annual Ridership



Fixed Route Service

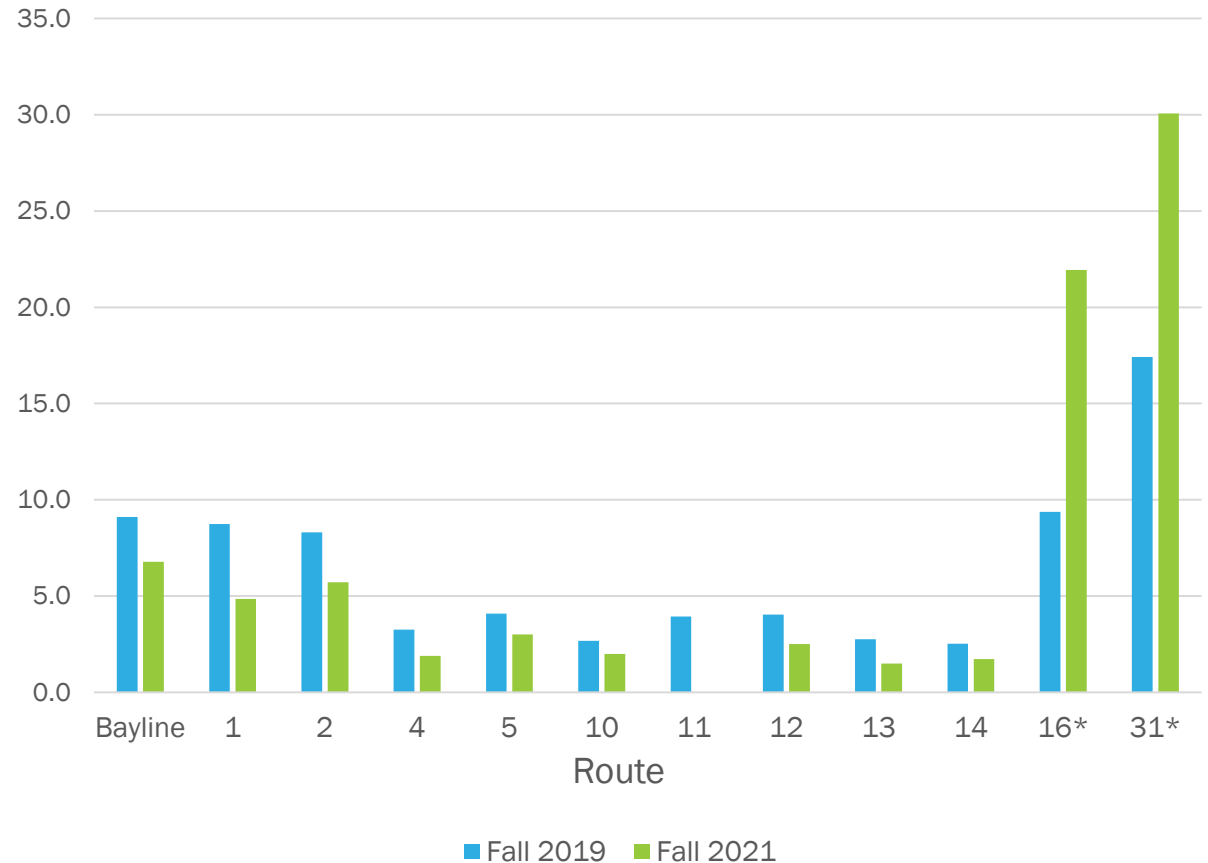
Peer Analysis

- BATA delivers a high volume of service in terms of revenue hours per capita, but BATA's service is the least productive when compared to its peers. However, BATA is able to deliver this service significantly cheaper than its peers

Route Level Performance

- Routes 16 and 31 (the two routes with limited service) have the highest service productivity
- With regards to regular scheduled fixed route service, the Bayline is the most productive, followed by the City Loop routes
- Route ridership losses between 2019 and 2021 generally range from approximately 40 percent to 58 percent, depending on the route

Riders per Revenue-Hour



*Although open to the public, these routes are tailored to a specific market with limited service.

The image shows the interior of a transit vehicle, likely a bus or van, with several rows of seats. The seats are upholstered in a light-colored material with horizontal ribbing. The windows are large and offer a view of a landscape with greenery and a body of water. The text "EMERGENCY EXIT" is visible on the window frames. The entire image has a warm, orange-tinted overlay.

Transit Service Assessment: Link On-Demand and Village Links

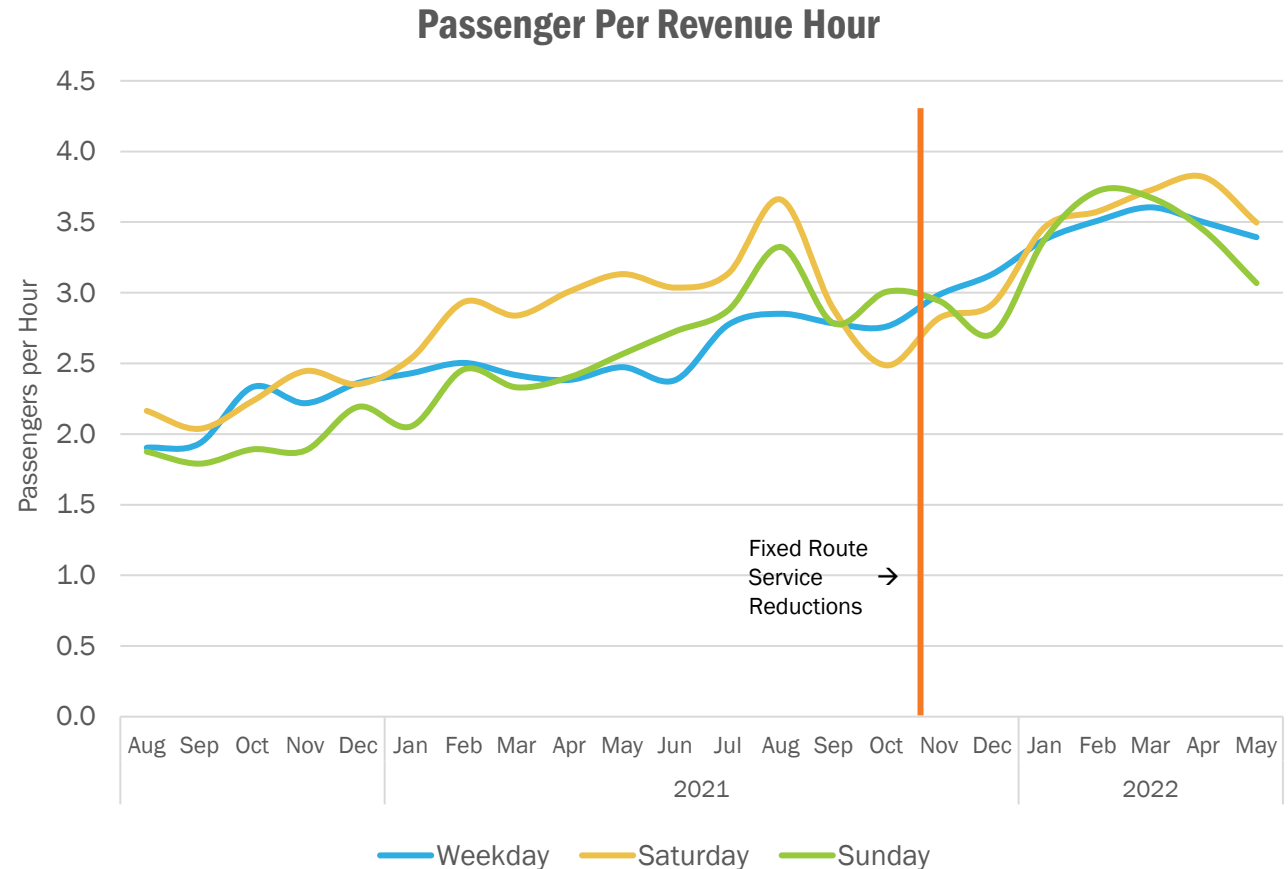
Link On-Demand

Link On-Demand is BATA's app-based demand response service that began operating within Traverse City in the Summer of 2020. Fare is \$6.00/trip and trips can be booked through a mobile app or over the phone without advanced notice. Since its inception, BATA has expanded this service to meet increasing demand.



Link On-Demand Performance

- As the service has matured, efficiency gains have been realized, growing from 2 passengers/hour to just over 3.5 passengers/hour. However, based on the performance of other demand response systems, Link On-Demand is not likely to become much more efficient
- BATA saw increased demand for Link On-Demand service as fixed route service was suspended, resulting in the need for additional Link On-Demand service
- Total trip time on Link On-Demand inclusive of wait time and travel time is typically between 20 and 25 minutes. BATA has been able to maintain this trip time by adding service to Link On-Demand

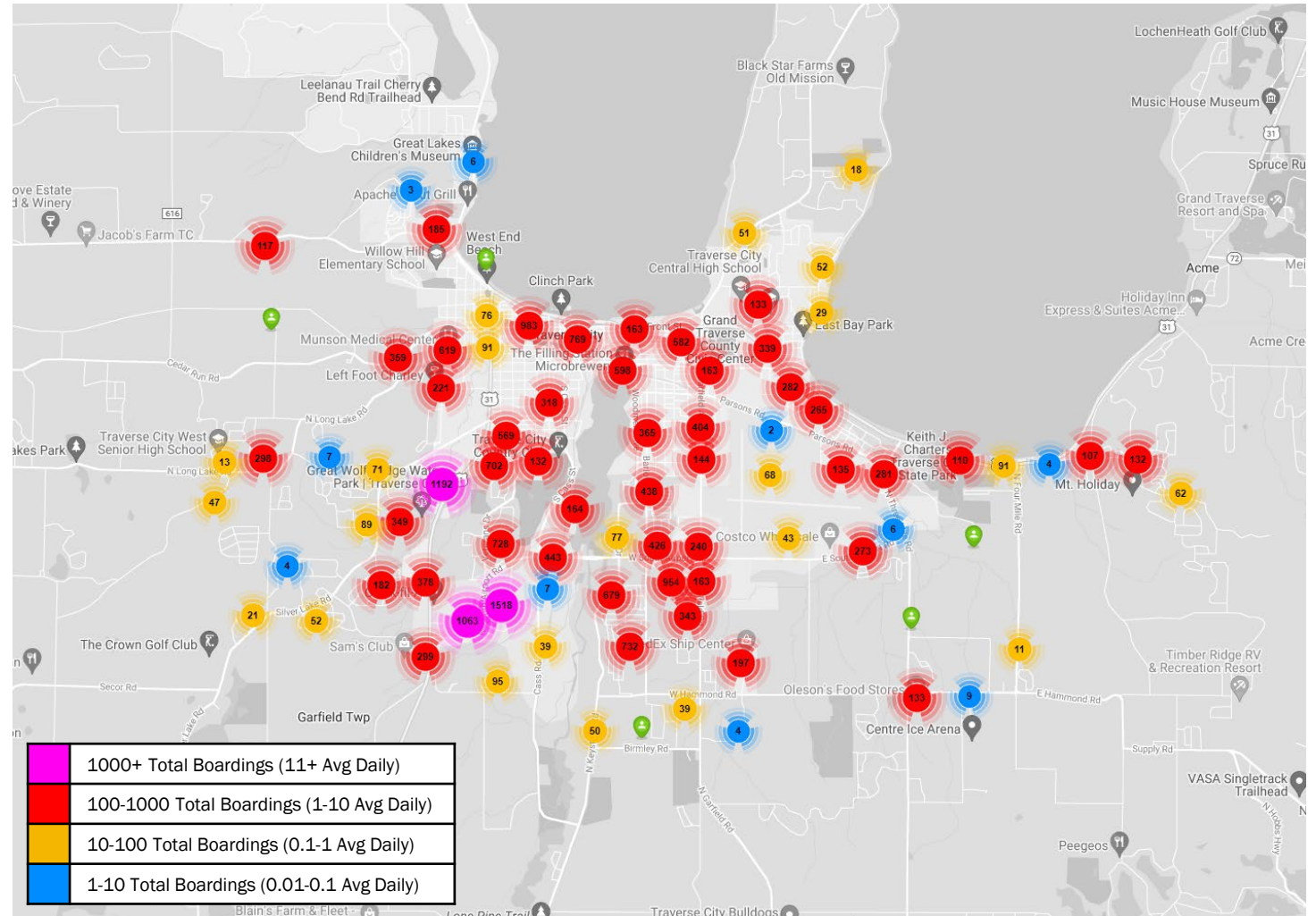


Link On-Demand Origins

From March 1 through June 1, 2022, Link On-Demand saw 21,271 total boardings, or about 231 average daily boardings. A map of boarding locations is shown on the right.

The top five pick-up locations are listed in the table below:

Location	Total Boardings	Avg Daily Boardings
Walmart	1,518	16.5
Meijer	1,192	13.0
Grand Traverse Mall	1,063	11.6
Hall Street Transfer Station	983	10.7
Goodwill Inn	954	10.4



Village Link

Transit Service Assessment

Village Link is BATA's rural demand response service that serves Leelanau and Grand Traverse Counties outside of Traverse City. It operates in five zones that roughly correspond with a Village Loop. Additionally, there is an after-hours Link that runs at night and covers all of Grand Traverse and Leelanau Counties. The service is open to the public, fare is \$3.00/trip and trips can be booked over the phone with advanced notice required. In the absence of some Village Loop service, Village Link has been expanded.



Village Link Performance

Village Link provides a necessary service to residents in rural Grand Traverse and Leelanau counties that cannot easily access a Loop route. However, this service has low productivity figures overall, with Village Link 13 being the most productive in Fall 2021 with 1.5 boardings per hour. The after-hours Link service became considerably busier and more productive from Fall 2021 to Spring 2022

Weekday Boardings per Hour (Village Link)



The image shows the interior of a vehicle, likely a bus or truck, with several rows of seats. The seats are upholstered in a light-colored material with horizontal ribbing. The interior is framed by dark window frames. Above the seats, there are emergency exit signs that read "EMERGENCY EXIT". The entire scene is overlaid with a semi-transparent orange filter. A vertical orange line is positioned to the left of the main text.

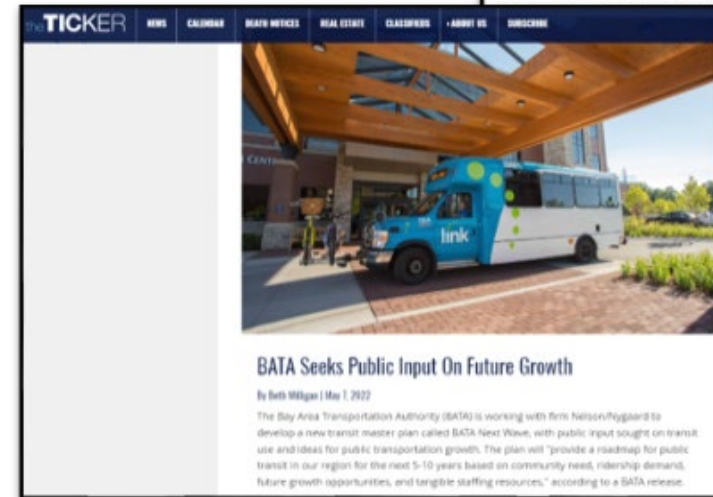
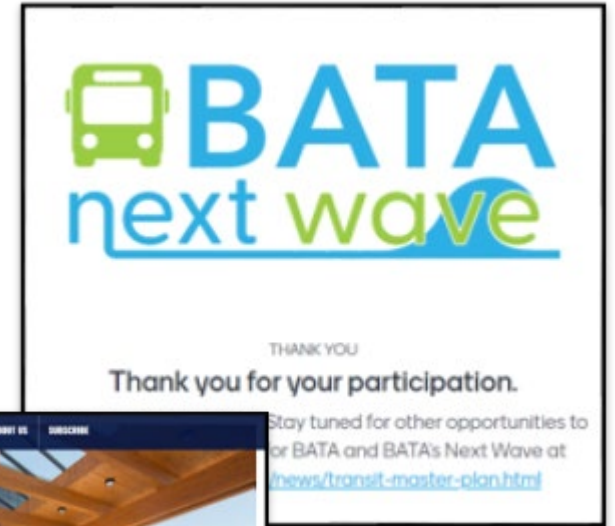
Public, Agency and Stakeholder Input

Public Outreach Efforts

To guide the BATA Next Wave, we completed an initial round of public engagement. We asked the public to take a survey to assess community preferences. This survey was administered using a tool called Mentimeter and was live for 6 weeks. Over 250 people completed the survey both online and in person at multiple public outreach popups at the Hall Street Transit Center, a senior center, and local farmer's markets. The survey was also advertised on the agency's website, on social media, and in the local newspaper.

A second round of public engagement was conducted to obtain feedback on recommendations for BATA's Next Wave project. This feedback was incorporated into the final set of recommendations to guide the next 5-10 years of transit in the region.

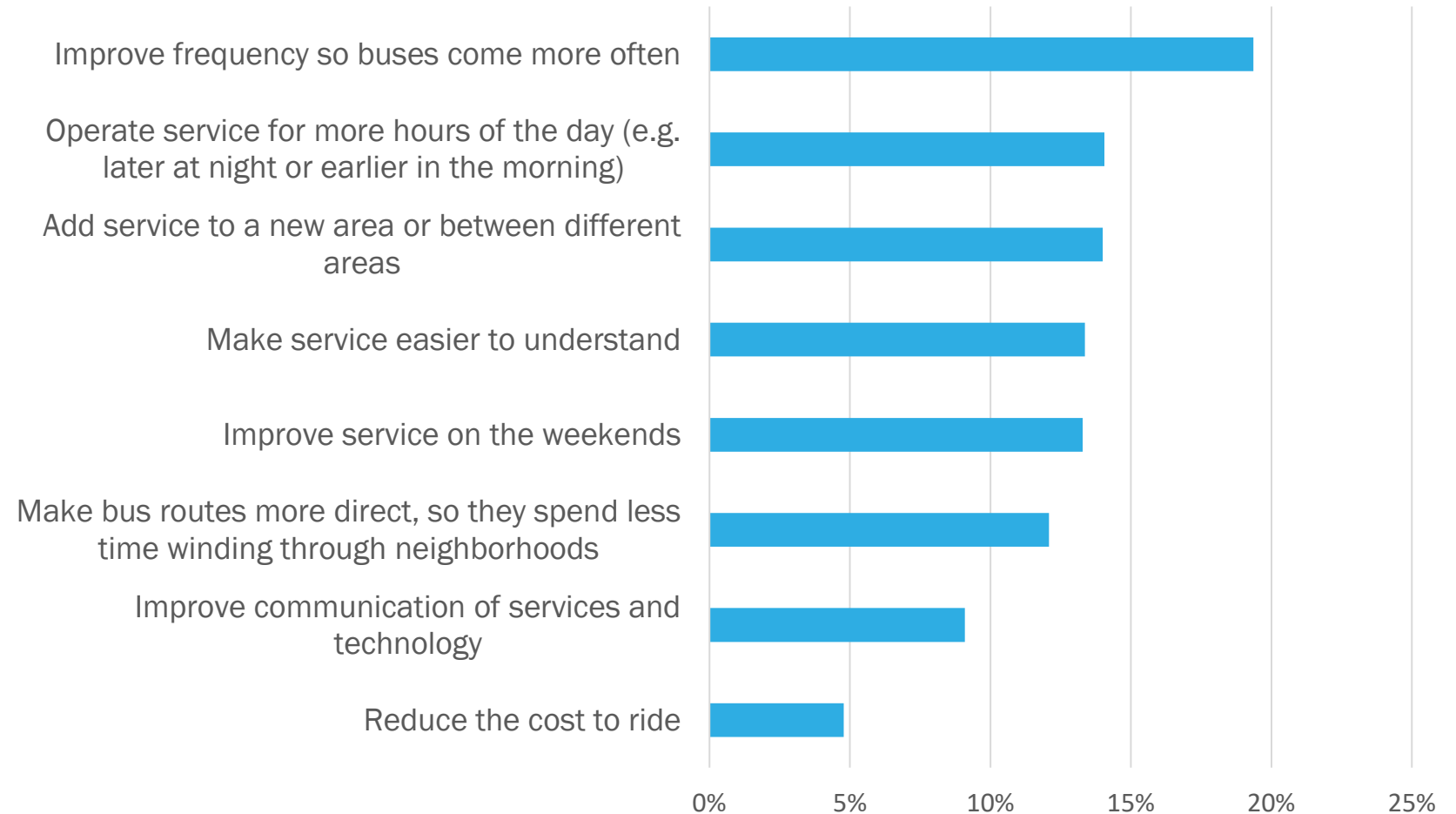
Detailed survey results can be found in this project's **State of the System Report Appendix C: Public and Stakeholder Engagement**



Public Feedback Key Takeaways

- Expanded service and improved frequency are top priorities
- Return of pre-pandemic routes and service
 - Weekend service
 - Routes 4, 5, and 11 mentioned multiple times
- Desire for more effective communication / information on BATA services
- Most respondents felt service is appropriately priced

Improvement priorities to BATA services



Agency and Stakeholder Outreach Efforts

To further define the BATA Next Wave, we also completed an initial round of stakeholder feedback.

On June 3, BATA held a virtual stakeholder engagement meeting to obtain input on the Next Wave project. 10 stakeholders participated in this meeting from a variety of organizations including City of Traverse City: Planning Department, Networks Northwest, Groundworks, Traverse Area District Library, and Benzie Bus. The project team presented information about the project and summarized recent service and ridership trends. Stakeholders gave feedback through a series of multiple questions using Mentimeter and through open-ended discussion questions.

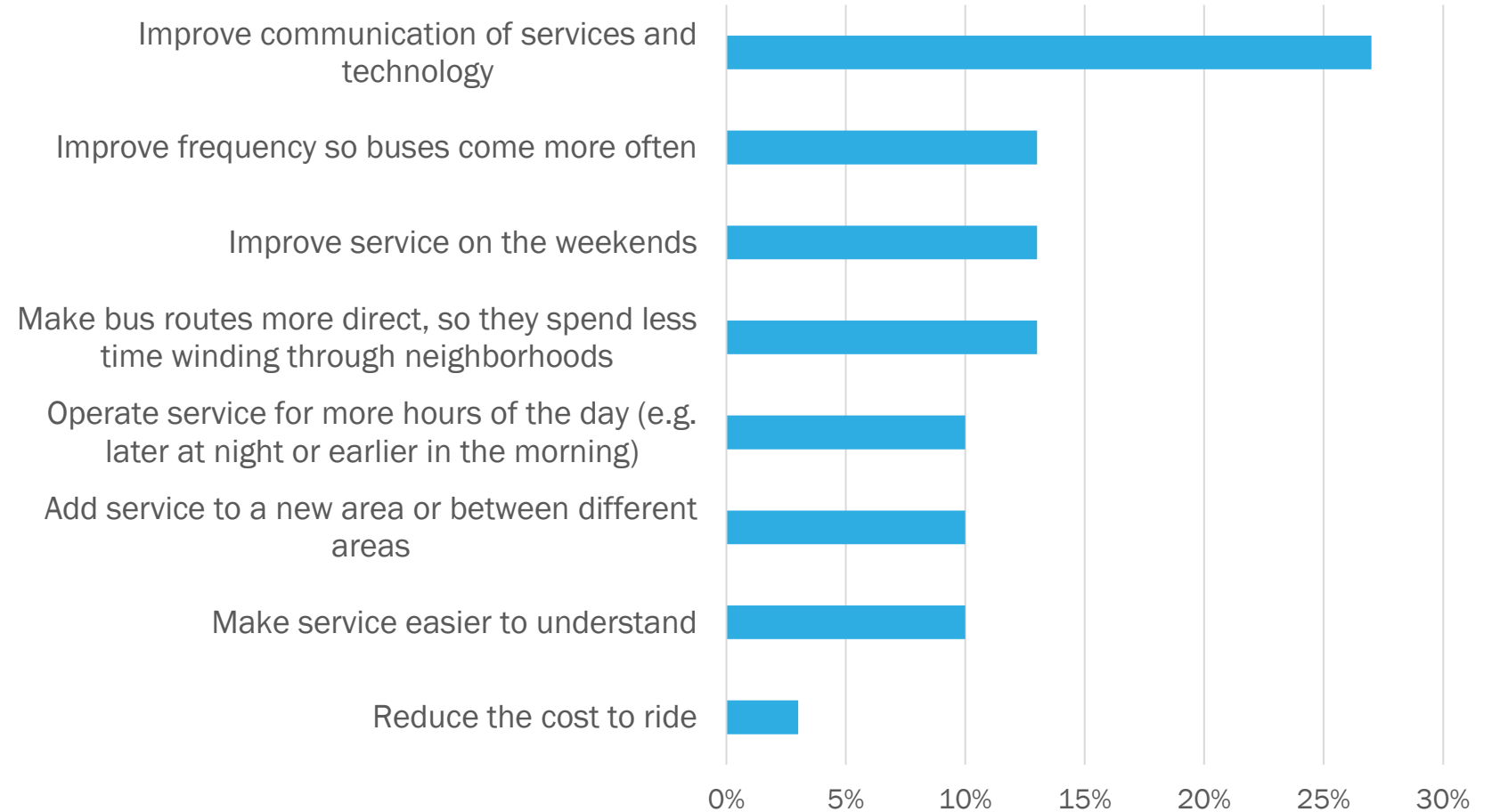
A second round of stakeholder engagement was conducted on August 31 to obtain feedback on recommendations for BATA's Next Wave project. This feedback was incorporated into the final set of recommendations to guide the next 5-10 years of transit in the region.



Stakeholder Feedback Key Takeaways

- Desire for more effective communication on BATA services
- Improving aspects of the existing service is more important than adding new service
- Agreement with public that BATA service is appropriately priced

Changes to BATA service most important to stakeholders





Project Goals

Project Design Goals

Completion of the BATA service analysis, the travel market assessment and input received from the public and stakeholders resulted in identification of the following three project design goals. These informed decision making when the new network was being developed.



Service Levels



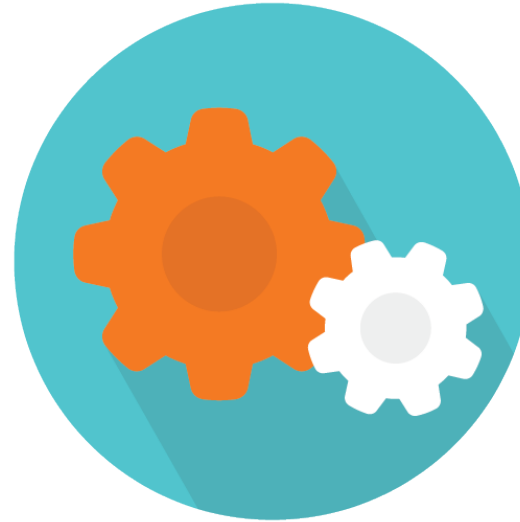
Reliability



Clarity

Service Levels

The project goal “Service Levels” reflects transit accessibility for potential riders. Characteristics associated with service levels include coverage, frequencies, span and route alignment. Three objectives were identified under the category Service Levels, as shown on this page.

**1**

Improve transit service in a productive and cost-efficient way.

2

Strengthen connections to key destinations.

3

Coordinate fixed route services with demand response and microtransit services.

Reliability

The project goal “Service Reliability” reflects dependability of transit to the rider. A customer must have confidence that the travel experience will be consistent, and buses will be operating on-schedule. Three objectives were identified under the category Reliability, as shown on this page.

**1**

Provide sufficient recovery for fixed routes to remain on-schedule.

2

Establish sufficient service spans and frequencies.

3

Create a service schedule with no more than 3 changes per year.

Clarity

The project goal “Clarity” relates to a rider’s ability to understand how the system operates. A person is more likely to use transit if the service is easy to understand and easy to access. Two objectives were identified under the category Clarity, as shown on this page.

**1**

Consolidate services categories and coordinate associated fares.

2

Create simple route and schedule pamphlets to support rider trip planning.



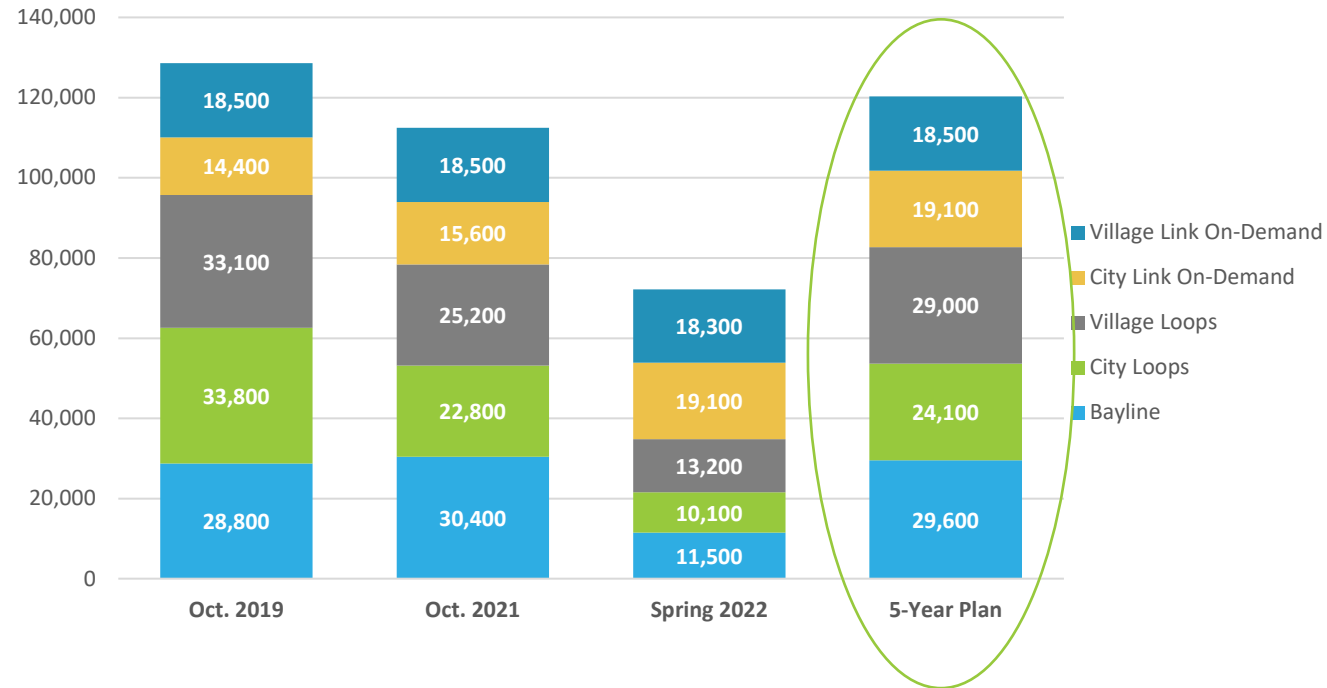
Service Recommendations

Next Wave Service Targets

Service recommendations have been developed for a 5-year and 10-year period. The 5-year service plan is fiscally constrained to reflect anticipated funding over the 5-year period. Historical costs and service hours were considered in the determination of fiscally-constrained 5-year plan service hours. A target of 120,000 annual bus-hours of service was determined to be financially feasible, as shown in the adjacent graph. This target is slightly below service levels provided in October 2019 (i.e., pre-pandemic).

The 10-year plan includes additional service improvements that BATA should consider longer-term, if additional funding is available.

Historical and Proposed 5-Year Plan Service Hours
Annual Service Hours



Next Wave Target = 120,000 annual hours

* Not inclusive of agency and enhanced special event-related service hours

The image shows the interior of a vehicle, likely a bus or van, with a warm orange tint. In the foreground, there are three rows of seats with a ribbed texture. Behind the seats is a large window that looks out onto a beach and the ocean. The words "EMERGENCY EXIT" are visible in red text above and below the window frame. A vertical orange line is on the left side of the image.

5-Year Service Plan

Network Structure

Key network design characteristics of the 5-year service plan are as follows:

City Services

- Bayline is the backbone of the system and should continue to be emphasized as such
- All City Loop service to operate at 30-minute frequencies on weekdays
- Utilize BATA's new operating facility on Hammond to create efficiencies

County Services

- Replace Village Link with Village Link On-Demand service to connect low activity locations with Village Loop service at pre-defined transfer points
- Serve high activity locations with Village Loop service at 60-minute frequencies throughout the day.
- Truncate Village Loop service at key transfer points on the periphery of Traverse City, with connections to the Bayline and City Loops
- Improve Village Link (On-Demand) service efficiencies through better zonal definitions

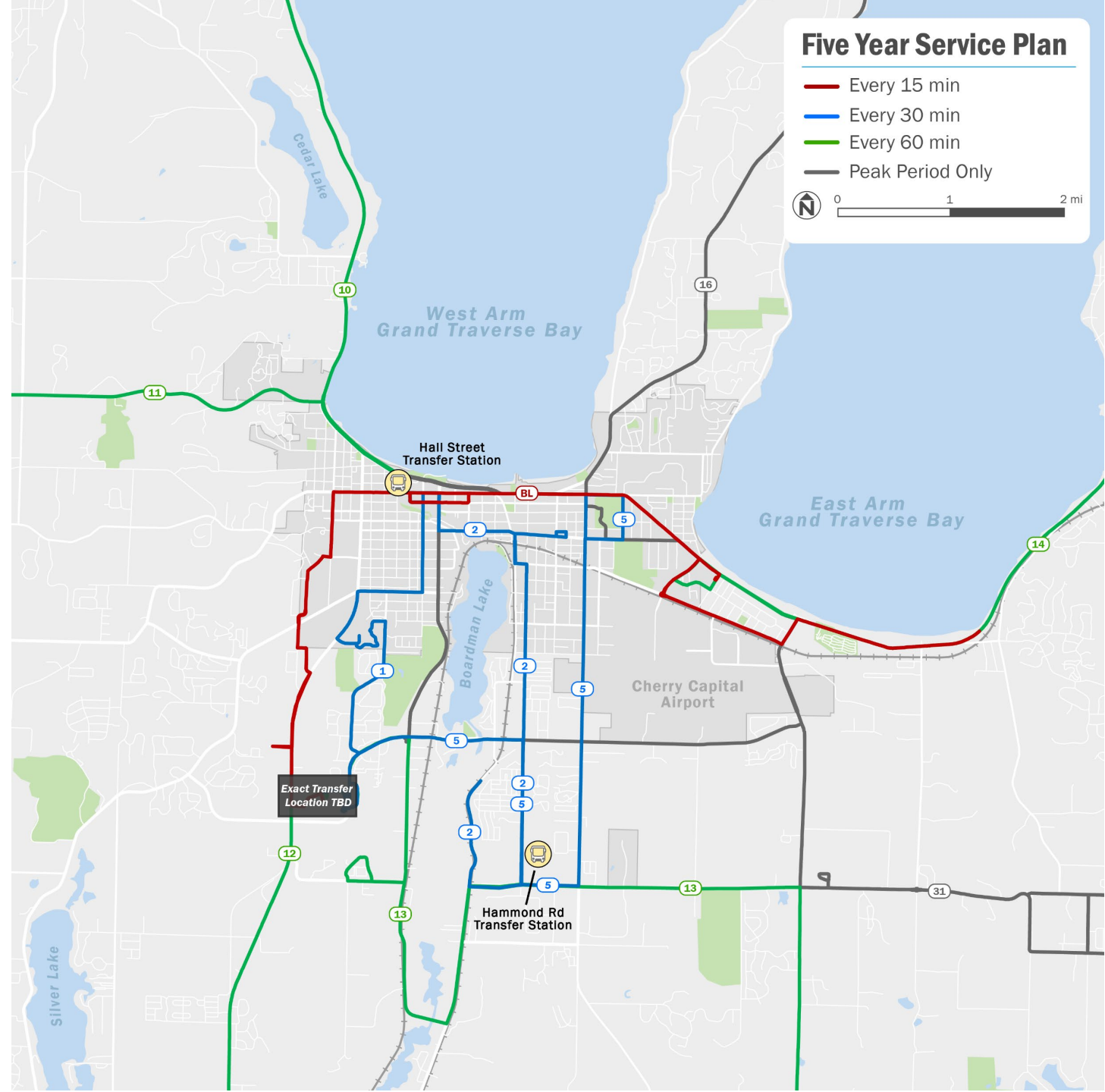
City Loop Service

City Loop service improvements can be summarized as follows:

- Restore Bayline to 15-minute service frequencies and extend to G.T. Mall area
- Restore Routes 1 and 2 to 30-minute service on weekdays
- Implement new crosstown service (Route 5) at 30-minute service
- Provide Saturday service on all City Loop routes
- Provide Sunday service on Bayline, Routes 1 and 2

Individual route sheets are provided on the following pages.

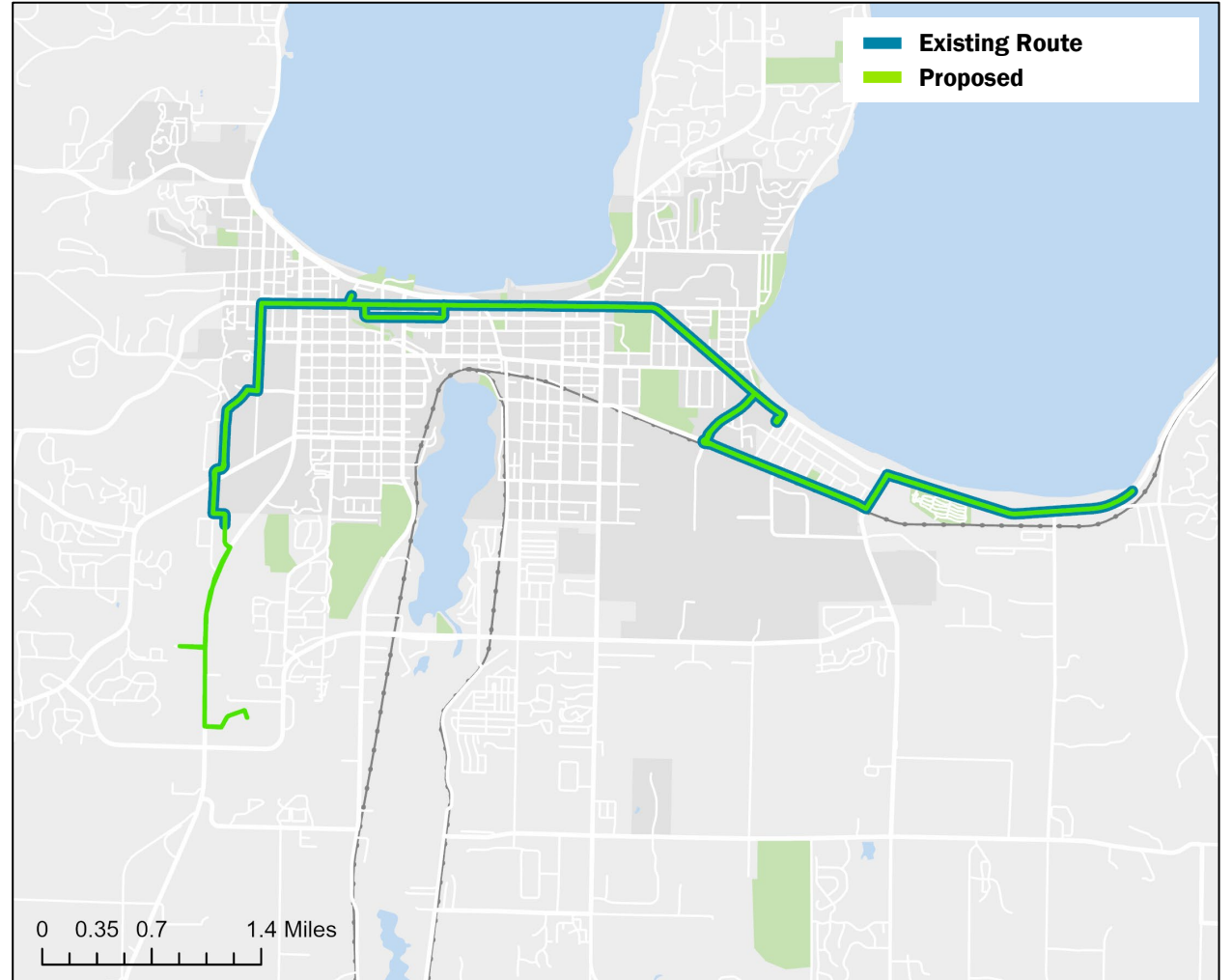
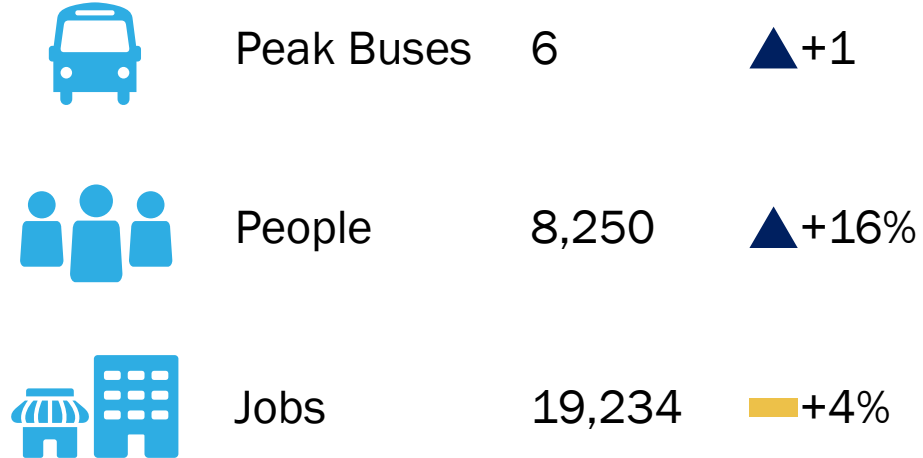
The amount of people with access to 30-minute or better service will increase up to 32% from Fall 2021



Bayline



Proposed Service Statistics:



Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday		■	■										■	■	■	■	■	
Saturday		■	■										■	■	■	■	■	
Sunday		■	■										■	■	■	■	■	

■ = 15 min. service frequency
 ■ = 30 min. service frequency

Route 1

Fall 2021

Every 30 minutes

6,900
Annual Revenue
Hours



Proposed

Every 30 minutes

8,600
Annual Revenue
Hours

Proposed Service Statistics



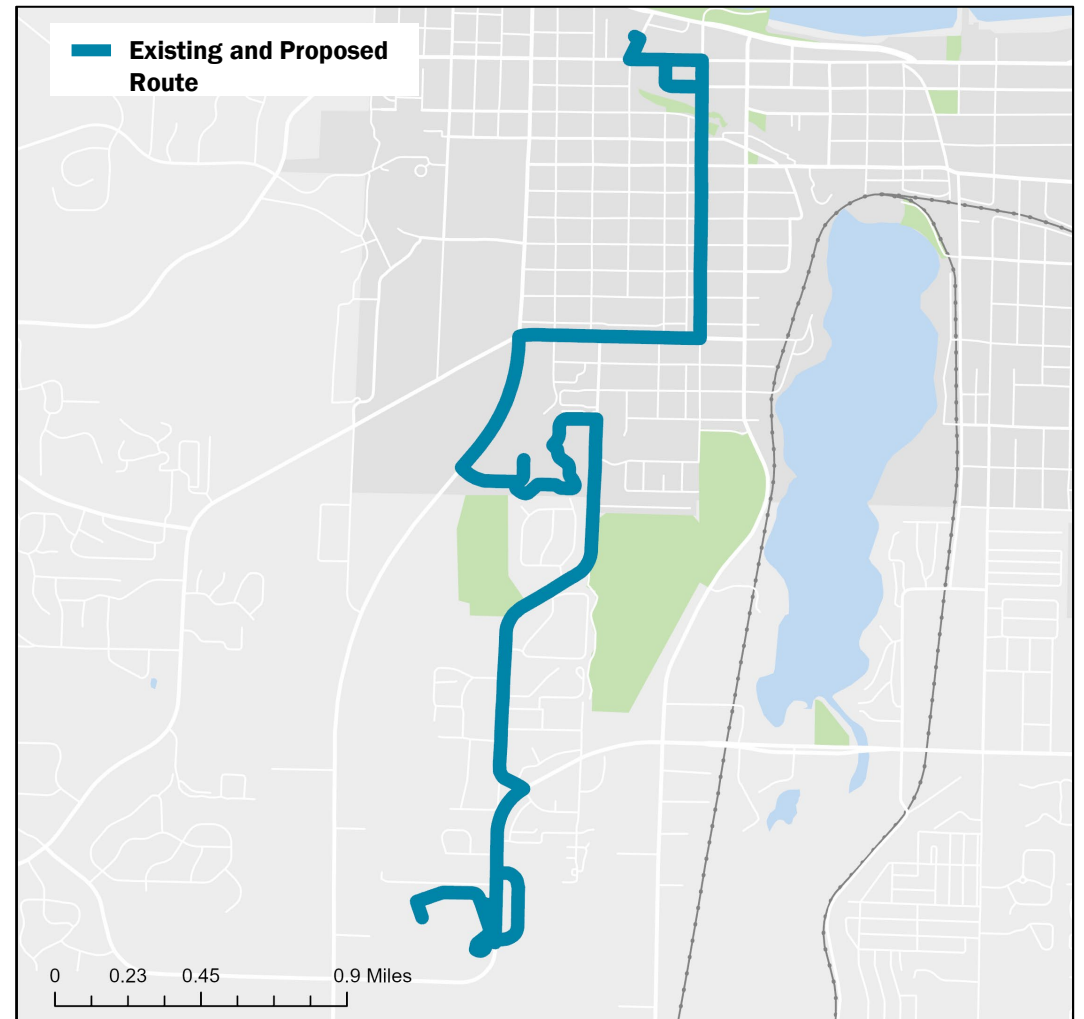
Peak Buses 2



People 5,578



Jobs 7,662

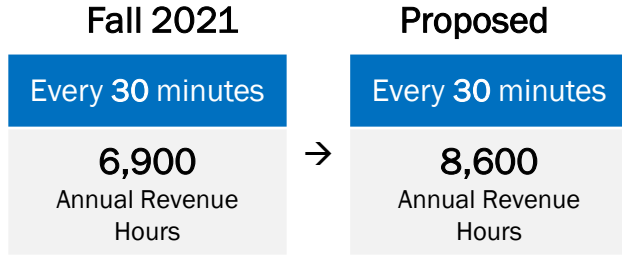


Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green		
Saturday				Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green		
Sunday				Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green		

Blue = 30 min. service frequency
Green = 60 min. service frequency

Route 2



Proposed Service Statistics



Peak Buses 2



People 7,485



Jobs 10,922

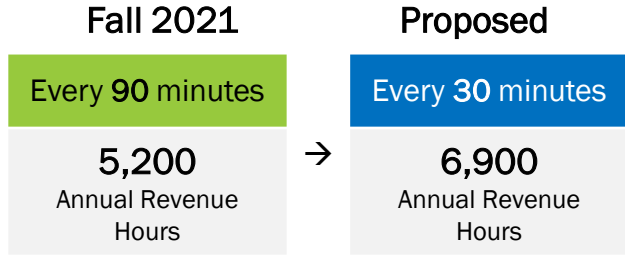


Service Span and Service Frequencies

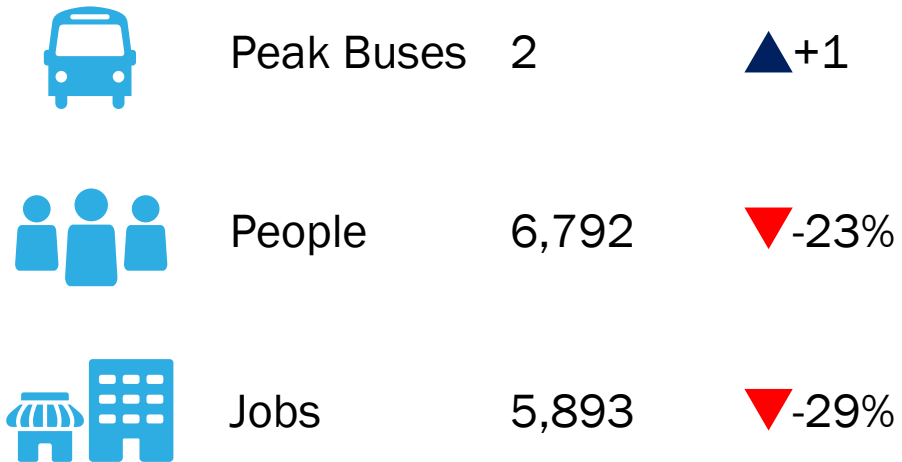
Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Blue	Green	Green	Green	Green	Green
Saturday				Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Sunday				Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

Blue = 30 min. service frequency
 Green = 60 min. service frequency

Route 5

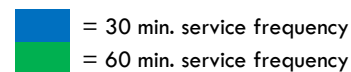


Proposed Service Statistics



Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday		■	■	■	■	■	■	■	■	■	■	■	■					
Saturday				■	■	■	■	■	■	■	■	■	■					
Sunday																		



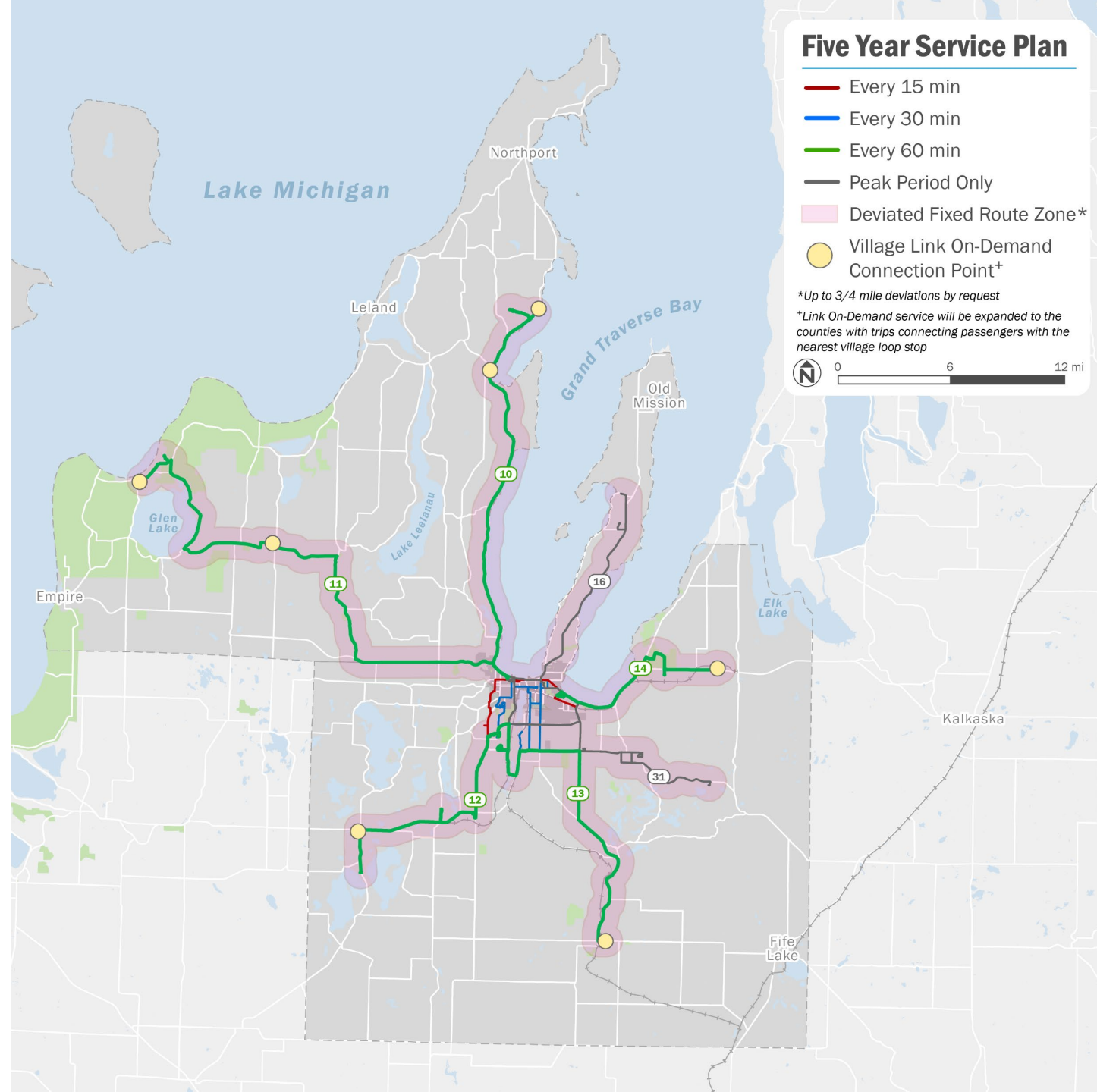
Village Loop Service

Village Loop service improvements can be summarized as follows:

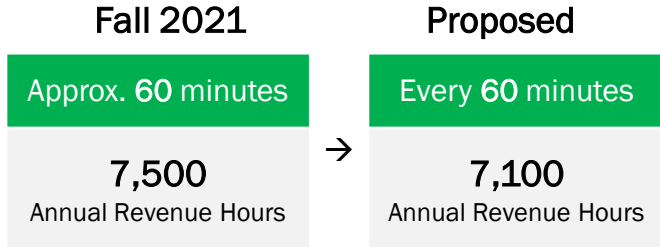
- Shorten outer ends-of-lines on most Village Loop routes
- Introduce Village Link On-Demand service with designated connection points to Village Loop routes
- Truncate Routes 12 and 13 at G.T. Mall area, with connections to frequent City Loop service
- Truncate Route 14 in vicinity of Munson Medical Center with connection to Bayline
- Village Loop routes to operate at regular 60-minute service frequencies (not including Routes 16 and 31)

Individual route sheets are provided on the following pages.

An estimated 57,000 people will have access to 60-minute Village Loop service.



Route 10



Proposed Service Statistics



Peak Buses 2



People 12,999 ▼ -15%



Jobs 17,088 ▼ -7%



Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday																		
Saturday																		
Sunday																		

= 60 min. service frequency

Route 11

Fall 2019

Every 120 minutes

4,700

Annual Revenue Hours



Proposed

Every 60 minutes

7,100

Annual Revenue Hours

Proposed Service Statistics



Peak Buses 2

▲ +1



People 12,212

▼ -11%



Jobs 17,226

▼ -6%



Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday																		
Saturday																		
Sunday																		

■ = 60 min. service frequency

Route 12

Fall 2021

Approx. 60 minutes

6,300
Annual Revenue Hours

Proposed

Every 60 minutes

5,100
Annual Revenue Hours



Proposed Service Statistics



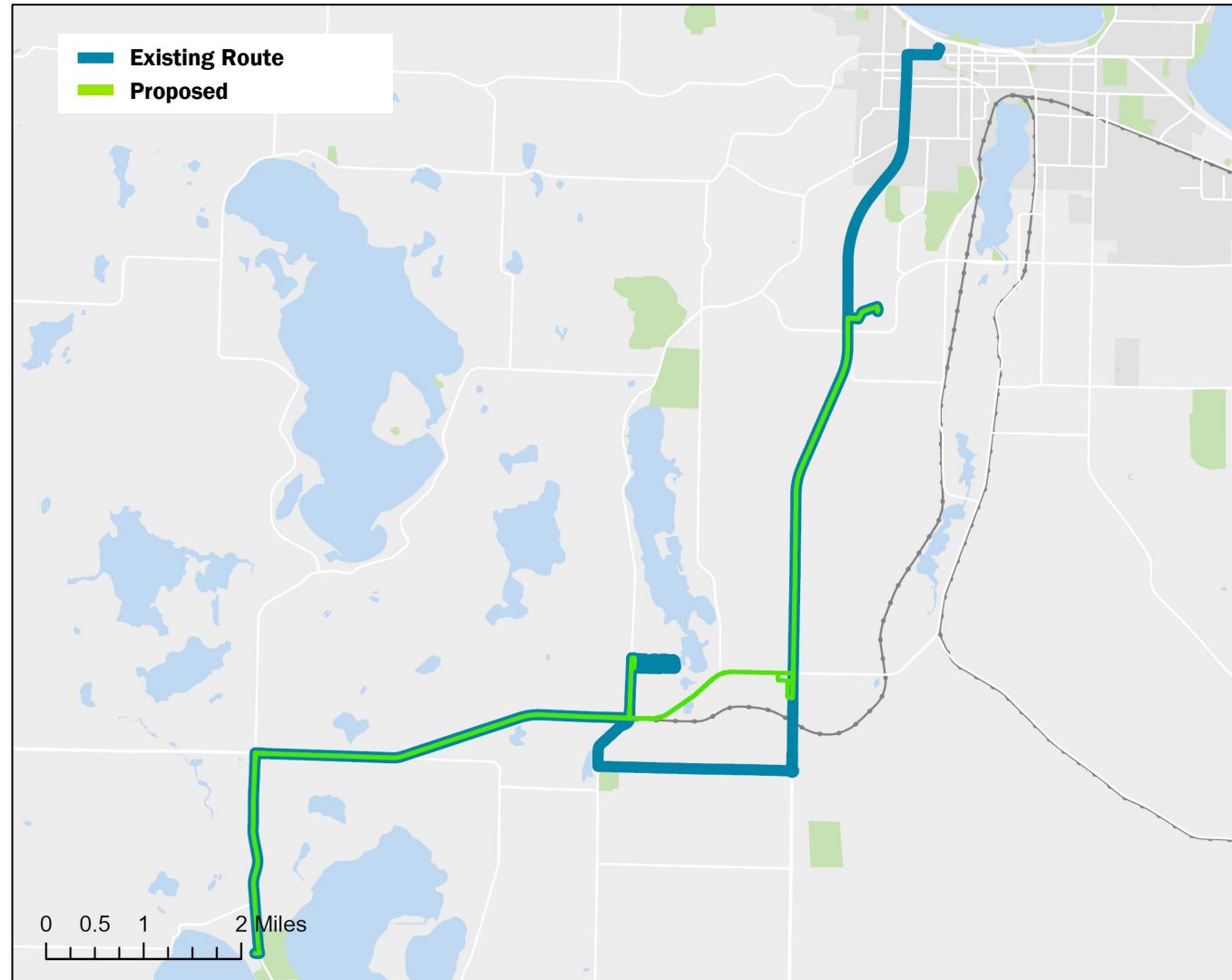
Peak Buses 1.5* ▼ -0.5
*interlined with Route 13



People 12,578 ▼ -46%



Jobs 5,023 ▼ -81%



Service Span and Service Frequencies

Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday		■	■	■	■	■	■	■	■	■	■	■	■					
Saturday			■	■	■	■	■	■	■	■	■	■	■					
Sunday																		

■ = 60 min. service frequency

Route 13

Fall 2021

Every 120 minutes

4,700

Annual Revenue Hours



Proposed

Every 60 minutes

5,600

Annual Revenue Hours

Proposed Service Statistics



Peak Buses 1.5*

▼ -0.5

*interlined with Route 12



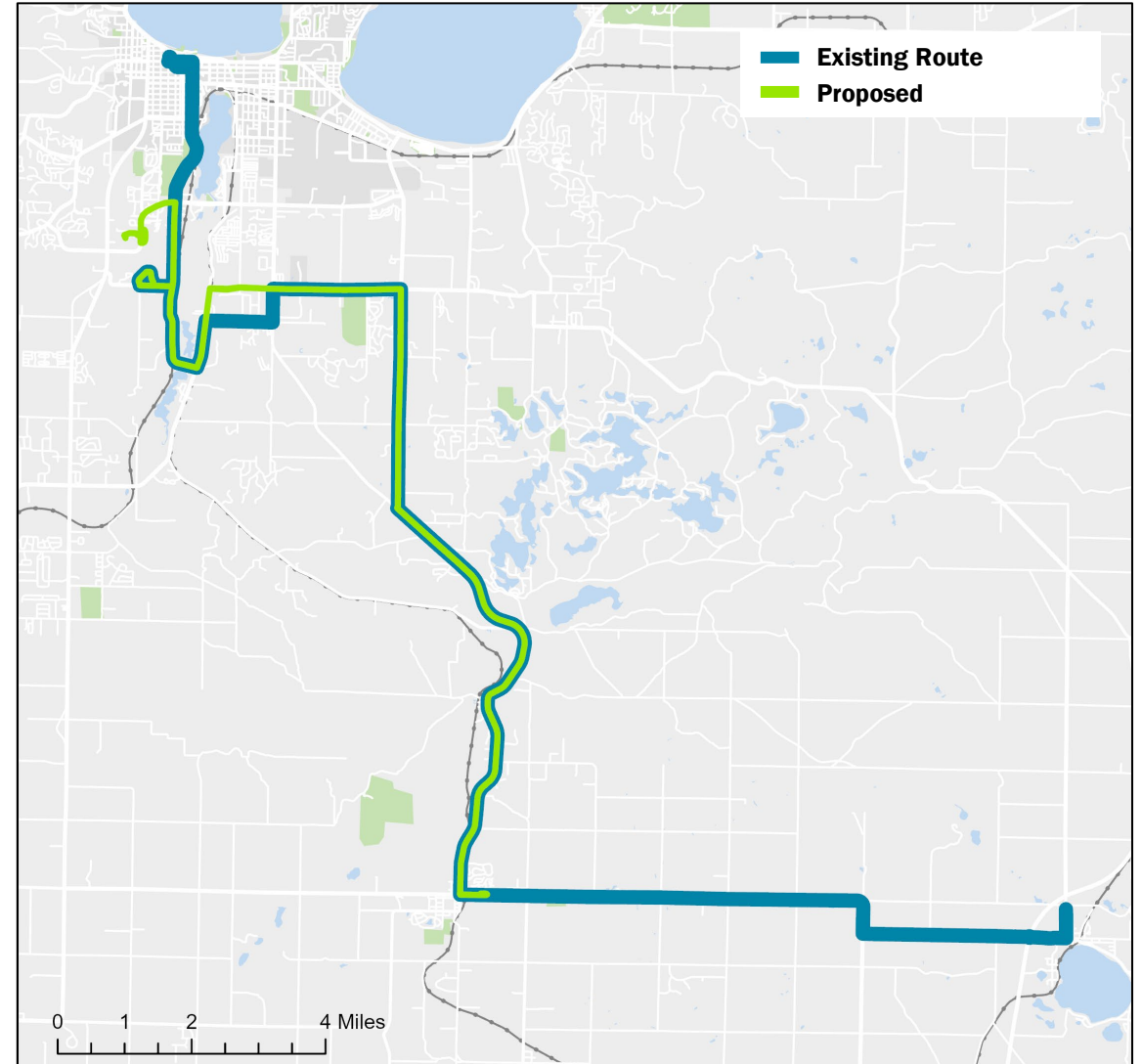
People 15,521

▼ -41%



Jobs 11,627

▼ -65%

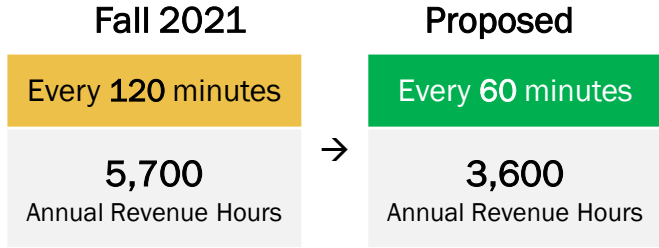


Service Span and Service Frequencies

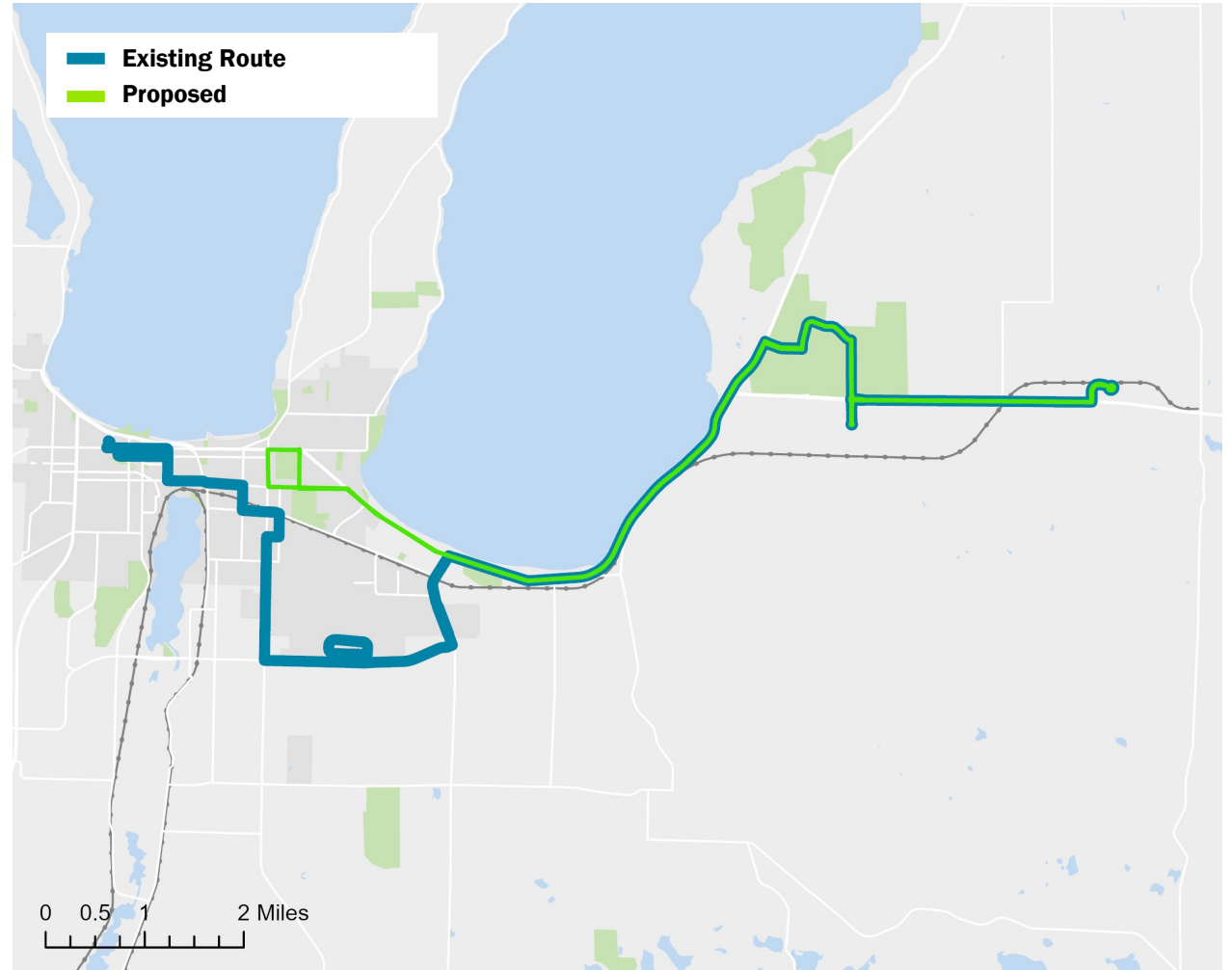
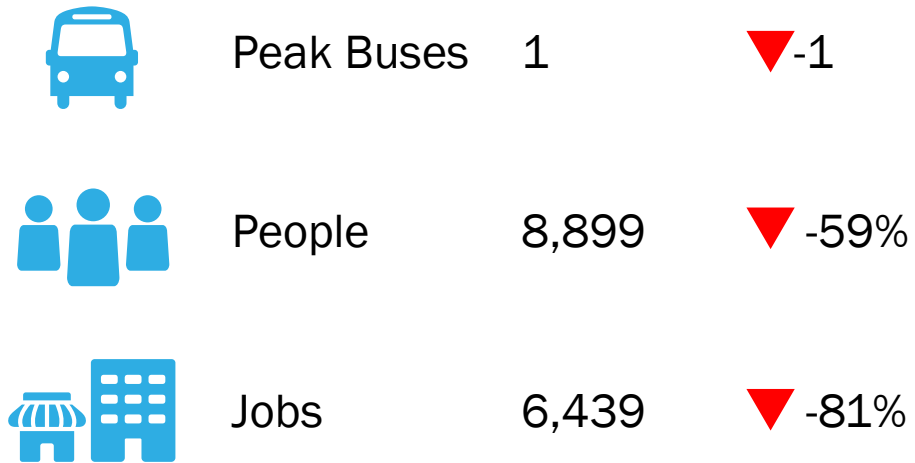
Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday		█	█	█	█	█	█	█	█	█	█	█	█					
Saturday				█	█	█	█	█	█	█	█	█	█					
Sunday																		

█ = 60 min. service frequency

Route 14



Proposed Service Statistics



Service Span and Service Frequencies

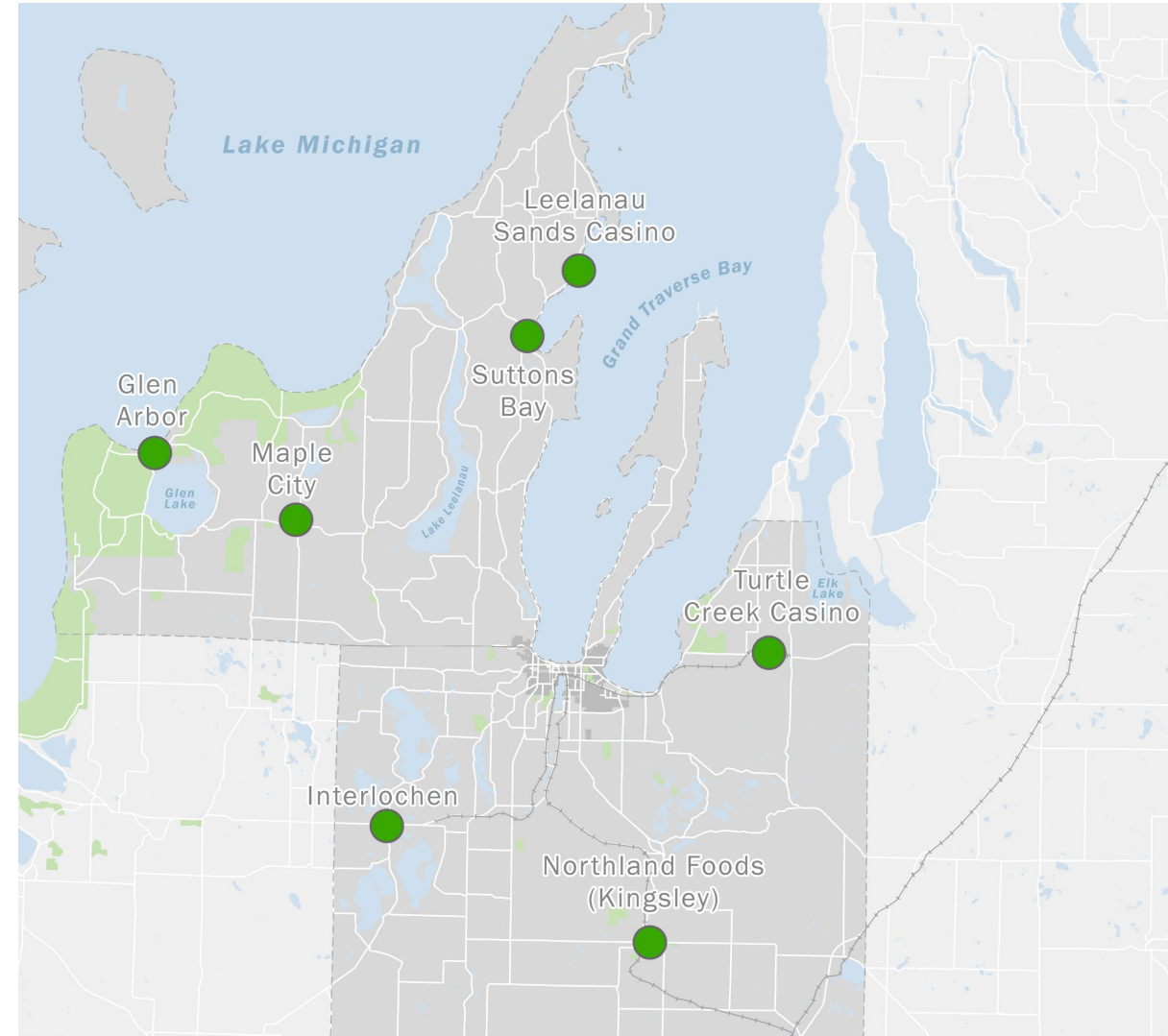
Day	6a	7a	8a	9a	10a	11a	12p	1p	2p	3p	4p	5p	6p	7p	8p	9p	10p	11p
Weekday		■	■	■	■	■	■	■	■	■	■	■	■					
Saturday																		
Sunday																		

■ = 60 min. service frequency

Village Link On-Demand - Connections to Fixed Route service

The 5-year plan proposes conversion of current Village Link service to a model similar to Traverse City's Link On-Demand. Better defined zones and connection points to fixed route service are proposed.

- **Leelanau – potential 3 zones**
 - North connection points – Sands Casino and Suttons Bay
 - West connection points – Glen Arbor and Maple City
 - South connection points – Hall Street Transfer Station
- **Grand Traverse – potential 5 zones**
 - Mission Peninsula connection point – Hall Street Transfer Station
 - South of Traverse City connection points – Meijer, Grand Traverse Mall and Hammond Transfer Station
 - West connection point – Interlochen
 - Southeast connection point – Kingsley/Northland Foods
 - Northeast connection point – Williamsburg/Turtle Creek Casino
- Village Link service to operate when Village Loop service is in operation





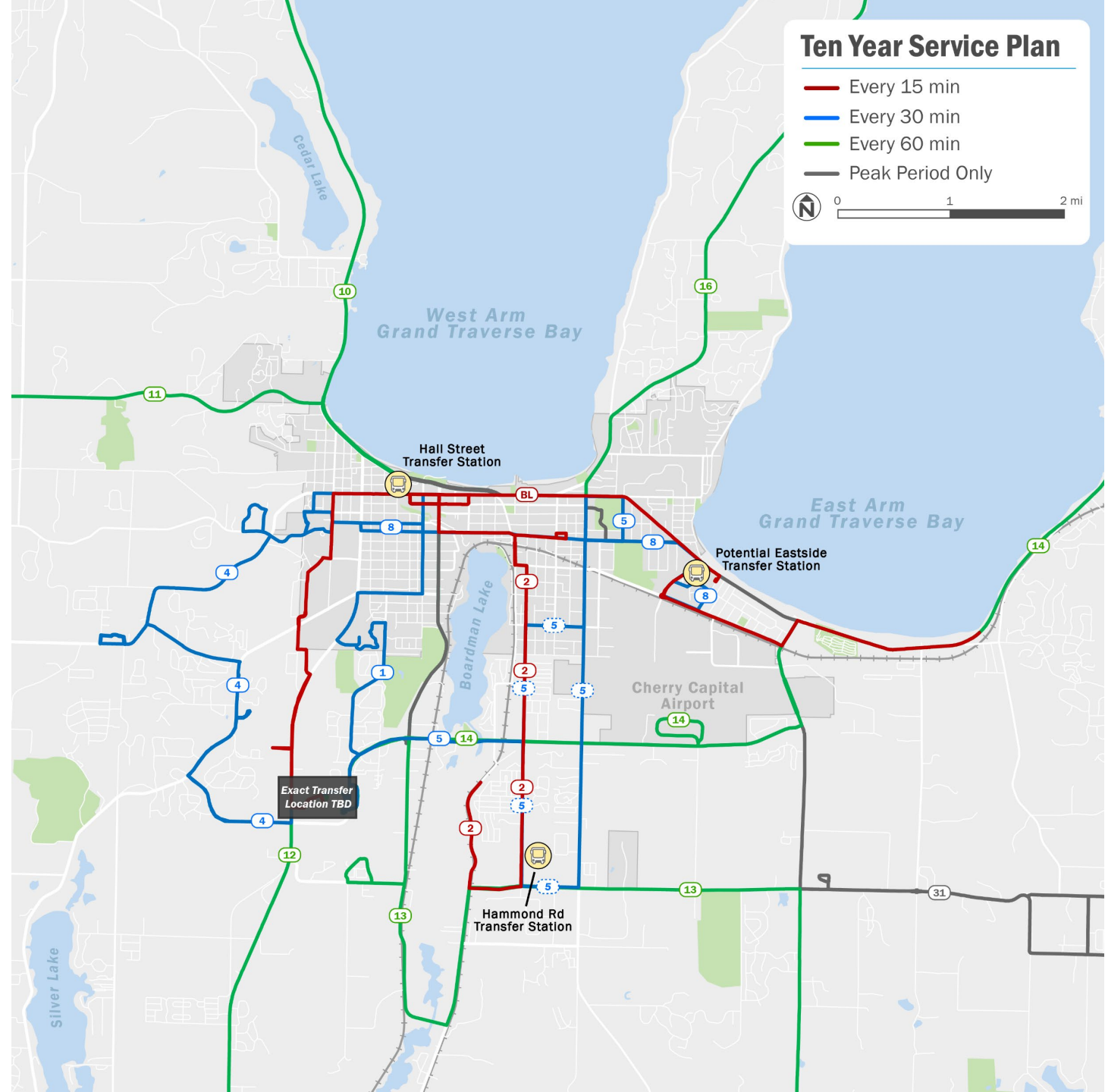
| 10-Year Service Concept

City Loop Service

Additional service improvements in Traverse City that are beyond the 5-year fiscally-constrained plan are as follows:

- Frequency improvements
 - Route 2: 15-minute weekday service
 - Routes 1 and 2: 30-minute Saturday service
- New Routes
 - Westside service (Route 4)
 - Eighth Street crosstown
- Potential new eastside hub
- Other potential considerations in the future:
 - Hartman-Hammond Bridge
 - Intercity Train service to Traverse City

Access to 15-minute service increases by 60% when compared to Fall 2021 service.

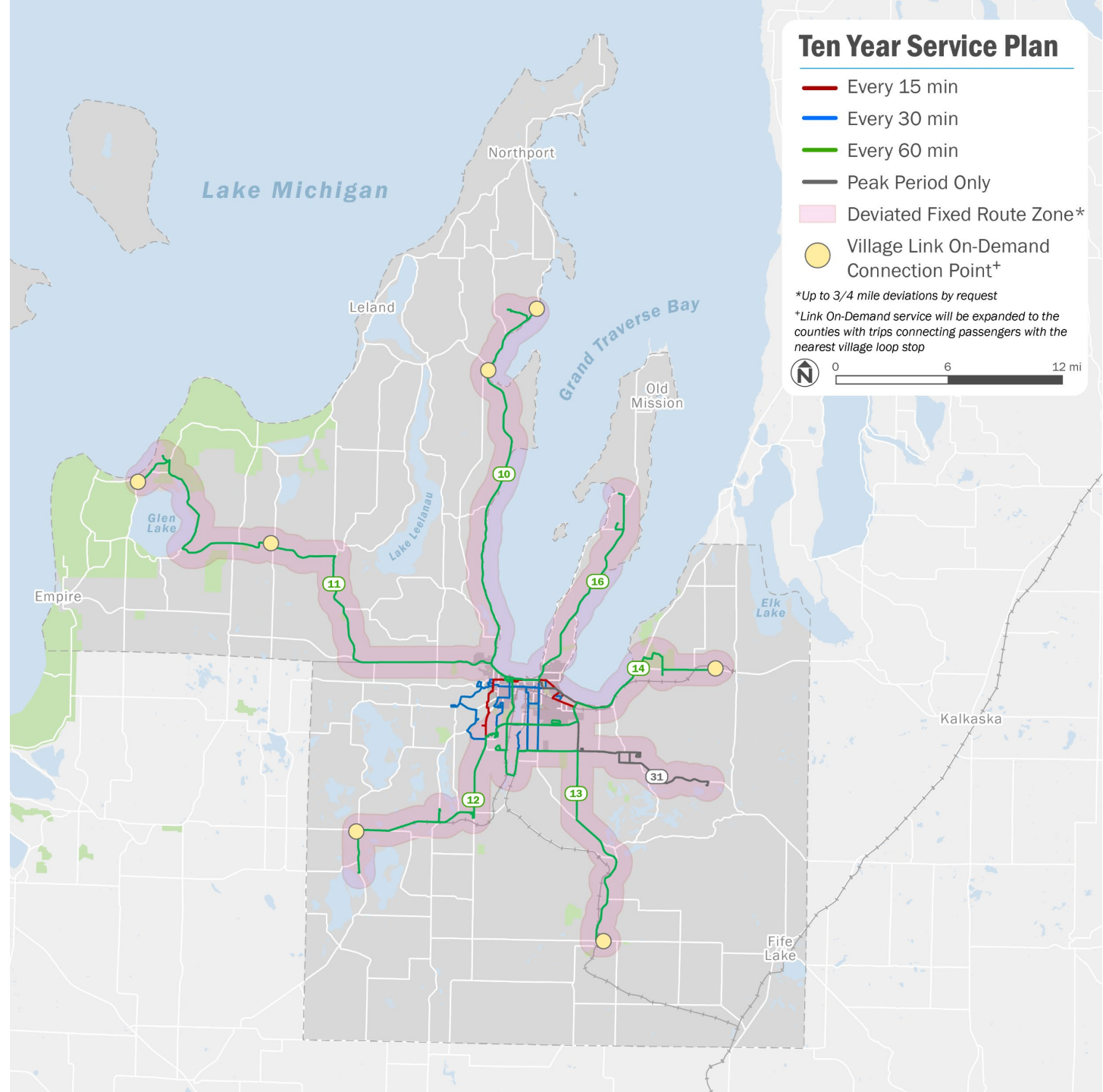


Village Loop Service

Additional service improvements outside of Traverse City that are beyond the 5-year fiscally-constrained plan are as follows:

- Route 16 service expanded to all-day service
- Saturday service on all Village Loop routes
- Route 14 extended to Grand Traverse Mall area via Airport Road

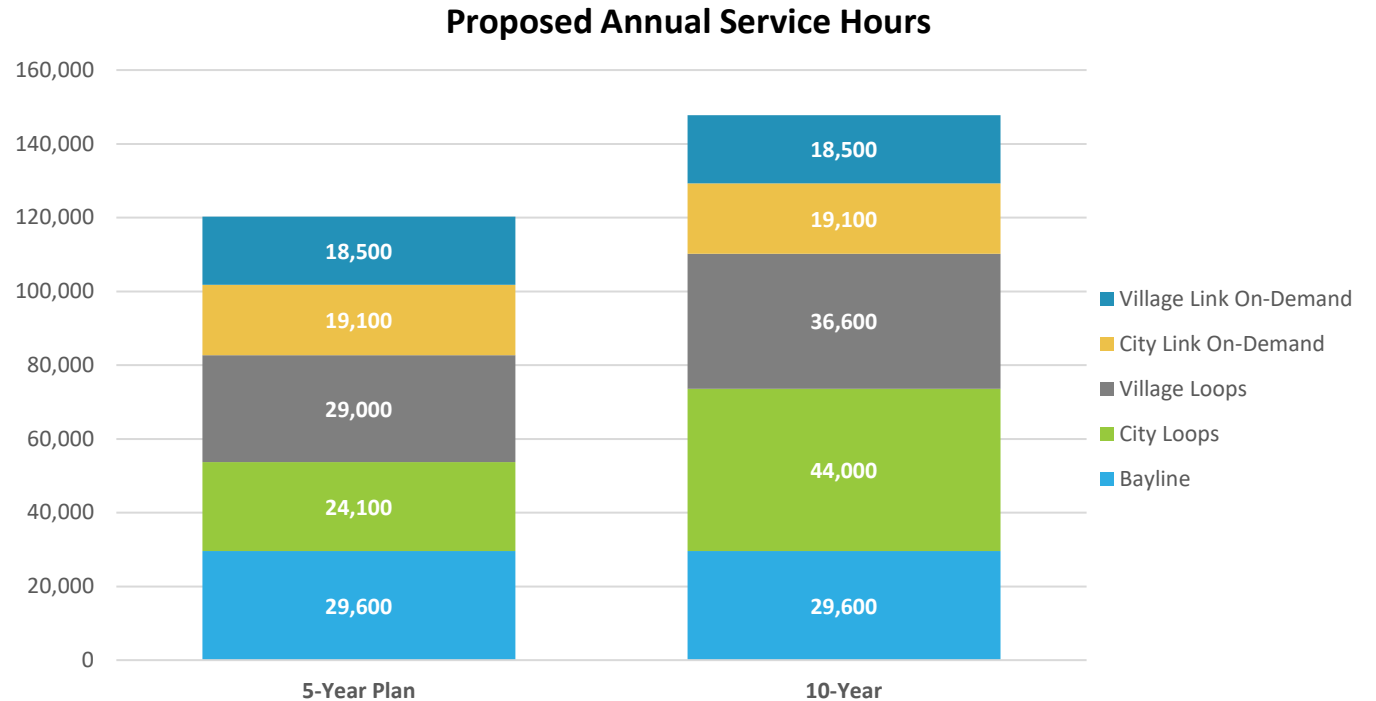
An estimated 66,000 people will have access to 60-minute Village route service



Future Annual Service Hour Requirements

As previously noted, the 5-year service plan is fiscally constrained at approximately 120,000 annual revenue bus-hours of service. Additional improvements proposed in the 10-year plan increase BATA's service hours to almost 150,000 annual hours. The breakdown of service hours by type of service is shown in the adjacent graph.

- 5-Year Plan Total = **120,300**
- 10-Year Plan Total = **147,800** (23% increase)



Plan Feedback

Public Feedback

An on-line story map was created to summarize Next Wave project findings and recommendations. A survey was provided at the end of the story map as a means for the public to provide feedback. BATA and consultant staff were also at the BATA Hall Street transit center at a table to engage with riders, share the on-line story map and gather feedback. The web site had over 1,000 visits. About two dozen individuals provided responses to the on-line questions. Responses to each question is provided in the **Appendix** to this report.

Stakeholder Feedback

A virtual meeting was also held with stakeholders consisting of local government and agency staff. Plan recommendations were reviewed with this group, followed by a series of questions to gather feedback. Stakeholder responses to each question is also provided in the appendix to this report.

Overall, feedback was very positive. A sampling of responses that address suggested plan modifications are as follows:

- Desire for fixed route service to West Middle School and West Senior High School, with service further west to Twin Lake Park
- Desire for return of Route 6
- Desire for Route 10 to go all the way to Northport
- Concern about increasing Route 16 and 31 service levels
- Regarding Route 5 options, public feedback slightly favors Option 1 (shorter route via Barlow). Stakeholders preferred Option 2 (via Garland) because of planned development near Hammond and Lafranier

Plan recommendations reflect Option 2 for Route 5 because of anticipated new development near Hammond and Lafranier. Consideration should be given to possible service expansion to the West Middle and Senior High Schools for the 10-year plan, depending on available financial resources and further analyses of potential ridership demand.



Other Plan Recommendations

Other Recommendations

The primary focus of the BATA Next Wave Transit Master Plan is on restoration of service levels, but in a more cost-efficient manner. Next Wave includes the following additional recommendations to complement the service recommendations that have been described in this report.

- Technology Improvements
- Service Standards
- Route Classifications
- Fare Structure
- Vehicle Fleet
- Route Information Booklets
- Service Implementation Phasing




Technology Improvements

In early 2021, BATA adopted a Transit Technology Review, Evaluation and Acquisition Plan. This was an identified need from BATA's last millage approval in 2017. Identified improvements include:


- Fixed route CAD/AVL
- Demand Response CAD/AVL
- Automated Passenger counter system
- Fare system replacement
- Computerized Maintenance Management System
- Fleet Yard Asset Management System

To date, BATA has implemented the, and has plans to

.....



**Transit Technology Review,
Evaluation and Acquisition Plan**

BATA  **BATA Board Presentation**
February 11, 2021

Service Standards

Many transit agencies establish a periodic service review to measure service performance. This service review provide agencies with the ability to make data-driven decisions regarding the reallocation of resources to where additional service is needed. Common service standard metrics include:

- **Potential Accessibility Metrics**
 - Population accessible to transit
 - Low-Income population accessible to transit
 - Jobs accessible to transit
- **Potential Performance Metrics**
 - Riders per hour
 - Cost per passenger trip
 - On-time performance
 - Routes should be evaluated within each group (e.g., don't measure a City route to a Village route)

BATA staff has prepared a draft service standards document that should be considered for use in measuring service performance progress as BATA implements Next Wave service recommendations.

SERVICE STANDARDS



Route Classifications

BATA's current service classifications can be difficult for new riders to understand. Services are currently branded as City and Village services, and within each service category, there are Loop and Link services. It is recommended that BATA no longer differentiate between City and Village services. Rather, routes should be considered as either Loop service (fixed route) or Link service (on-demand). Elimination of City and Village service designations will help riders think of BATA's transit services as one transit network for traveling around the entire region.



Fare Structure

The pandemic has adversely impacted transit ridership for agencies across the country. Many agencies are exploring the restructuring of fares to encourage former riders to return to transit as service is restored, and to encourage first time use for new riders. Recommendations regarding BATA fares are as follows:

- Continuation of Bayline as a free fare service
- Provide consistent fare pricing for City and Village Loop service
- Provide consistent fare pricing for Village Link and Link On-Demand service
- Introduce a \$3.00 day pass for City/Village Loop service (reduction from existing fare pass cost)

It is recommended that BATA consider fare modifications in conjunction with service restoration.



Vehicle Fleet

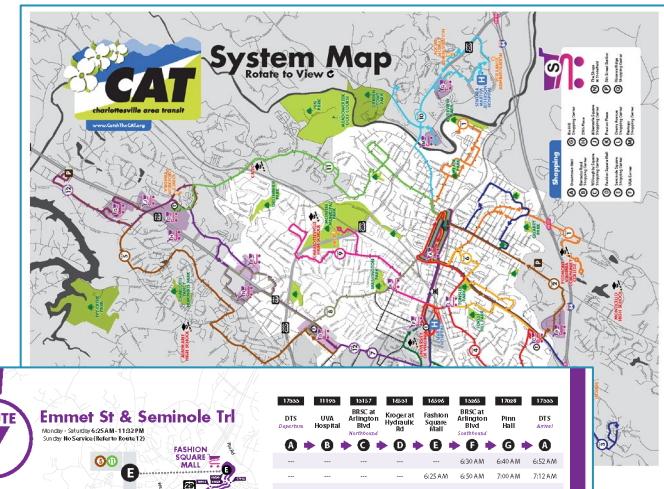
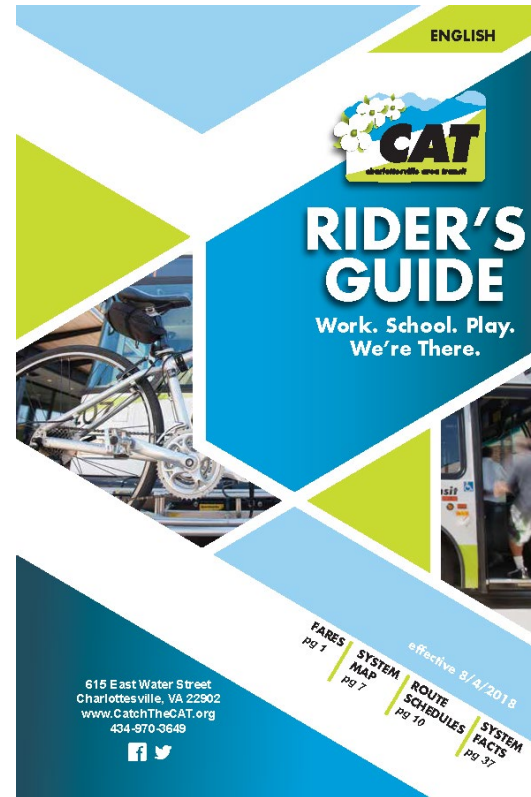
Most of BATA's current service is operated with cutaway buses (bus body built on top of a truck chassis), many of which are . BATA's fleet does include some former school buses used for Village Loop service.

Continued use of cutaway buses is recommended for the 5-year plan. Ridership on the Bayline, however, should be monitored to determine if there is an eventual need to procure larger (30') transit buses for this route. Should that need arise, a fleet of 7 transit buses would be required (6 buses that would be in operation plus one spare).



Route Information Booklets

Printed booklets of BATA's services can be a vital information source for non tech-savvy users. This information can be made available at BATA's transit centers and at public facilities such as the library. An example of information provided in a Charlottesville, VA information booklet is shown on this page.



ROUTE 7 Emmet St & Seminole Tr
 Route: Saturday 6:00AM - 11:00PM
 Service: No Service Before Route 7

1700S	1110S	1112	1601	1605S	1300S	1700	1700S
DTS Downtown	UVA Hospital	Block at Arlington Trail	Knockout at Haystack Rd	Fashion Square Mall	Block at Arlington Trail	Penn Hall	DTS Downtown
---	---	---	---	6:30AM	6:30AM	7:00AM	7:12AM
---	---	---	---	6:50AM	6:50AM	7:10AM	7:22AM
---	---	---	---	6:40AM	6:50AM	7:00AM	7:10AM
6:35AM	6:47AM	7:00AM	7:10AM	7:25AM	7:30AM	8:05AM	8:15AM
6:55AM	7:07AM	7:21AM	7:30AM	7:45AM	8:10AM	8:20AM	8:32AM
7:15AM	7:27AM	7:40AM	7:50AM	8:05AM	8:30AM	8:40AM	8:52AM
7:35AM	7:47AM	8:00AM	8:10AM	8:25AM	8:50AM	9:00AM	9:12AM
7:55AM	8:07AM	8:20AM	8:30AM	8:45AM	9:10AM	9:20AM	9:32AM
8:15AM	8:27AM	8:40AM	8:50AM	9:05AM	9:30AM	9:40AM	9:52AM
8:35AM	8:47AM	9:00AM	9:10AM	9:25AM	9:50AM	1:00AM	1:12AM
8:55AM	9:07AM	9:20AM	9:30AM	9:45AM	10:10AM	10:20AM	10:32AM
9:15AM	9:27AM	9:40AM	9:50AM	10:05AM	10:30AM	10:40AM	10:52AM
9:35AM	9:47AM	10:00AM	10:10AM	10:25AM	10:50AM	11:00AM	11:12AM
9:55AM	10:07AM	10:20AM	10:30AM	10:45AM	11:10AM	11:20AM	11:32AM
10:15AM	10:27AM	10:40AM	10:50AM	11:05AM	11:30AM	11:40AM	11:52AM
10:35AM	10:47AM	11:00AM	11:10AM	11:25AM	11:50AM	12:00PM	12:12PM
10:55AM	11:07AM	11:20AM	11:30AM	11:45AM	12:10PM	12:20PM	12:32PM
11:15AM	11:27AM	11:40AM	11:50AM	12:05PM	12:30PM	12:40PM	12:52PM
11:35AM	11:47AM	12:00PM	12:10PM	12:25PM	12:50PM	1:00PM	1:12PM
11:55AM	12:07PM	12:20PM	12:30PM	12:45PM	1:10PM	1:20PM	1:32PM
12:15PM	12:27PM	12:40PM	12:50PM	1:05PM	1:30PM	1:40PM	1:52PM
12:35PM	12:47PM	1:00PM	1:10PM	1:25PM	1:50PM	2:00PM	2:12PM

Welcome to Charlottesville Area Transit!
 CAT provides bus service to the greater Charlottesville area. Riders enjoy safe, clean, and comfortable service Monday through Saturday.

This guide is an introduction to CAT's system. For additional information, including updates and important notifications, please visit **CAT online** at www.CatchTheCAT.org or call (434) 970-3649.

Fares
 Fares Available for Purchase on Board CAT Buses
 The vehicle accepts fares, cash, check, debit, credit, and CAT passes. Fares are \$1.00, \$1.50, \$2.00, \$5.00, \$10.00, and \$20.00. Group rates are available. www.CatchTheCAT.org for more information.

Fares Available for Purchase at the Downtown Transit Station
 Web-day pass can be purchased on smart cards. Activation of the pass occurs immediately after its first use.

	Smart Card	Full Fare	Reduced Fare*
3-Day Pass†	\$1.00	\$3.00	\$2.25
7-Day Pass†	\$1.00	\$7.00	\$5.25
30-Day Pass	\$2.00	\$20.00	\$10.00
90-Day Pass	\$2.00	\$60.00	\$30.00
Annual Pass	\$2.00	\$240.00	\$120.00

* 1/3 off fare on program to depend on certain applicable transit cards with valid photo picture.

Reduced Fares
 Adult fare \$1.00 per ride by receiving your own-to-be expired or expired smart card†

	Full Fare	Reduced Fare*
30-Day Pass	\$20.00	\$10.00
90-Day Pass	\$60.00	\$30.00
Annual Pass	\$240.00	\$120.00

† Not available for purchase at the Downtown Transit Station. Smart cards are available for purchase at the Downtown Transit Station. Smart cards are available for purchase at the Downtown Transit Station. Smart cards are available for purchase at the Downtown Transit Station.

Fare Free

Category	Fare
Youth Under 13	Free
Youth 13 through 17	Free with valid CAT ID (See page 5)
UVA/UMC Student	Free with valid UVA/UMC ID (See page 5)
City Employee	Free with valid City ID
ADA Certified	Free with valid CAT ID

Paying Your Fare
 CAT's modern fare collection system makes it easy to pay your fare!

The onboard farebox allows passengers to pay for both Single Rides and 24-Hour Passes. Multi-use passes can be purchased at the Downtown Transit Station.

Farebox Components

- Ball Invention Slot
- Coin Invention Slot
- Card Reader Slot
- Dispenser for the 24-Hour Pass
- Barcode Reader for the 24-Hour Pass & UVA/UMC
- Smart Card Reader

Lost & Found
 CAT does not take responsibility for lost or stolen items.

All items recovered are held at the Downtown Transit Station for a maximum of 90 days. After 90 days, items that are considered valuable or contain sensitive information are held at the Charlottesville City Police Department. All other items are held for 7 days.

Items about lost items can be made Monday through Saturday from 7:00 AM to 5:00 PM and on Sunday from 9:00 AM to 5:00 PM. To inquire, call (434) 970-3649 and select option 3.

Holidays
 Sunday Least Service (Holidays, 9/2, 9/5, and 9/12 Only)
 Next Working Day: 8:00-9:00 PM
 New Year's Day: 5:00-9:00 PM
 Memorial Day: 5:00-9:00 PM
 Independence Day: 7:00-9:00 PM
 Service Ends Early in PM: 5:00-9:00 PM
 Christmas Eve: 5:00-9:00 PM
 Christmas Day: No Service 9:00-9:00 PM

Passenger Conduct

- To the safe use of tobacco products (including e-cigarettes) prohibited.
- The consumption of food and/or beverages is prohibited. Transportation of food and beverages is permitted, but they must be properly stored and secured.
- Transportation of pets is permitted, but they must be properly stored and secured.
- Excessive noise, disruptive behavior, and/or profanity are prohibited.
- Passengers are to remain seated.
- Headphones are to be used with all audio devices to remain seated.
- Concessive loop riding is prohibited.

Service Implementation Phasing

BATA, like nearly all transit agencies in the U.S., has been experiencing staffing challenges. BATA's driver workforce shortages forced BATA to reduce service in early 2022.

In response to the workforce challenges, BATA has aggressively recruited new drivers by offering sign on incentives and competitive wages. Implementation of the 5-year plan is dependent on work force availability. Thus, service improvements will likely need to be phased.

Implementation priorities for City Loop service are noted in the adjacent text box. Phasing of Village Loop and Link service is not practical. The implementation of Village Link On-Demand should be concurrent with restructuring of Village Loop routes.

City Loop Implementation Phasing Priorities

1. Restore Bayline service to 15-minute service frequencies and extend to G.T. Mall area
2. Restore full weekend service on Bayline, Routes 1 and 2
3. Implement new crosstown service (Route 5) at 30-minute service



Next Wave Final Report Appendix A: Public and Stakeholder Feedback

BATA Transit Master Plan
October 2022



Public Feedback

Public Outreach Efforts

An on-line story map was created to summarize Next Wave project findings and recommendations. A survey was provided at the end of the story map as a means for the public to provide feedback. BATA and consultant staff were also at the BATA Hall Street transit center at a table to engage with riders, share the on-line story map and gather feedback. The web site had over 1,000 visits. About two dozen individuals provided responses to the on-line questions. Feedback to each question is provided on the following pages.

Public Feedback

Are there any plan improvements you really like?

- I'm just excited over all the new/projected plans. As an employee and BATA customer
- The door-to-door service is valuable for aging and/or disabled people
- Greater frequency
- All looks good, but could there every be a link between Grand Traverse and Antrim County?
- I will believe it when it really happens. BATA services have not been so good and they are never on time. And this has been way before the pandemic started. It sounds great though. I hope it really works.
- Route 1 has only A, would like the B bus. Also bring back Route 5 for Father Fred's. We have to walk from Bayline. I get off on Garland to walk so I don't have to cross a busy road
- Bayline at 12-15 minutes is very good. 30-minute service on Routes 1 & 2 are very good. Bringing some type of south-side crosstown Route 5 is good.
- Fixed route serving West Middle School, West Senior High School and possibly further west to Twin Lake Park. Or providing a link on-demand service point at Twin Lake Park
- As someone who really enjoyed the Bayline route being as frequent as it was prior to Covid, I'm really looking forward to that route being restored to its previous frequency. I'm looking forward to all of these improvements!

Public Feedback

Are there any particular plan elements you like?

- So far from what I have read I agree with all of the suggested improvements!
- I am very disappointed that I am VERY disappointed that Route 6 has been suspended. It got me to my appointments, the mall, downtown, theater, etc. We seniors in the area need a bus to be available to us and not always using Link
- Route 10 should go all the way to Northport, stops at Peshabestown, but not Povemont (Lake Leelanau). Another route serve Provemont, Leland and the Glens
- Reestablishing the Bayline to more frequent service. Extended village loops on the weekend. Eastside bus station
- These are great plans, but I feel BATA is struggling as an efficient transient system presently. So I do not know how BATA would be efficient in this new system.
- Yes, expand the hours for the Bayline
- Later bus runs to outer areas like Interlochen
- Shorter wait times
- More info to the community about the service. Pair it with an event, social media, Ticker, Express, etc. Businesses to buy in too. A week to try?
- I like that Bayline 1, 2 and 12 will have more weekend, nightly and daytime runs.

Public Feedback

Are there any plan improvements you don't like

- None that I can see
- No
- No
- Not sure about increasing Route 16 and 31 service much, prefer leaving those as peak only and/or special service and supplementing it with on-demand or park-and-rides. Route 13 to new Lafranier station? Route 5 needs to be easy.
- Abandoning service to/from Northport
- Operations to and from TVC Airport are so limited
- I like it all

Public Feedback

Do you have a preference for the two Route 5 options

- Total of 13 responses to this question
- 54% prefer Option 1 (shorter alignment via Barlow)
- 46% prefer Option 2 (longer alignment via Garland)

Please give us your overall thoughts on the proposed transit service plan

- Total of 15 responses to this question
- 13% - I am not in favor of the proposed plan
- 20% - I am indifferent of the proposed plan
- 67% - Overall, I am supportive of the proposed plan

Where do you live?

- 14 total responses to this question
- 11 live in Traverse City
- 1 lives in Interlochen/Grawn
- 1 lives in Northport/Omena/Peshawbestown
- 1 lives in other areas of Leelanau County

Stakeholder Feedback

September 7 Stakeholder presentation

Invitations were sent to local government and agency staff to participate in a stakeholder meeting on September 7, 2022. There were 11 participants in the meeting (inclusive of BATA staff and consultant staff). Next Wave recommendations were presented, followed by discussion that centered around the following questions. Feedback to each question is provided below.

Are there any particular plan elements you like?

- likes it!
- likes that we are adding service back out where it was previously reduced
- Housing and daycare limitations, and some routes may not see high ridership, but they are still important areas
- Likes the addition of some crosstown services back even w the lake being a barrier. Likes the high frequency in north to south
- On Route 5- the more direct line is great, but as the bayline is adding service back to the mall, maybe this could end at Hammond
- Likes the Route 8 idea in the 10 year plan! Makes the bus more desirable and easier.
- Link services are really limited in the Long Lake area. It's a bedroom community but have a lot of summertime visitor destinations and activities
- West High School- would love to see the kind of service provided for Central High School.
- What about exploring a transit center at Twin Lakes Park - PNR, UPS drop-offs, etc. Working to get folks on board, and could be an opportunity for more service in the 10-year plan to be considered

Stakeholder Feedback

September 7 Stakeholder presentation (Continued)

Are there any particular plan elements you don't like?

- No feedback

Are there preferences regarding the two Route 5 options presented?

- From a walkability standpoint, there are not as many opportunities to cross the street on Garfield it doesn't feel safe. What you don't see is 120 units of housing on La Franier, and 65 units
- That area will have some potential in a few years when this is built out.
- LGrand Traverse County Health Department is there public transportation there? – Response: Route 2 would still serve this, so we're looking at where the overlap is.
- Gary- the gap between Goodwill into Airport how is this served? Response: Link service might be best here
- Leaning towards Option 2

Are there any particular geographic areas or destinations that you feel has not been adequately addressed in the plan recommendations?

- Three Mile to the Bayline there's a lot of demand here- to get more frequent service from US31 up to Hammond would be great

Other Feedback

As noted earlier, BATA and consultant staff were at the Hall Street transit center on two days to engage directly with riders. Some riders provided feedback at these sessions, outside of the survey. Feedback received was as follows:

- Concern about service when dispatch is closed - should extend their hours (relies on them for assistance)
- On-demand was great at the beginning of the pandemic but has gotten more difficult to use.
- Would like to see A & B runs for Village Loops. Also believes a smaller bus for #12 during weekdays in school year would be sufficient (driver comment)
- Integrate live ride status on Google maps and automate payments. Also, do some custom runs for events for free
- Use SUVs for low-rider on-demand routes (driver comment)
- Use autonomous electric busses for loops (driver comment)