

ALIGN



THE RAPID'S TRANSIT IMPROVEMENT STUDY

THE RAPID

Tech Memo #2: Purpose and Need

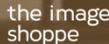
Prepared By: **AECOM** | williams&works |  | 

Table of Contents

1.0	Introduction	1
2.0	Project Purpose and Need Summary.....	2
3.0	Project Need 1: Providing Enhanced Transit Services	4
3.1	Regional Congestion is Growing	4
3.2	Recent Bus Rapid Transit Investments Have Reduced Transit Travel Time.....	5
3.3	System Ridership Has Grown	5
3.4	More People Are Commuting on Transit	6
4.0	Project Need 2: Expanding Safe and Equitable Transit Access	8
4.1	The Region's Equity Populations Are Concentrated in the Urbanized Area.....	8
4.2	Transit Improvement Locations	9
4.3	Walkability Supports Transit Use.....	10
5.0	Project Need 3: Connecting Residents to Jobs.....	13
5.1	Population is Growing.....	13
5.2	Employment is Growing.....	14
6.0	Supporting Urban Revitalization and Economic Development.....	16
6.1	Transit Investment can be used to Guide Growth and Support Development.....	16
6.2	Transit Can Support Implementation of the Vital Streets Plan	17
6.3	Transit Investment Will Support the Implementation of Recent Planning Efforts	18
7.0	Goals and Objectives	19



1.0 Introduction

The *Align* Transit Improvement Study is a year-long project being led by *The Rapid* which will identify, analyze, and prioritize transit improvements with the goal of improving the transit experience in Grand Rapids and the surrounding communities. The study will identify and prioritize improvements to the transit network, recommend land use and other policies to grow ridership, and determine the improvements the public would like to see for the system.

This study will build upon *The Rapid's* previous transit projects, The Silver Line Bus Rapid Transit (BRT) and the Laker Line BRT, to identify opportunities to improve and potentially expand transit service within the urbanized area.

The Rapid's current Service Area consists of the city of Grand Rapids, the city of Walker, the city of East Grand Rapids, the city of Kentwood, the city of Wyoming, and the city of Grandville. The project Study Area includes these six cities but will pursue a regional approach to transit investment by considering the entire Grand Rapid Urbanized Area (UZA) boundary. The UZA extends north to the City of Rockford and west into Ottawa County and includes Hudsonville, Georgetown Township, and Allendale Township.



2.0 Project Purpose and Need Summary

The purpose of *Align* is to improve the transit experience in *The Rapid* Service Area by developing potential improvements to the existing system that will provide efficient travel options for riders. The project needs are related to enhancing transit services, safe and equitable access to transit, connecting to existing density, and economic development.

Project Need 1: Providing Enhanced Transit Services

Roadway congestion and travel delays are increasing due to the growth in population and employment in the region. Congestion is also having negative effects on transit operations. Investing in transit services that provide a competitive option to driving can help to curb the growth of congestion and give residents additional travel options. In addition, specific routes experience overcrowding at certain times of the day resulting in schedule delays and poor quality of service.

Project Need 2: Expanding Safe and Equitable Transit Access

Transit improvements should be made in high-need areas that are currently underserved. Families that rely on transit typically live in the core of the region and may have difficulty accessing regional employment centers, affordable housing, and activity center located in other areas of the region. Equitable transit investments will provide a low-cost, reliable connection to services, housing, and jobs.

Project Need 3: Connecting Residents and Jobs

The areas with the highest population and employment densities also have the highest demand for transportation services. The region's population and employment are forecast to grow through 2035. Nevertheless population growth is projected to occur in different geographic areas than employment growth. Transit investment is necessary to more efficiently connect people and places within the region, even as growth in daily destinations is scattered.

Project Need 4: Supporting Urban Revitalization and Economic Development

Planning documents from the Grand Rapids Region recommend compact, activity center-based growth and development. Cities within *The Rapid* service area are looking to develop denser, more walkable places that are served by transit, while also using transit as an economic development catalyst. Transit investment is needed to implement the vision of creating more livable places served by all types of mobility options.



3.0 Project Need 1 Providing Enhanced Transit Services

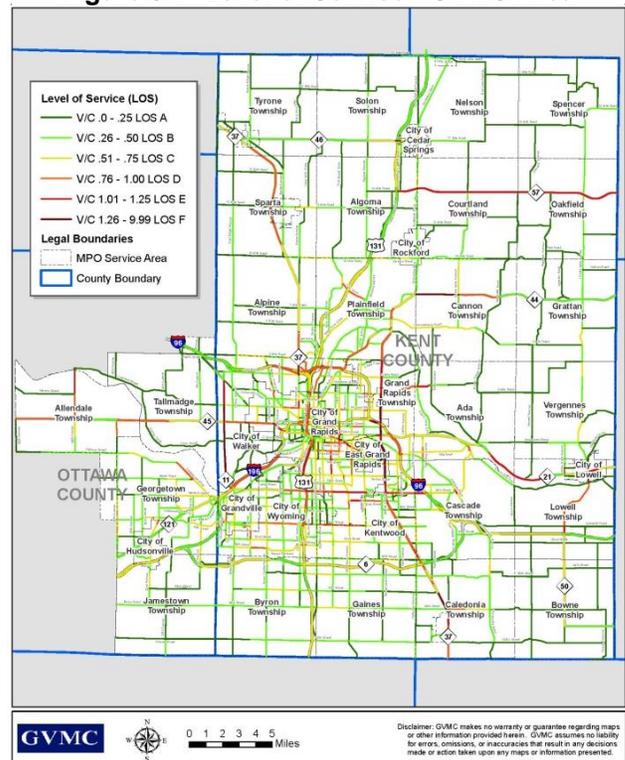
As the Grand Rapids region continues to grow, there will be an increased need for additional transportation options in order to increase the efficiency of the entire transportation system. Over the past 10 years, ridership has grown by nearly four million rides due to various factors, including increased service levels and population growth in transit served neighborhoods. Enhanced transit services that provide a competitive option to driving can help curb congestion growth, provide an easier travel option for riders, and help grow the system's ridership.

3.1 Regional Congestion is Growing

As population and employment continue to grow in the Grand Rapids region, it is expected that roadway congestion will also continue to grow. Grand Valley Metro Council (GVMC) has calculated the Level of Service (LOS) for the major roadways within the MPO region which gives an understanding about the existing congestion levels in the region. Based on **Figure 3-1**, the following roadway sections have the lowest LOS:

- US-131 through Grand Rapids,
- I-96 at US-131
- E Beltline Ave south of 4 Mile Road
- 28th Street through Wyoming and Grand Rapids

Figure 3-1: Level of Service - GVMC Area



- Wilson Avenue in Walker
- 44th Street in Wyoming and Kentwood
- Lake Michigan Drive in Walker

It is projected that the GVMC region will have over 115 miles of congested roadway by 2040, many of which are located in *The Rapid's* service area. Investing in high quality transit that provides a competitive advantage to driving can help create a more efficient and sustainable transportation system for the Grand Rapids region.

Roadway Congestion Slows Transit Service

Roadway congestion impacts transit operations. Crowded roads slow buses down and can lead to poor on-time performance during peak hours and less efficient service. *The Rapid* experiences this issue mostly during the weekday PM Peak, from 3:15 – 5:45 PM, as evidenced by the on-time performance measures¹ for this time period. Of the twenty three (23) non-contracted routes in *The Rapid* system, eighteen (18), or 78%, have an on-time performance of less than 85% of the time during the PM Peak. System-wide, the average on-time performance for the PM peak is just under 74%.

Table 3-1: *The Rapid* System-Wide On Time Performance by Time of Day

FY16 by Time of Day		
AM Peak Avg.	Mid-Day Avg.	PM Peak Avg.
91.7%	87.5%	73.7%

Improving transit service on the most congested roadways can improve travel time for bus riders and increase the overall efficiency of the transportation system. Investments in signals and other technology may help improve congestion on city streets and improve on time performance.

3.2 Recent Bus Rapid Transit Investments Have Reduced Transit Travel Time

In 2014, the Silver Line Bus Rapid Transit (BRT) line was introduced along Division Avenue. The Silver Line showcases some of the investments that could be used in other areas of *The Rapid's* service area to provide faster and more convenient service, including level boarding, off-board fare payment, dedicated transit lanes, and transit signal priority. Travel time between Wealthy Street and 60th Street for the Silver Line is approximately five minutes faster on the BRT than conventional bus.

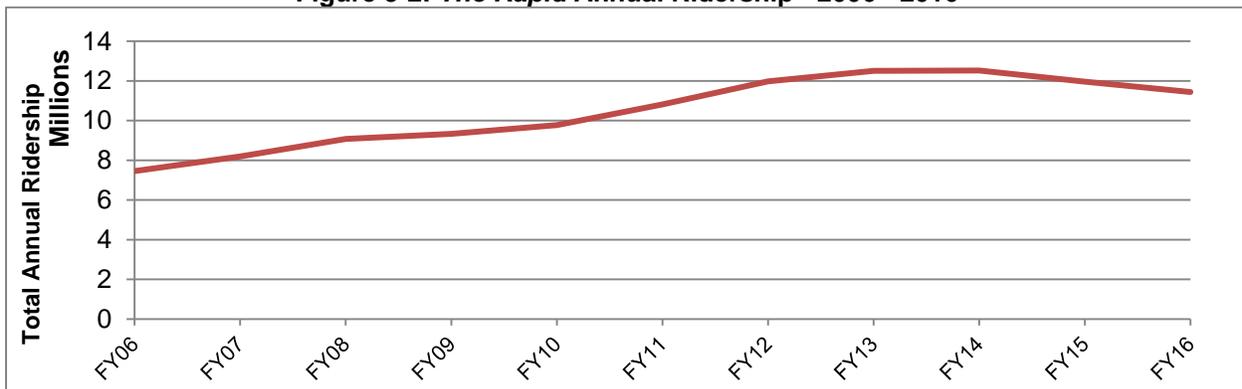
3.3 System Ridership Has Grown

Since 2006, *The Rapid* has experienced an increase in annual ridership from 7.5 million rides to 11.5 million rides, a 53% growth in ridership. Ridership has grown by adding more services,

¹ Service is considered on-time if the arrival time is within 5 minutes of the scheduled time

offering faster and more frequent service, and providing more convenient service. Since 2014, system-wide ridership has leveled off, consistent with ridership trends around the country; this decline is likely due to a number of factors including an improved economy and lower gas prices. The long-term increase in ridership, however, shows that there is demand for public transit in the region, but the recent dip in ridership may suggest that enhancements to the system are needed to maintain an attractive and convenient transit system. **Figure 3-2** shows the annual system-wide ridership between 2006 and 2016.

Figure 3-2: The Rapid Annual Ridership - 2006 - 2016

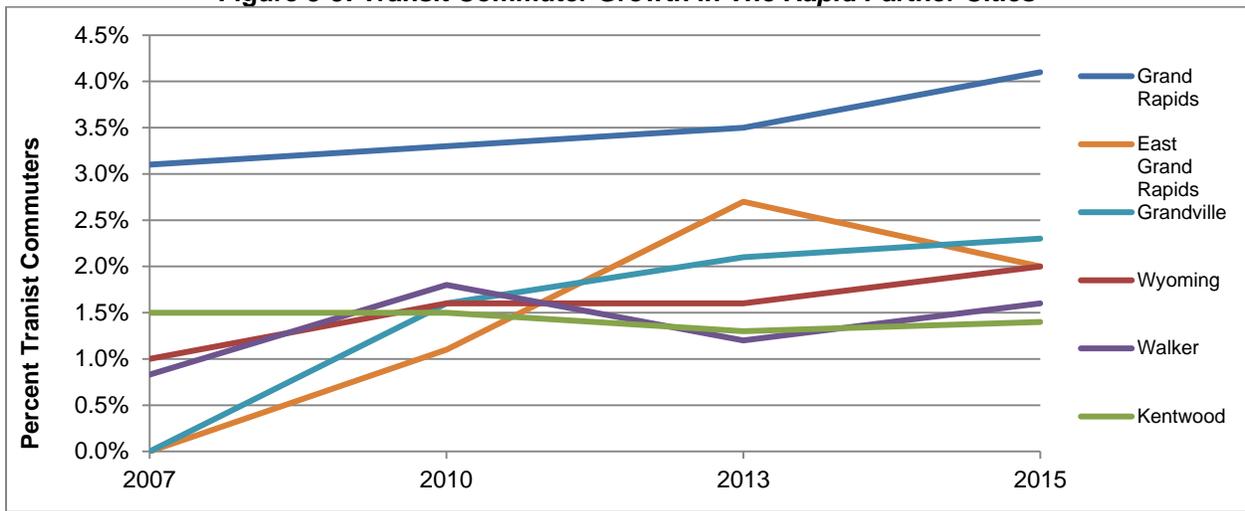


Seventy three percent (73%) of the total system ridership on *The Rapid* is accounted for by high frequency services that run 15 minutes or faster during the peak hour. 15 of *The Rapid's* 27 total routes are considered high frequency. These routes are more competitive with driving because the frequency of service allows riders to be a bit more flexible in their routines. Increasing the number of high frequency routes is a proven way to boost ridership. In addition, improving the frequency of service is a way of reducing overcrowding on buses.

3.4 More People Are Commuting on Transit

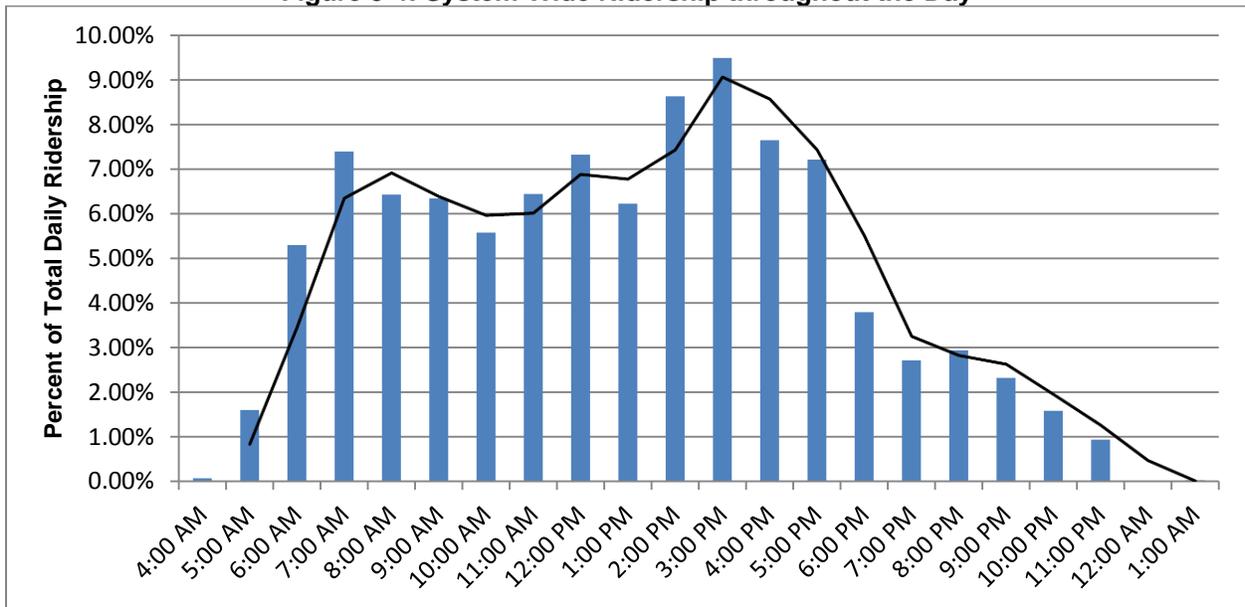
The growth in transit mode share is another sign that the transit service improvements over the past 10 years have helped boost the region's transit ridership. Mode Share is the percentage of travelers using a specific type of transportation. Between 2010 and 2015, the City of Grand Rapids increased its commute mode share from 3.3% to 4.1%, resulting in an increase of nearly 1,700 new transit commuters. Overall, the Service Area increased mode share from 2.5% to 3.0%, or about 2,200 new transit commuters.

Figure 3-3: Transit Commuter Growth in *The Rapid* Partner Cities



Riders are also using *The Rapid* consistently throughout the entire day, starting around 6 AM. There are definite peaks in ridership at 7 AM and from 2 – 4 PM, but there appears to be a steady pace of ridership during the mid-day from 8 AM – 2 PM. Currently, *The Rapid's* peak hour service times are from 6:15 – 8:45 AM and from 3:15 – 5:45 PM. Part of the transit enhancement strategies may be to adjust the peak hour times or provide more frequent service during the mid-day.

Figure 3-4: System-Wide Ridership throughout the Day





4.0 Project Need 2

Expanding Safe and Equitable Transit Access

Investments in transit services have recently been made along the highest traffic corridors in *The Rapid* system. New investments should also consider areas where residents rely on transit for mobility and areas lacking service. Families that rely on transit typically live in the core of the region and may have difficulty accessing regional employment centers, affordable housing, and activity centers located in other areas of the region. Equitable transit investments will provide a low-cost, reliable connection to services, housing, and jobs.

4.1 The Region's Equity Populations Are Concentrated in the Urbanized Area

The majority of the Urbanized Area's (UZA) individuals and families that potentially rely on transit live within the six-city Rapid Service Area. High densities of minority groups, zero car households, individuals in poverty, and senior populations in a specific area is one metric in determining where demand for transit is located. These groups are clustered in the denser parts of the region and may have difficulty accessing farther reaching regional employment centers, affordable housing, schools, and other activity centers.

Eighty six percent (86%) of the zero-car households in the UZA are located in *The Rapid's* service area and seventy six percent (76%) of all minorities in the UZA live in the Service Area. Seventy nine percent (79%) of all of the individuals living in poverty and sixty percent (60%) of all seniors within the UZA reside in the Service Area. **Table 4-1** shows the totals and percentage of each demographic group in *The Rapid's* Service Area and the UZA.

Table 4-1: Equity Populations in *The Rapid* Service Area and UZA

	Minority		Zero Car Households		Poverty		Seniors	
	Total	% of UZA	Total	% of UZA	Total	% of UZA	Total	% of UZA
Service Area	87,804	76%	14,803	86%	71,247	79%	57,134	60%
UZA	114,457	-	17,188	-	90,342	-	94,665	

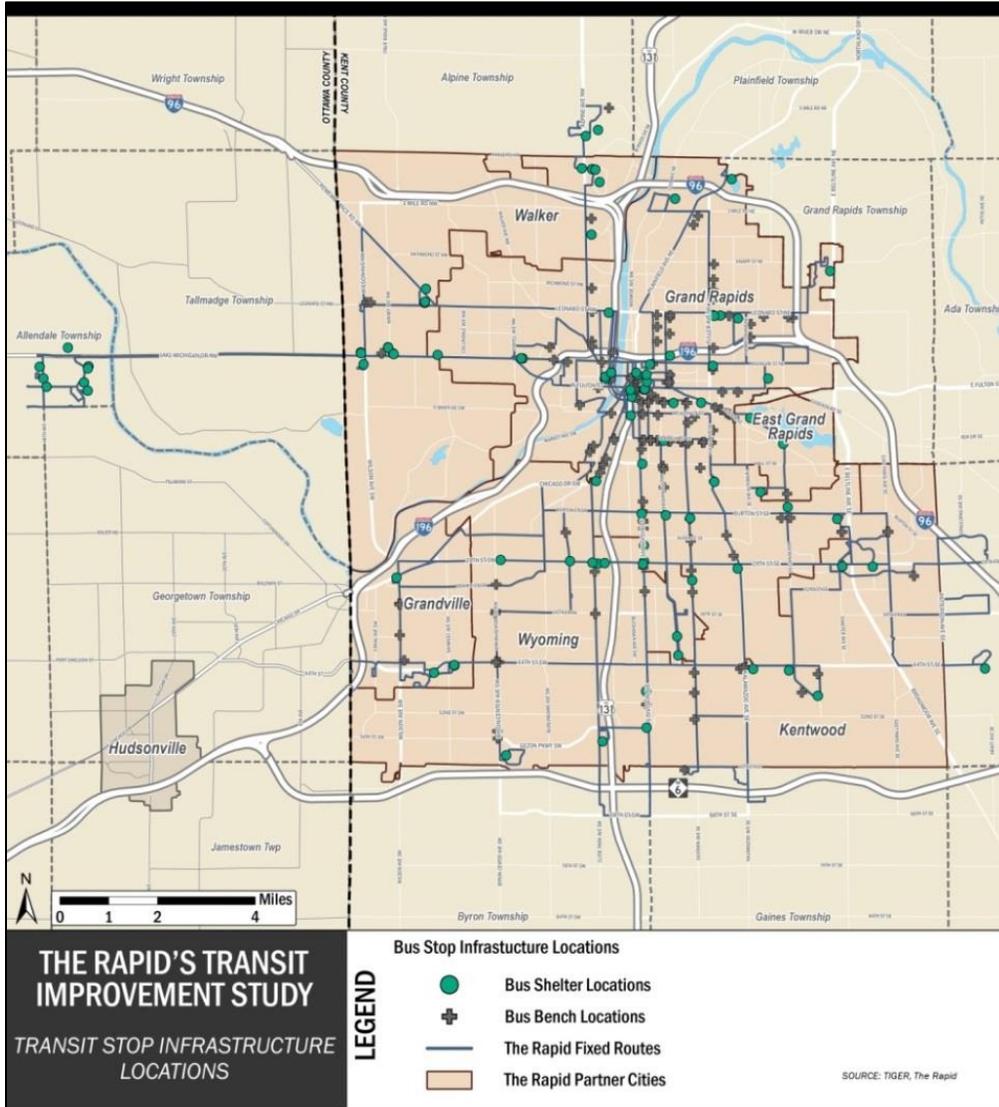
Investing in transit services within the Service Area, specifically to areas with a high propensity for transit, will provide additional transportation options for those without access to a vehicle. Additionally, investing in new transit routes or infrastructure in underserved areas can also make transit more attractive. More equitable access to transit services can be achieved by strategically targeting investments to the neighborhoods that need it most. Developing a system with fast and convenient buses will provide an attractive transportation option for residents who want to live car free.

4.2 Transit Improvement Locations

Bus benches and shelters provide a more comfortable and more inviting transit experience because they provide a place to sit and, in the case of a bus shelter, provide protection from the elements. *The Rapid* currently has 160 benches and 107 shelters installed throughout the Service Area, however there appear to be areas with high transit usage that are missing these amenities. **Figure 4-1** Error! Reference source not found. shows the location of the existing bus shelters and benches in *The Rapid* service area.

The highest density of stop infrastructure is located in Downtown Grand Rapids and the surrounding neighborhoods. Installing stop infrastructure in areas currently underserved will make transit more visible and may help boost ridership in those areas, while giving existing riders a safer and more comfortable area to wait. The availability of bus stop amenities in outlying areas may also help attract commuters and non-choice riders.

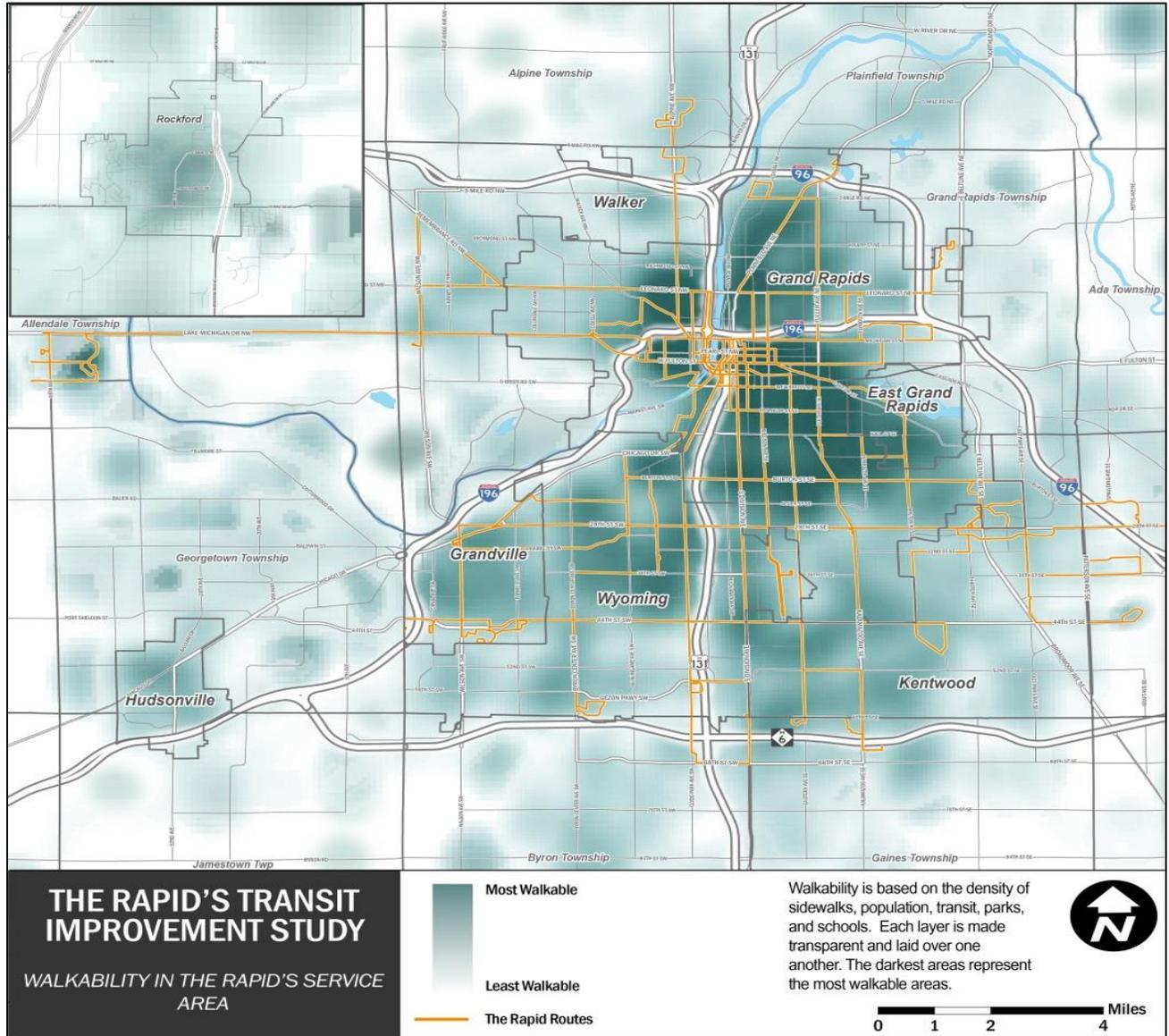
Figure 4-1: Transit Stop Infrastructure Locations



4.3 Walkability Supports Transit Use

Since all transit trips begin and end with a walking trip, having safe, walkable streets near transit lines are imperative to maintaining and increasing ridership. Strategic investments in pedestrian amenities should be carried out in areas with transit service and low walkability rating. Conversely, areas with high walkability that are lacking transit service could be considered for new transit service. **Figure 4-2** shows the walkability analysis for the Service Area.

Figure 4-2: Walkability Analysis for Rapid Service Area



Based on the analysis of walkable streets in the Service Area, the following areas with transit service could be candidates for improved pedestrian facilities:

- 48th Avenue, west of Grand Valley State University
- Alpine Avenue, north of Richmond Street
- Leffingwell Avenue, north of Leonard Street
- Lake Michigan Drive through Walker
- Around the airport

The following areas have high walkability, but may be lacking transit service:

- Franklin Road from Fuller Road to Breton Road in East Grand Rapids
- Knapp Street from Monroe Avenue to Leffingwell Avenue in northeast Grand Rapids
- Downtown Hudsonville
- Downtown Rockford
- Creston Neighborhood, north of Downtown Grand Rapids
- SECA and Madison Area Neighborhoods in southern Grand Rapids
- Grandville, near Wilson Avenue and 40th Street SW



5.0 Project Need 3 Connecting Residents to Jobs

Typically, the areas with the highest population and employment densities have the highest demand for transportation services and therefore tend to have higher transit ridership. The region's population and employment are forecast to grow through 2040. Nevertheless population growth is projected to occur in different geographic areas than employment growth. Job growth will be concentrated in the downtown and pockets throughout the UZA; population growth is forecast to occur throughout the region. Transit investment is necessary to more efficiently connect people and jobs within the region.

5.1 Population is Growing

In 2010, the population in the six-city, Rapid service area was 358,481 and, by 2016, increased by nearly 18,000, about a 5% growth rate. The City of Grand Rapids, Kentwood, and Grandville are expected to see between 11% and 17% increases in population. **Table 5-1** shows the 2015 and forecast 2040 population for the Service Area and the entire UZA.

Table 5-1: Population Growth in the Grand Rapids UZA Cities

Municipality	2015 Population		2040 Population		% Change
	Total	Density	Total	Density	Population
Rapid Partner Cities	368,005	2,203	379,226	2,271	3.1%
Urbanized Area	557,002	2,077	600,470	2,239	7.8%

Source: US Census, ACS 2009-2015, GVMC 2040 Long Range Transportation Plan

The highest population density areas are located around Downtown Grand Rapids, between Division Avenue and Plymouth Avenue, from Burton Street to Knapp Street. These areas are home to higher density historic neighborhoods, new mixed-use apartment buildings, and

neighborhood business districts. In the future, it is expected that population growth will extend from these areas and farther out in to the townships that surround the six Rapid partner cities.

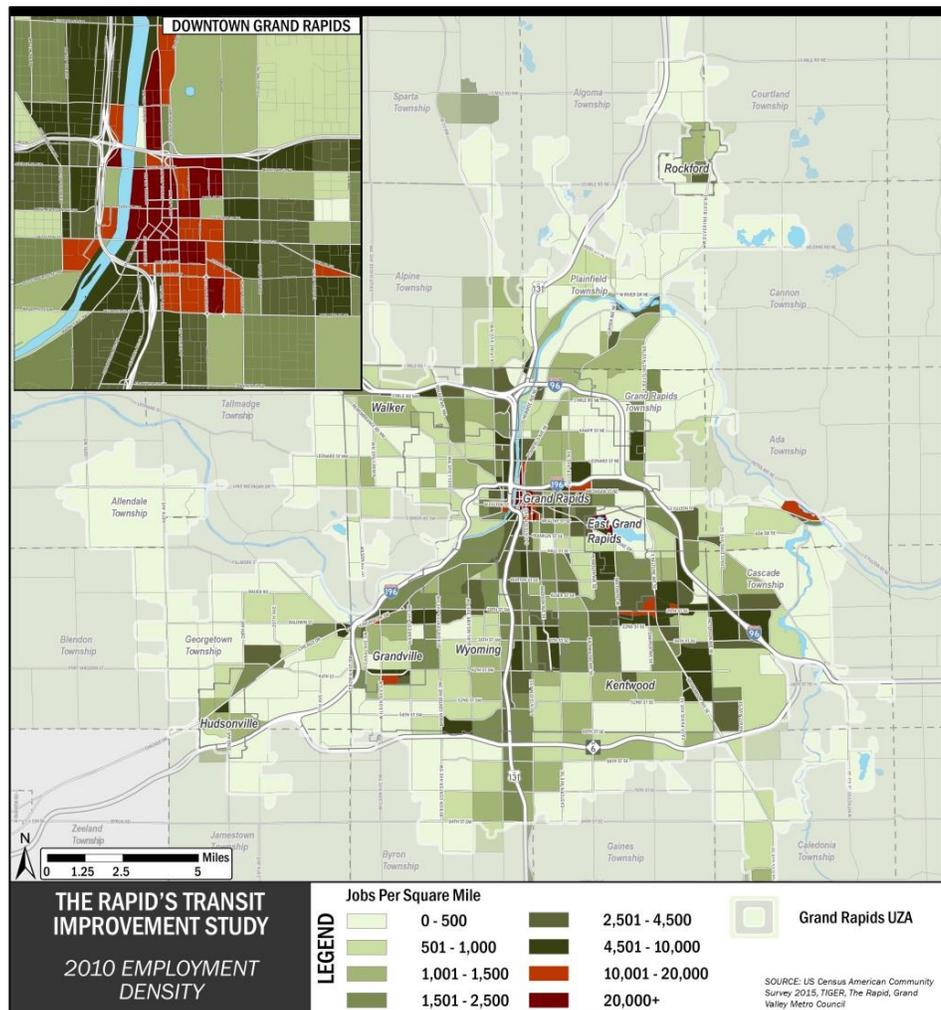
Investing in transit that serves the highest density areas will yield a greater return than providing services to less dense neighborhoods. In the denser neighborhoods, space is at a greater premium and transit's inherent efficiencies can help free up room for other transportation modes, reduce the need for parking, and provide residents with a cost effective travel solution.

5.2 Employment is Growing

As part of the 2040 Long Range Transportation Plan, the GVMC developed a model that forecasts employment levels to 2040. These figures were used to determine where jobs are currently located and where employment growth is expected to occur within the Grand Rapids UZA. Between 2010 and 2040, employment in the Study Area is expected to grow by nearly 61,000 jobs.

As of 2010, the highest concentration of jobs is located in Downtown Grand Rapids from I-196 to Franklin Street SW, between the Grand River and Madison Avenue SE. Areas of high employment growth are expected mostly on the periphery of *The Rapid's* service area where currently there are few jobs. However, the area north of I-196 along Division Ave in Downtown is expected to see very high employment growth, likely due to the increased presence of hospitals and medical services in the area.

As employment continues to grow, job centers like Downtown



Grand Rapids will continue to become more congested. Investing in transit from population centers to areas of high employment is necessary to more efficiently connect people and places within the region. The job centers will start to see additional demands on parking and street space that cannot be solved by building more parking areas or widening streets. Transit can efficiently transport commuters into high density areas without the need to provide space for private vehicles.

Additionally, employment growth at the edges of the service area is growing as well. Many of the new jobs in these areas are in the service industry, at retail stores, or are manufacturing jobs that are typically held by many transit dependent individuals. In order to connect workers to these jobs, it may be necessary to extend core routes into developing areas on the urban fringe. Extending service hours and developing additional last mile connections to the outlying areas with high job growth will also be necessary to for the employees working there.



6.0 Project Need 4 Supporting Urban Revitalization and Economic Development

6.1 Transit Investment can be used to Guide Growth and Support Development

High quality transit has the potential to catalyze economic development and promote stable and strong neighborhoods in the Grand Rapids region. Bus Rapid Transit projects in Grand Rapids and throughout the country have demonstrated the ability to catalyze new development along their routes, including:

- **Cleveland, OH's HealthLine BRT** travels through the heart of Downtown Cleveland and is credited with generating \$5.8 billion in economic development along the route while providing rapid and comfortable service to major job centers.
- **Eugene, OR's Emerald Express (EmX) BRT** connects Eugene and Springfield, OR, a metro area about the size of Grand Rapids. Over \$100 of private transportation oriented development has been invested along the EmX BRT.
- **Pittsburg, PA's MLK Jr East Busway** is the country's earliest BRT line, opened in 1977, and connects the western suburbs to Downtown Pittsburgh. \$900 million in private TOD investment has been generated along the MLK busway.

- **Las Vegas, NV SDX BRT** opened in 2004 and travels 7.5 miles between Nellis Air Force Base and Downtown Las Vegas. The SDX BRT is credited with generating about \$2 billion in private TOD investment along the corridor².

There are great opportunities in Grand Rapids and the surrounding communities to encourage new development, infill development, and redevelopment along transit corridors by using enhanced transit and BRT as a catalyst for private investment.

6.2 Transit Can Support Implementation of the Vital Streets Plan

The City of Grand Rapids recently developed their Vital Streets plan that lays out a foundation for how to prioritize investments and apply complete street design standards to specific city streets in Grand Rapids. The streets were first categorized by 'Street Type' which include the following designations:

- Neighborhood Residential – Slow speed, residential streets
- Link Residential – Residential streets that connect activity centers and neighborhoods
- Network Residential – Residential corridors that serve a role in the transportation network
- Neighborhood Business – Streets within residential areas that provide shopping, dining, and employment opportunities
- Crosstown Connectors – Vehicular oriented streets that carry a higher volume of traffic
- Urban Center – Downtown streets with multi-modal focus
- Maker/Industrial Streets – Streets scaled to truck traffic that serve manufacturing areas

Each of the streets categorized by 'Street Type' was then assigned a mode emphasis. These mode emphases include Balanced, Vehicle/Truck, Bicycle: Commuter, Bicycle: Community, Vehicle/Truck + Transit, and Transit. The following streets were determined to be Transit or Vehicle/Truck + Transit streets:

² <https://todresources.org/app/uploads/sites/2/2016/06/NATIONAL-STUDY-OF-BRT-DEVELOPMENT-OUTCOMES-11-30-15.pdf>

- Plainfield Avenue NE
- Lafayette Avenue NE
- Michigan Street
- Monroe Avenue NW
- Grandville Avenue SW
- Fulton Street
- Jefferson Avenue
- Lake Drive SE
- Eastern Avenue SE
- Division Avenue S
- Lake Michigan Dr

The Transit emphasized streets listed above should be targeted for more design treatments that help make transit more attractive and emphasize transit travel. These design treatments include relocated transit stops, enhanced stop amenities, smart signal operations, bus bulbs, queue jump lanes at intersections, traffic signal priority, and/or dedicated transit lanes. Pairing these investments with strategies to increase Transit Oriented Development along these streets can be used to attract additional transit riders.

6.3 Transit Investment Will Support the Implementation of Recent Planning Efforts

Local planning documents in the region are focused on created more compact, activity center focused places in their cities. These higher density districts will incorporate transit by incorporating transit oriented design elements into streetscape redesigns and new developments. Grand Rapids' Michigan Street Corridor Plan lists transit accessibility as a guiding principle for the Plan. The City of Wyoming is recommending in their 2020 Land Use Plan for high density housing, 14 foot sidewalks, bus shelters, and bus pull outs for the section of Division Avenue north of 44th Street. The Silver Line BRT currently operates here and could be considered an amenity for potential new developments here.

Other local planning efforts are specifically focused on increasing transit access for residents of the region. The Rose Center for Public Leadership – Grand Rapids Equity study lists mobility as a way to address equity issues in the region. The various Grand Rapids plans (GR Forward, Green Grand Rapids, Grand Rapids Master Plan) all list expanded transit service as a way to improve the efficiency of the transportation system and create a more livable city. The Cities of Kentwood and Grandville both list improved transit as a priority to creating a more balanced transportation system.



7.0 Goals and Objectives

Goal: **Provide enhanced transit service options to grow ridership and improve reliability**

- Identify feasible new corridors for enhanced transit operations such as BRT, express bus, limited-stop services, etc. Locate areas where new transfer stations or hubs could be established
- Improve pedestrian and bicycle access to the transit system
- Leverage infrastructure and technology to improve reliability and reduce travel time
- Optimize the route network and schedules to maximize connectivity at transfer points
- Create a more user-friendly rider experience to encourage transit use

Goal: **Improve equitable access to transit services**

- Increase mobility and accessibility for transit-dependent populations
- Identify service gaps and infrastructure needs in underserved neighborhoods

Goal: **Prioritize future transit enhancement projects that maximize positive regional impact**

- Consider prioritizing transit projects that:
 - Connect transit services to high density neighborhoods
 - Connect transit services to major employment centers and regional destinations
 - Serve high activity transit stops
- Provide frequent, direct transit connections between key regional activity centers

Goal: **Foster transit supportive land use policies and encourage economic development**

- Position *The Rapid* as an added feature and benefit to future economic development initiatives
- Use the Vital Streets Plan as a guide for the location of new transit investments

- Develop policies and municipal support for transit friendly land use and zoning
- Encourage municipalities and developers to integrate transit friendly design features into new developments
- Identify areas where transit oriented development is feasible from both a market and planning perspective

Goal: ***Develop and select implementable investments that have community support***

- Define and select investment corridors and enhancement projects with strong public, stakeholder, and agency support
- Define and select investment corridors and enhancement projects that are cost-effective and financially feasible in both the short- and long-term
- Define and select investment corridors and enhancement projects that are competitive for Federal and State grant funding