

FLEET, FACILITIES, & IT STRATEGY

The Rapid Transit Master Plan
Interurban Transit Partnership (ITP)

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Quality Information

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Revision History

Revision	Revision date	Details
00	8/28/2024	Fleet, Facilities, and IT Strategy – first draft
01	10/09/2024	Second draft in response to Rapid comments
02	11/13/2024	Revised CNG Fueling Station section, and minor formatting adjustments

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Introduction

This Fleet, Facilities & IT Strategy Report establishes the existing conditions of The Rapid's fleet, facility, and IT assets. It explores how this infrastructure can be utilized or expanded to align with agency priorities. The report also identifies recommendations that are underway, and near-, mid-, and long-term that will either be added to, or work in alignment with the Transit Master Plan (TMP).

In addition to a review of the Rapid's Information Technology (*IT Strategic Plan, Zero-Emission Bus (ZEB) Rollout Plan For Clean Transportation, and Transit Asset Management Plan*), AECOM staff interviewed members of The Rapid's Maintenance, Operations, and Facilities Staff to understand the existing state of its assets in these three areas and identify any opportunities for the TMP.

Fleet

An existing condition review of the status of The Rapid's Fleet, Facility, and IT assets will document efforts currently underway and identify any challenges or opportunities with its system.

Existing Conditions

The Rapid's Line Haul bus fleet, which included fixed route, BRT, and DASH services, consists of 131 buses ranging from 35 to 60 feet in length. As it retires its diesel-powered vehicles, currently almost 80% are compressed natural gas (CNG) and using renewable natural gas (RNG). In-house mechanics maintain the fleet, which is primarily garaged at its Rapid Operations Center (ROC), with seventeen 60-foot vehicles operated out of the Rapid's Laker Line Operations Center. While on-site diesel fueling is at the operations centers for the agency's rapidly diminishing diesel fuel fleet, its CNG/RNG fleet is fueled off-site at the CNG Fueling Station.

When fully staffed, fleet maintenance staff report no issues keeping up with scheduled and unscheduled maintenance. They did not share any concerns or immediate resource needs to accommodate expanding earlier or later service hours within the current system. A concern raised was that the limited space in the existing facilities would make a significant fleet expansion challenging to house in existing facilities and for work in existing maintenance bays.

Fixed route vehicles are currently on a twelve-year or 500,000-mile, whichever comes first, replacement plan, while paratransit vehicles are eligible for replacement at 7 years. The Rapid has kept up with this replacement schedule. **Table 1** shows the existing fixed route fleet by year, model and fuel type and **Table 2** displays similar data for the paratransit fleet. It also highlights the years the fleets would be eligible for replacement. The remainder of the agency's fixed route diesel and hybrid diesel-electric fleet will reach replacement age next year, with the subsequent replacements not due until 2028. The Rapid leadership team has discussed the assessment of vehicles at the end of their FTA useful life milestones and opportunities to retain buses that are in great condition, retaining select buses for additional service frequency or expansion. With auction proceeds of a bus averaging much less than \$5,000, a bus that is in great shape is most valuable to The Rapid for service. Any of these decisions would be made in accordance with the FTA's spare ratio regulations.

Table 1: Fixed Route Fleet Count by Year with Eligible Replacement Years

Fleet Year	Model	Fuel Type	Replacement Year												
			2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
2012	Gillig Low Floor 40'	Diesel	13												
2013	Gillig Low Floor 40'	Diesel		8											
2014	Gillig Low Floor 40'	Hybrid			10										
2016	Gillig Low Floor 40'	CNG					1								
2017	Gillig Low Floor 40'	CNG						27							
2017	Gillig Low Floor 35'	CNG						5*							
2018	Gillig Low Floor	CNG							20						
2019	New Flyer NX60 60'	CNG								2					
2019	Gillig Low Floor 35'	CNG								4*					
2020	Gillig Low Floor 40'	CNG									10				
2020	New Flyer NX60 60'	CNG									14				
2021	Gillig Low Floor 40'	CNG										15			
2023	Gillig Low Floor 40'	CNG												4	

**DASH vehicles (City of Grand Rapids downtown circulator routes)*

Table 2: Paratransit Fleet Count by Year with Eligible Replacement Years

Fleet Year	Model	Fuel Type	Replacement Year							
			2024	2025	2026	2027	2028	2029	2030	2031
2016	Ford E450 6.8v10	Propane		5	7					
2017	Ford E450 6.8v10	Propane		1						
2018	Ford E450 6.8v10	Propane		7	5					
2019	Ford E450 6.8v10	Propane			8					
2020	Ford Transit Van	Gasoline				6				
2023	Ford E450 6.8v10	Propane							29	
2024	Paratransit Van	Electric								12

Fleet Plans

Recognizing the significant carbon reduction benefits of CNG over diesel fuel, The Rapid began transitioning to CNG vehicles in 2016 and has almost removed all diesel buses from its fleet. They expanded these environmental benefits by utilizing renewable natural gas (RNG) which had the additional benefit of reducing its fuel costs. The Rapid has had great success with this clean fuel.

The Rapid's paratransit fleet has a long history of utilizing propane to fuel its vehicles. It will deploy its first all-electric paratransit vans in 2024 and will evaluate how this propulsion system performs for service delivery. Paratransit service has federal requirements that inform the number of vehicles required to comply with ADA rules and regulations. The agency will adjust its fleet count to satisfy this requirement; however, the growing demand for ADA paratransit service due to increases in population will likely cause the agency to increase the fleet size regardless of any service changes for the fixed-route or BRT routes.

As the agency begins the proof-of-concept and due diligence to transition to zero-emission vehicles, the success with lighter-than-air gases, like RNG/CNG, has shown the feasibility of low-emission propulsion systems. Their *2022 Zero-Emission Bus (ZEB) Rollout Plan for Clean Transportation* proscribes a measured approach to deploying these new technologies.

Figure 1 demonstrates opportunities for what this transition to zero-emission vehicles could entail. However, the high operating and capital costs of ZEBs, its limitations as a 1:1 CNG bus replacement, supply chain concerns, and wavering political support for the technology is causing The Rapid to take a measured approach to the transition by starting with small pilot deployments to test the abilities of these new technologies.

Figure 1: Fleet Replacement with Zero-Emission Vehicles

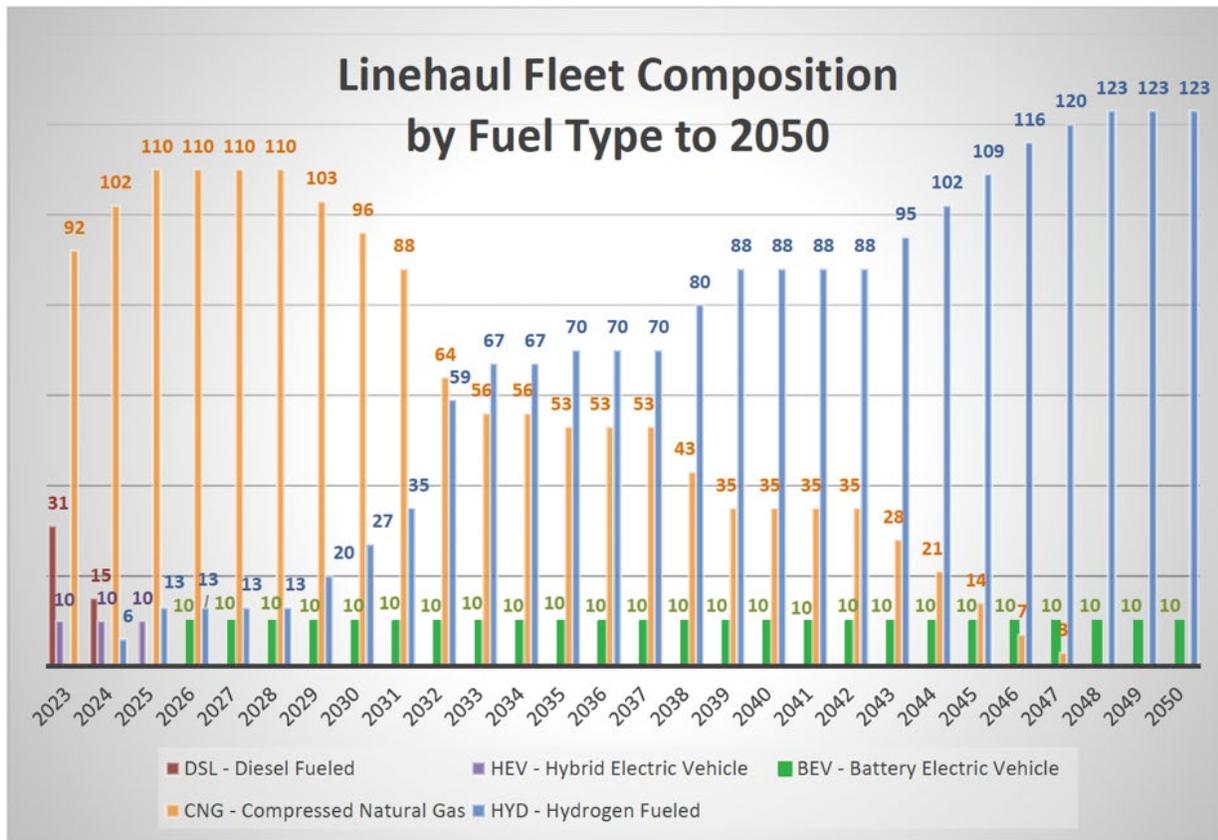


Image source: 2022 Zero-Emission Bus (ZEB) Rollout Plan for Clean Transportation Table 3- 3

Shared Vehicle Opportunities

As The Rapid looks to expand its service in the region or even find solutions for the first/last mile challenges of its riders, opportunities exist to partner with other municipalities quasi-government functions like area non-profits, public agencies, educational/health institutions, and even some private businesses, to fill this need. These groups can provide transportation services in areas that might preclude The Rapid from serving due to distance from the garages or other operating considerations. To help control costs, The Rapid may be able to “lend” vehicles procured with federal funds to these government organizations to help reduce expenses if they are only used for public transit service. The Rapid could also provide all maintenance functions to ensure the vehicles are serviced per FTA rules.

Challenges & Opportunities

The Rapid has done an excellent job maintaining its fleet in good repair and continuously reducing its carbon footprint by embracing low-emission vehicle technology, such as CNG vehicles fueled with RNG. They also benefit from very low costs from their RNG source.

The transit industry’s push towards ZEBs poses a unique challenge for the agency as they already embrace clean technologies to provide their service with low carbon density at a low price, whereas the move toward ZEB will likely be more expensive in both a capital and operational cost sense.

The Rapid’s fleet replacement plan and effective vehicle maintenance program have ensured its vehicles remain in good repair. The agency can likely embrace some of the recommendations in the Transit Master Plan that expand service hours or routes, which would not increase the number of vehicles required at maximum service (VOMS). However, the agency will likely be limited in embracing some of the Transit Master Plan’s recommendations that require additions to its current fleet due to space constraints in its garages.

Facilities

A review of the status of The Rapid's facilities as they exist today will document plans currently underway for the agency's equipment and identify any challenges or opportunities.

Existing Conditions

Figure 3: Rapid Operation Center



The Rapid owns several facilities that serve the agency's needs. The agency's administration primarily operates out of the **Ellsworth Administrative Headquarters**, located at 300 Ellsworth Ave SW in Grand Rapids.

The agency's fixed route buses are primarily garaged and maintained at the **Rapid Operations Center (ROC)**, located at 333 Wealthy Ave SW. ROC is LEED certified with parking for 165 40' vehicles, serviced in 18 maintenance bays and a modern body shop. It also can fuel diesel vehicles onsite.

The CNG fleet is driven to the **CNG Fueling Station**, at 809 Freeman Ave SW, where it is fueled with RNG.

The **Laker Line Operations Center**, at 851 Freeman Ave SW, has capacity for 22 60' articulated vehicles. The Rapid currently stores and maintains a small fleet of 17 buses for the Laker Line BRT Route.

The Rapid contracts the operation of demand response paratransit services to a third-party. This contractor is provided an agency-owned facility, **Busch Drive Operations Center**, located at 3531 Busch Drive, to maintain and operate The Rapid demand response fleet of sixty buses. The Rapid purchases the propane fuel, located onsite, for the vehicles and owns the federal financial incentives for alternative fuel use.

To support on-route operations, The Rapid has three stations to facilitate transfers and between bus lines and other modes of transportation. **Rapid Central Station (RCS)**, at 250 Grandville Ave SW, the largest with 18 bus berths and a building with a large amount of retail space. RCS is the first LEED certified public transit facility in the United States.

At the south end of this Rapid Center Station is the **Amtrak Station**, at 440 Century Ave SW, which supports rail service to Chicago.

The final station is **Kentwood Station**, at 3301 28th Street SE in Kentwood, which has six berths and is adjacent to the Woodland Mall.

The **Facilities Building**, at 700 Butterworth Ave SW, provides maintenance services for all Rapid-owned facilities. It houses all the Facilities department's equipment and materials to keep its buildings in good repair. Almost all of The Rapids' facilities work is done with in-house staff. Landscaping and green roof maintenance, window cleaning, and some station power washing is contracted out.

In addition to the physical buildings, The Rapid owns and maintains **53 BRT stations** across the two BRT lines. While these are not buildings in a traditional sense, they have more amenities than a conventional bus stop, including seating, bike racks, variable message signs,

canopies, and ticket vending machines. They also include inground snow melting equipment to help reduce ice and snow build-up during winter. **Figure 4** illustrates what these stations typically look like.

Conversations with facilities staff and a review of The Rapid's Transit Asset Management Plan demonstrated The Rapid's facilities remain in good repair, and there are funds included in the Capital Improvement Plan to rectify minor concerns with its buildings. The facilities team is a well-skilled group that maintains its buildings with in-house staff while clearing snow from agency-owned property in the winter. Facilities staff shared little concern with its ability to prepare for whatever changes arise in the near-term future provided adequate staffing levels are available.

Figure 4: Picture of Laker Line BRT Station



Bus Stops and Stop Amenities

The Rapid purchased and installed approximately 1,500 bus stops, 185 shelters, and 126 benches in the service area. The maintenance of this infrastructure and the responsibility to remove snow varies by jurisdiction. For example, within the City of Grand Rapids, the Downtown Improvement District removes snow from shelters and stops within its boundaries.

Challenges & Opportunities

Much like its fleet, the Rapid facilities and infrastructure are maintained well and in good repair. As the agency plans its future, several considerations can be reviewed regarding snow clearing at bus stops, deadhead time/distance to CNG fueling facilities, and future Bus Operation Facility siting.

Snow Clearing at Bus Stops

Bus stops that are impacted after a snow event due to uncleared snow may impede customer access from riding the system, or worse, create a hazardous situation for those who ride. While it is impractical for The Rapid to clear all 1,500 stops immediately after a snowstorm, some options that may be considered to address this need are listed below. Note, any agreement that distributes responsibility for snow-clearing to a party besides The Rapid staff should include language regarding liability in the case of snow or ice-related accidents.

- Community by-laws requiring property owners adjacent to the right of way to clear shelters that abut their property, similar to sidewalk-clearing requirements.
- Agreements with the local towns/cities to clear shelters and/or stops
- Developing a prioritized list of bus shelters to be cleared immediately after a snowstorm based on factors such as ADA accessibility, visibility, snow drifting, high volume boardings / alightings, etc.
- Partnering with third party contractors to clear prioritized shelters quickly.

CNG Fueling Facilities

The **CNG Fueling Station** is located one mile away from the ROC and is the agency's only CNG fueling source. While not within the same facility where most of the fleet is stored and maintained, and there is also added labor time and vehicle wear on a nightly basis to drive to the station. There are benefits that made this the best option. The fueling station is located near an incoming CNG supply line to the city and it provides adequate supply and pressure that made it ideal. The higher pressure in fact, reduces The Rapid's overall cost to compress the CNG. The adjacency to the City of Grand Rapids waste to energy facility and the biodigester, also made this ideal as refuse trucks from all over Kent County and the City of Grand Rapids, can use the CNG station for cooperative fuel purchasing. This provides The Rapid with a CNG revenue stream. The fueling facility is also immediately adjacent to the Laker Line Operations Center that stores and maintains 17 Laker Line CNG vehicles. Due to land availability around these areas, the agency was limited in its options and chose the best location near its operation centers.

As The Rapid considers future opportunities for new facilities, adding a second fueling station may help with resiliency and depending on the new CNG facility's location respective to future operations facilities, reduce some of deadhead time and miles to fuel the fleet.

Future Facility Siting

Downtown Grand Rapids is experiencing an increased interest in downtown property development, especially in the previously industrial area where the Rapid Operations Center claims a large footprint. Considering the ROC maintenance garage may soon surpass vehicle capacity as vehicle sizes fluctuate and peak service requirements increase, there may be an opportunity to sell the lot at the end of the facility's lifecycle and relocate to a property where a new garage can be built. This new garage could be designed to meet the needs of future Rapid services, including increased vehicle capacity or future vehicle fueling/technology needs. Beyond the potential operational advantages of relocating the ROC, its existing footprint has the potential to be used for transit-oriented development that could better serve Rapid riders and provide additional funds for a new garage. Siting of new garage facilities should begin at least 10 years before anticipated replacement.

Information Technology (IT)

Existing Conditions

As technology-based applications onboard the bus and for the customer experience in transit has continued to increase, The Rapid developed its first Strategic Technology Plan in February of 2024. The 2024 strategic plan reviewed The Rapid's existing IT conditions, including fare collection systems, real-time information systems, enabling systems, and other customer-facing technologies. The goal of the strategic plan was to develop a future framework for The Rapid to strategically invest in technology that improves service operations and rider experiences.

This 2024 strategic plan found that The Rapid has successfully modernized many of its services in recent years and has capital planning funds identified to upgrade other services over the next 5-years. Examples of recent improvements include the introduction of open

payment options, implementation of a new scheduling system, deployment of on-demand services, and implementation of WiFi on BRT. The Rapid is also in the process of updating its CAD/AVL system to improve voice communications and redesign a new customer website and application for their rideshare program.

Challenges & Opportunities

The 2024 Strategic Technology Plan also identified several opportunities for improvements, or gaps, as it relates to customer service technology, integration of internal processes associated with various technology and payment platforms, and a reactive approach to technology gaps.

To address these gaps and opportunities, the plan recommended organizational strategies, operational strategies, or processes to improve operational efficiency and customer experience, and technology procurement recommendations. All recommendations are mapped for the next 5 years, as follows:

Organizational Strategies

- Hire Contract Staff to Support Implementation of Systems (FY2024)
- Implement Strategic IT Practices (FY2024-2025 and FY2028)

Operational Efficiency Strategies

- Fare Collection System Replacement (FY2024)
- Better Utilize Infotainment Screens on BRT buses (FY2024-2025)
- Review of Schedule Data to Improve RTIS Accuracy (annually, starting in FY2024)
- Leverage Data from Existing Systems to Inform Service (FY2024)
- Review and Improve Signage Monitoring Processes (FY2025)
- Optimize Operational Processes, Leveraging CAD/AVL (FY2025)
- Track Outdated Schedules (FY2025)
- Replace ERP System (FY2024-2026)

Customer Experience Strategies

- Implement Customer Relationship Management System (FY2024)
- Redesign Website (FY2024-2025)
- Implement Digital Signs at Stops (FY2024 onwards)
- Improve Awareness of Text to Stop Options (FY2025)
- Implement a Single or Integrated Transit Mobile App (FY2025)
- Review and Replace Phone System if Required (FY2026)
- Add Customer Information Screens at Central Station (FY2026)

Conclusion and Next Steps

Based on the existing conditions of The Rapid's fleet, facility, and IT assets and a review of agency priorities, several recommendations can be identified for each asset category. These strategies work in alignment with the draft Transit Master Plan (TMP) recommendations, as discussed in **Table 3: Draft TMP Recommendations: Fleet, Facility, and IT Considerations.**

Fleet Recommendations

- Promote the low carbon footprint of The Rapid vehicles to attract emission-conscious riders and gain positive publicity
- Explore fuel cell electric buses (FCEB) powered by hydrogen in the next zero-emission bus (ZEB) plan, especially regarding the potential to use RNG to produce fuel-cell grade hydrogen
- Several government organizations and non-profit groups provide transportation services in areas that might preclude The Rapid from serving due to distance from the garages, proximity relative to the boundaries of the existing service area, or other operating considerations. The Rapid may be able to “lend” vehicles procured with federal funds to these government organizations to help reduce expenses

Facility Recommendations

- Snow clearing in bus stop walk areas
- Explore ways to minimize deadhead time and distance
- Future Bus Operation Facility siting

IT Recommendations *(referenced from The Rapid Strategic Technology Plan)*

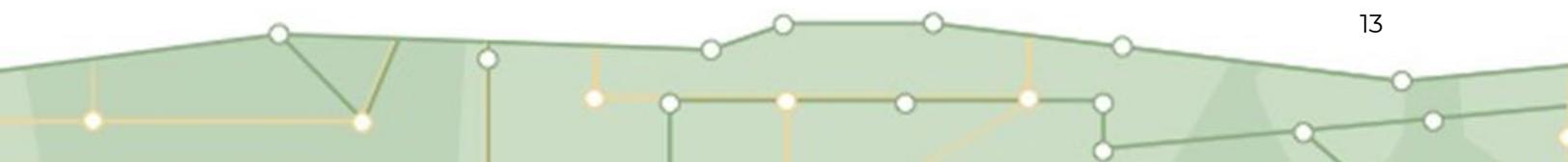
- Install digital signage/customer information screens to better inform riders of bus arrivals and pertinent service information.
- Implement a single mobile application to improve customers' ability to plan and pay for trips.
- Redesign website to better engage with customers to provide information and receive feedback.
- Invest in a new fare collection system to increase customer's ability to pay for trips and reduce dependency on physical fare media.
- Promote system integration to reduce siloed IT systems and enable greater coordination amongst each solution.

Table 3: Draft TMP Recommendations: Fleet, Facility, and IT Considerations

TMP Recommendation Strategies	Fleet, Facility, and IT Considerations
Community Awareness and Education	
Underway	
Active participation with GVMC’s TDM Mobility Manager program to advance outcomes of the Regional TDM Plan.	Coordinate with GVMC TDM program for the rollout of a single or integrated transit mobile app.
Near term (<5 years)	
Explore additional ITP community marketing and/or outreach strategies and programming. Examples of such programs include: <ul style="list-style-type: none"> • Community "adopt-a-stop" • Youth education program (with schools) • Community transit ambassador • New stop placement and design coordinated with local stakeholders to promote placemaking 	Coordinate with municipalities on shelter infrastructure maintenance assistance, particularly snow removal.
Partner with external stakeholders to increase advertising and marketing opportunities that promote transit use.	Consider how the types and location of shelters and signage may increase revenue generating opportunities.
Engage tourism and visitors' organizations to promote transit services to tourist, visitors, and to special events.	Collaborate on the programming of digital signage and use of infotainment screens on BRT buses.
Existing Service Improvements	
Underway	
Examine and identify options to improve the effectiveness of microtransit.	Consider how different vehicle types, particularly zero emission vehicles, may reduce the energy cost for microtransit service. Also consider the impact of an integrated transit mobile app on microtransit customer experience and scheduling.
Near term (<5 years)	
Review feasibility of implementing first-mile / last-mile mobility solutions (e.g., micromobility) to ITP member communities.	Micromobility solutions, like e-bikes, may introduce an asset class The Rapid has not previously managed. An evaluation should be performed to determine the preferred methods for operating this equipment (in-house versus contracted, agency owned, or municipality owned) and what infrastructure needs may be required. Also consider the impact of micromobility service access on an integrated transit mobile app.
Continue to invest in existing productive routes with above-average ridership by increasing service efficiency, frequency, and on-time performance (OTP).	Increasing bus frequency during peak service times will require additional buses which will challenge the already strained capacity of the operations centers Investments may include digital information and wayfinding or operations optimization recommendations from the IT Strategic Plan.
Explore tools and resources to support expanded service hours, such as earlier or later weekday service, and extended service on weekends.	Increasing frequency during reduced service times (late nights, weekend, etc.) may not increase the agency’s peak vehicle requirements, but it may provide less time to perform routine maintenance on these vehicles. Vehicle maintenance worker shift



	<p>times, as well as maintenance bay availability, should be considered when implementing such changes to ensure The Rapid can meet FTA requirement for preventative maintenance and keep fleet in a state of good repair.</p>
<p>Perform a route network design study which incorporates additional mobility hubs/transfer centers within the ITP service area, in tandem with joint development and mobility hub strategies.</p>	<p>Any increase in fleet size resulting from the network redesign should include consideration on which operations center is to house these vehicles. A determination should be made on whether an additional garage needs to be built with this increase or if an existing operation center can be moved to a larger property that may also enable fewer deadhead miles if service is drawn away from the existing hub.</p>
<p>Explore opportunities to coordinate fares and technology with regional multi-modal providers. Examples of opportunities include implementation of the West Michigan Express pilot and development of a mobility wallet.</p>	<p>Any shared fare solution should conform to the capabilities of The Rapid's planned fare collection system replacement and the availability of programmable keys on the hardware. Similar considerations should be given to agency's ticket vending machine to determine if it can support any new fare types.</p>
<p>Evaluate and establish on-board customer convenience standards to improve the on-board customer experience.</p>	<p>Incorporate BRT infotainment screen programming from the 2024 IT Strategic Plan and other technology upgrades in the next strategic plan.</p>
<p>Examine and upgrade customer facing technology (such as websites, apps, and/or dynamic signage) in alignment with the ITP Strategic Technology Plan and in support of goals towards the development of a multi-modal mobility wallet.</p>	<p>The expansion of dynamic signage to bus shelters may be challenged by the equipment's power requirements. Many electrical utilities will not provide stand-alone service to a shelter due to the low power demand of the signage. The Rapid should identify buildings near shelters they can receive power from, invest in solar panels with batteries to run the equipment, or other technologies that might resolve these issues.</p>
<p>Establish bus stop design guidelines (i.e. right-of-way accommodations for stop locations).</p>	<p>Design guidelines should include size of shelter, ADA requirement around it, ability to replace parts, potential power solutions if installing dynamic signage, and plans to maintain the equipment, particularly considering the time sensitive needs for snow removal.</p>
<p>Mid term (5-10 years)</p>	
<p>Evaluate opportunities for high-capacity services (such as BRT or LRT), building upon existing corridors with high-performing routes.</p>	<p>Considerations for new BRT service align with what was done for The Rapid's existing BRT lines. Additional vehicles, particularly branded fleets that may necessitate their own spare vehicles, may require additional bus maintenance garages. Additional BRT Stations should be designed to align with maintenance needs of the agency's existing infrastructure to reduce the need for spare parts.</p> <p>As The Rapid continues to evolve its Zero Emission Transition plan, consideration should be given to battery electric buses BRT lines as their relatively short trip distances and longer layover times at a protected hub makes on-route charging a compelling solution that may potentially save the agency energy and vehicle costs.</p>



The introduction of LRT will require an established of a new operations center to house and maintain rail cars, but also a significant expansion of the facilities department’s capabilities to maintain rail tracks and power lines to support these vehicles in revenue service.

Study operational needs of potential new or relocated operations facilities, in conjunction with joint development recommendations.

New or relocated operations facilities will provide opportunities to store more buses, may reduce the deadhead miles/time depending on the location of the facility, may provide better access to RNG, and can be designed with considerations for future zero emission buses or light rail trains.

Implement a high-frequency core network redesign along key corridors, especially as ridership and demand increases, based on the results of route network design study in the near-term.

Any additional frequency may require additional buses which would strain the existing operations centers which are at or near capacity. Consideration should be given to building a new or relocating an existing garage to a location that can accommodate this additional capacity and potentially reduce deadhead miles/time.

Long term (10+ years)

Continue to evaluate feasibility for Light-Rail Transit (LRT) services or Commuter-Rail Transit (CRT) services along existing high-capacity bus corridors, especially as ridership increases and regional demand grows.

The introduction of LRT will require establishment of a new operations center to house and maintain rail cars, but also a significant expansion of the facilities department’s capabilities to maintain rail tracks and power lines to support these vehicles in revenue service.

Future Service Expansion

Near term (<5 years)

Cultivate opportunities & relationships (outside of ITP service area) to provide service area extensions or other context-relevant services to non-ITP member jurisdictions. Advance opportunities with private sector employers and institutions for providing contracted last-mile service connections within and outside the ITP service area.

The expansion of outside last-mile service could potentially eliminate the need for less utilized routes which may then reduce the required number of buses in the fleet. Because The Rapid receives federal funds for its vehicles, it may be beneficial to lend smaller vehicles to these outside agencies which will impact vehicle count and vehicle maintenance needs.

Execute the West Michigan Express pilot express bus implementation plan along Chicago Dr corridor, including a guaranteed ride home program.

Any addition to the fleet size will require considerations on whether additional vehicles can be serviced by the agency’s existing garages and if additional or relocated facilities are needed to accommodate this expansion.

Considerations for dynamic signage, ticket vending machines, infrastructure maintenance, etc. should be given to any new bus shelters or transfer facilities that may be included as part of this service expansion.



Review feasibility of top recommended intercounty service concepts in partnership with regional stakeholders, following the West Michigan Express feasibility review and implementation planning process as a model. Intercounty service concepts for review are as follows:

- Alpine Ave: Extension of route 9 and/or new Alpine Rapid Connect Zone
- Walker Ave: New bus service and/or realignment of the Walker Rapid Connect Zone
- Plainfield Ave: Extension of route 11 and/or new Plainfield Rapid Connect Zone
- Barry St/54th Ave: New bus service between Grandville and the Airport
- US-131: Express or limited bus service between Wayland and Grand Rapids with park and rides in Wayland, Moline, Cutlerville, and Kentwood

Any addition to the fleet size will require considerations on whether additional vehicles can be serviced by the agency's existing garages and if additional or relocated facilities are needed to accommodate this expansion.

Considerations for dynamic signage, ticket vending machines, infrastructure maintenance, etc. should be given to any new bus shelters or transfer facilities that may be included as part of this service expansion.

Mid term (5-10 years)

Continue to cultivate opportunities & relationships (outside of ITP service area) towards adding adjacent municipalities/townships to expand the ITP service area as regional interest grows.

Non-Applicable.

Reevaluate feasibility of second priority intercounty service concepts in partnership with regional stakeholders, following the West Michigan Express feasibility review as a model. Intercounty service concepts for review are as follows:

- Lake Michigan Dr: Laker Line extension or Allendale Charter Township Rapid Connect Zone.
- Beltline Ave/Broadmoor Ave: Express bus between Grand Rapids and the airport.
- Zone Two: Limited or express bus along US-31 or developing context-sensitive services in areas of localized connectivity

Any addition to the fleet size will require considerations on whether additional vehicles can be serviced by the agency's existing garages and if additional or relocated facilities are needed to accommodate this expansion.

Considerations for dynamic signage, ticket vending machines, infrastructure maintenance, etc. should be given to any new bus shelters, BRT Station, or transfer facilities that may be included as part of this service expansion.

Long term (10+ years)

Re-evaluate intercounty corridors to identify next priority intercounty service concepts, especially as areas experience growth.

Non-Applicable

Transit Oriented Development

Near term (<5 years)

Broaden transit-supportive streetscape and roadway design guidelines.

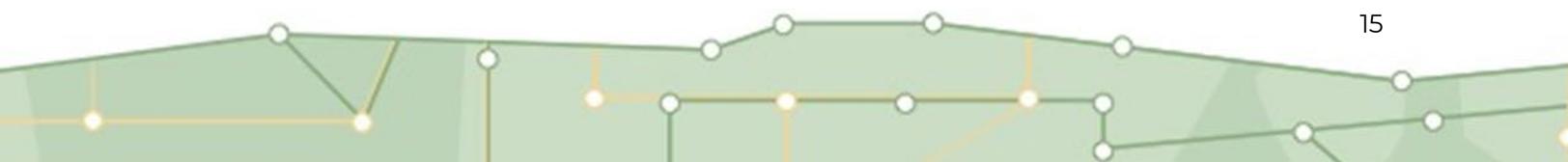
The operation (providing power to) and maintenance of transit amenities should be included in design guidelines to better maintain this equipment or help The Rapid understand if any additional support equipment or vehicles are needs satisfy these needs.

Establish mobility hub standards and policies.

The operation (providing power to) and maintenance of transit amenities should be included in design guidelines to better maintain this equipment or help The Rapid understand if any additional support equipment or vehicles are needs satisfy these needs.

Establish TOD and Development Design Guidelines.

Non-Applicable.



Leverage redevelopment potential of Rapid-owned real estate, such as the Rapid Central Station, by executing joint development strategies.

Any alteration to the function of Rapid-owned facilities may impact the equipment and resources required to maintain this infrastructure as the agency does a significant portion of its facilities maintenance work in-house.

Mid term (5-10 years)

Leverage redevelopment potential of Rapid-owned real estate, such as the Rapid Operations Center or 60th and Division Station, as the surrounding markets strengthen.

New or relocated operations facilities will provide opportunities to store more buses, may reduce the deadhead miles/time depending on the location of the facility, may provide better access to RNG, and can be designed with considerations for future zero emission buses or light rail trains.

Establish a team of staff dedicated to advancing TOD strategies.

Non-Applicable

Innovation and Technology

Near term (<5 years)

Consolidate wayfinding and fare payment apps into a mobility wallet and/or MaaS platform by coordinating with regional stakeholders and continuing to evaluate emerging technology. Examples include the developing Mobile GR Mobility Wallet and ongoing technology innovations, such as predictive AI.

Any new fare solution should conform to the capabilities of The Rapid's fareboxes and the availability of programmable keys on the hardware. Similar considerations should be given to agency's ticket vending machine to determine if it can support any new fare types.

Explore dynamic and emerging wayfinding and passenger information technologies at stops and stations, including real-time information displays.

The expansion of dynamic signage, and other electrical equipment at bus stops may be challenged by the equipment's power requirements. Many electric utilities will not provide stand-alone service if the equipment does not have a high enough power demand of the signage. The Rapid should identify buildings near shelters they can receive power from, invest in solar panels with batteries to run the equipment, or other technologies that might resolve these issues.

Explore and evaluate microtransit and paratransit operational/scheduling software and technologies to improve coordination and efficiencies between the two services.

In accordance with the IT Strategic Plan's operational optimization recommendations and integrated transit mobile app.

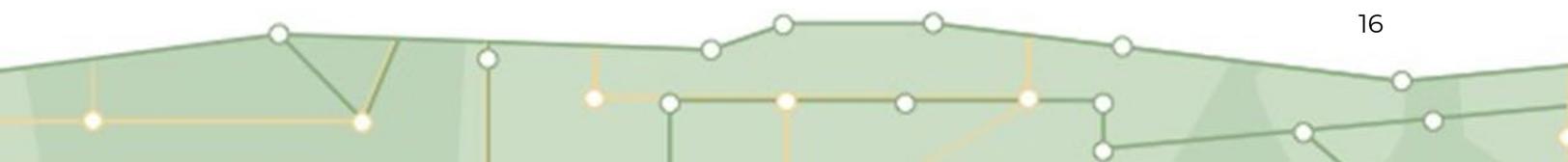
Refine the ZEB (EV/Hydrogen) Transition Plan to incorporate new service options and technology improvements through periodic updates.

The transition to zero emission vehicles will have a significant impact on fleet and facilities. Any consideration of zero emission vehicle should consider the new vehicle's ability to meet the duty cycle of the existing vehicle it could replace, how its fueling or charging infrastructure will be accommodated in Rapid facilities, whether the vehicle maintenance equipment can properly service the vehicles, and a variety of other topics to be evaluated.

Mid term (5-10 years)

Strengthen regional mobility coordination opportunities by assessing Mobility as a Service (MaaS) options as technology advances.

Coordinate with regional stakeholders for the rollout of a single or integrated transit mobile app.



Review autonomous vehicle integration feasibility as technology advances.

While autonomous buses may one day be put into revenue service, an initial deployment would likely happen off public streets and in places like the operations centers, where the operator could drop the vehicle off at the door to the garage and it could pull through the bus washer and park itself unassisted. There are many considerations that would need to be undertaken for such a trial included, but not limited to, implementing a yard management system, increasing lighting in the garage, simplifying travel paths and other actions that would make such technology viable.

Regional Partnerships

Near term (<5 years)

Transit-Oriented Development: Engage with local stakeholders to evaluate mobility and land use needs and opportunities within key redevelopment areas, especially in context of Rapid TOD/Joint Development strategies and ITP Member Communities' Master Plans.

Non-Applicable

Service Expansion: Engage with local communities to establish service agreement standards that allow service extensions, or other context-relevant service expansion, in non-ITP member jurisdictions.

If the service extension increases the agency's current peak vehicle count, The Rapid will likely need to increase its fleet size which will stress its existing operations centers' capacities. An increase in fleet sized due to a lend/lease solution with a neighboring organization that stores the vehicle on its own property would negate this concern

Regional Coordination: Endorse the GVMC's efforts to align regional mobility services by contributing to the GVMC TDM working groups and by engaging with jurisdictions to implement TDM strategies.

Non-Applicable

Mobility Hubs: Collaborate with local governments to select and develop future mobility hub sites.

Additional mobility hubs would potentially increase The Rapid's facility assets if it were owned or maintained by the agency.

Discretionary Funding: Support regional transit and mobility initiatives by pursuing discretionary funding opportunities in partnership with GVMC and member jurisdictions.

Non-Applicable

Regional Growth: Collaborate with regional economic development corporations to align mobility solutions and regional growth needs, such as marketing contracted services and last mile solutions to private sector employers and institutions.

Non-Applicable

