

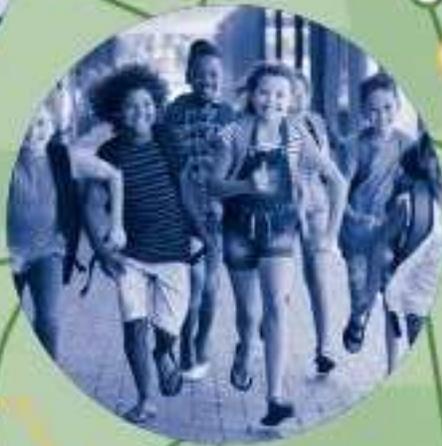
THRIVING

A framework for the future of connectivity.

INTERCOUNTY CORRIDOR ANALYSIS

The Rapid Transit Master Plan (TMP)
Interurban Transit Partnership (ITP)

September 5, 2024



THE RAPID

Quality Information

Prepared by

Catherine Osborn,
AICP
Mihir Sriram Aranala

Checked by

Daksha Masurkar

Approved by

Andrew Ittigson

Revision History

Revision	Revision date	Details
00	5/19/2024	Intercounty Corridor Analysis – first draft
01	9/05/2024	Second draft, revised as per Rapid feedback

Table of Contents

- Executive Summary1**
- Introduction3**
 - Study Area.....3
 - Report Organization3
- Trip Volume Analysis4**
- Corridor Analysis.....5**
 - High-Volume Corridors Analysis.....5
 - Corridor Identification.....13
- Corridor Prioritization and Ranking17**
 - Prioritization and Ranking Results17
- Conclusion and Next Steps19**
 - Within Zone One20
 - Within Zone Two22
 - Between Zone One and Zone Two23
- Appendix A25**
- Appendix B26**

Figures

- Figure 1: Intercounty Corridor Analysis Study Areas 2
- Figure 2: Strongest Trip Pairs Originating and Ending within Zone One Travel Districts 8
- Figure 3: Strongest Trip Pairs Originating and Ending within Zone Two Travel Districts10
- Figure 4: Strongest Trip Pairs Originating within Zone One and Ending within Zone Two Travel Districts12
- Figure 5: High-Volume Trip Corridors (AADT)14
- Figure 6: Corridors According to the Strongest Trip Pairs (>4,000 Trips) 16
- Figure 7: Top Five and Above Average Ranked Corridors 19

Tables

- Table 1: Increase in the Number of Households and Jobs from 2020 to 2050 in Zones One and Two4
- Table 2: Increase in Regional and Study Area Trips for All Trip Purposes4
- Table 3: Top Ten Bidirectional O-D Trip Pairs from Zone One to Zone One6
- Table 4: Top Ten Bidirectional O-D Trip Pairs from Zone Two to Zone Two9
- Table 5: Top Ten O-D Trip Pairs between Zone One and Zone Two 11
- Table 6: Corridors According to the Strongest Trip Pairs (>4,000 Trips)15
- Table 7: Corridor Scores and Prioritization 18

Executive Summary

This Intercounty Corridor Connectivity Analysis builds upon the assessment of potential transit markets outlined in the **Market Analysis** task to identify rank and prioritize connections within and into the study areas of Zone One and Zone Two, as defined in **Figure 1**. These results, along with the public feedback, will inform the Future Options and Scenarios Technical Report, which will identify corridors to link potential transit markets.

The trip volume and corridor analyses in this report discusses the relationships between Zone One and Zone Two trip patterns. Trip volume helped to identify potential intercounty connections along major corridors. These corridors were then evaluated for current travel demand, expected future growth, and proximity to transportation dependent population groups. Findings from this analysis are discussed below for each zone.

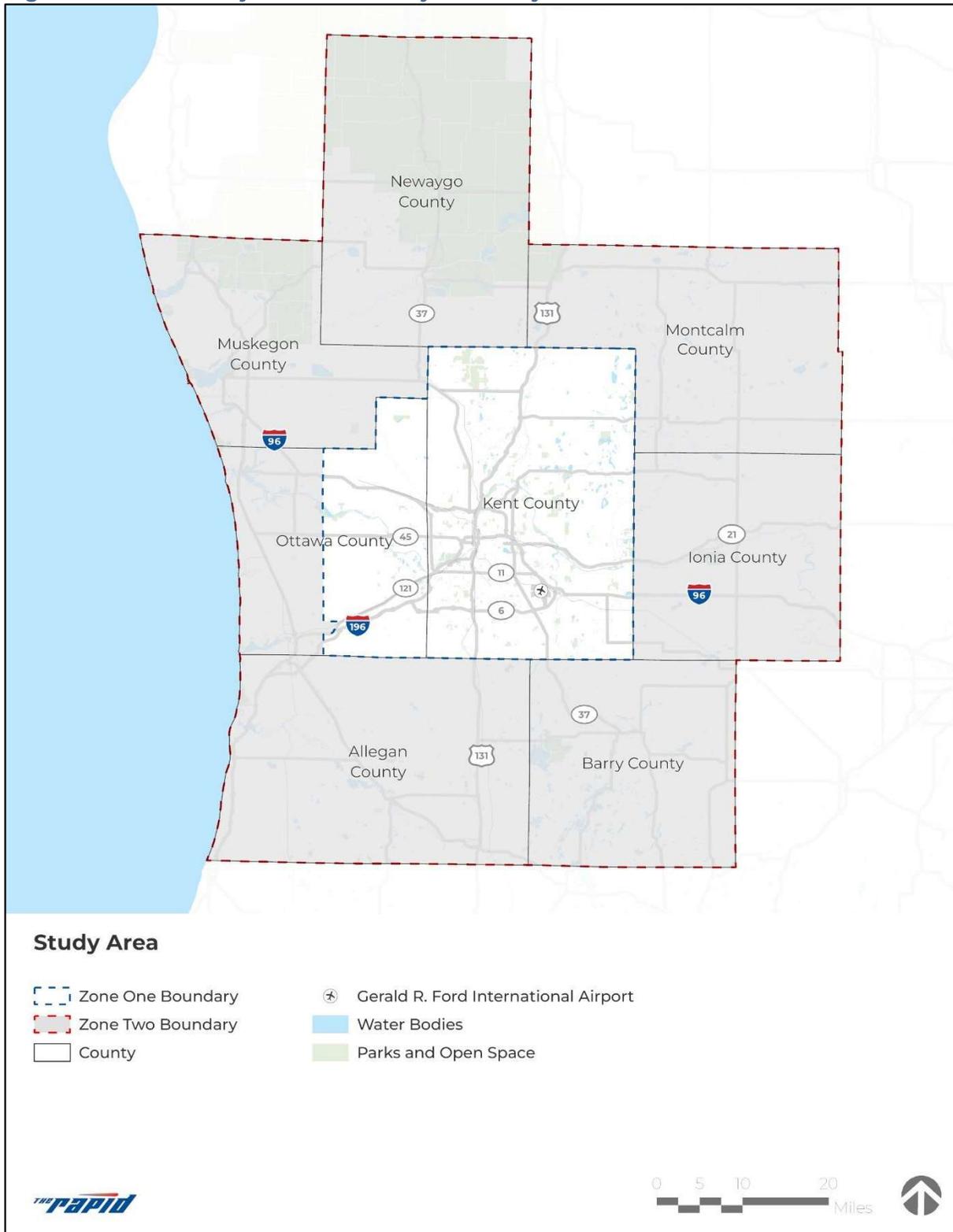
Trips within Zone One

Zone One is expected to experience the greatest increase in trip volume growth over the next 30-year period. According to 2020 GVMC trip estimates, the total number of trips that originate and end in Zone One were approximately 1.7M in 2020 and are expected to be 2.0M in 2050, a 17% increase, according to 2050 GVMC trip projections. This is likely due to high expected household and employment growth. Households are expected to grow by 26.7% and employment is expected to grow by 20%.

There are several opportunities to increase intercounty connectivity within Zone One to meet current needs and potential future growth. Top connections and corridors include the following:

- Lake Michigan Dr NW from Grand Rapids to Allendale.
- Walker Ave NW from Alpine Ave NW to 4 Mile Road (Walker)
- Barry St/54th St SW/52nd St from Gerald R Ford Airport to I-196 (Grandville)
- 84th St SE from Byron Center to Caledonia
- Beltline Ave SE/Broadmoor Ave SE from Caledonia to Fulton St (East Grand Rapids)

Figure 1: Intercounty Corridor Analysis Study Areas



Note: Throughout the analysis, areas depicted as Zone Two does not include areas within Zone One. In other words, Zone One is hollow when referring to the geographic area that makes up Zone Two.

Trips within Zone Two

According to 2020 GVMC trip estimates, Zone Two is shown to have the highest number of trips in 2020 at 2.3M compared to all other trip patterns. However, using 2050 GVMC trip projections, Zone Two trip volume growth is only expected to increase by 5% to 2.5M in 2050. This is likely due to lower expected household and employment growth compared to Zone One. Households are only expected to grow by 16.8% and employment is expected to grow by 14.4%.

There are a few opportunities to collaborate and implement regional connections within Zone Two to meet current needs and/or support future growth. The top corridor for intercounty connectivity is US Highway 31 between Muskegon, Grand Haven, and Holland. Other than US Highway 31, there are not many corridors with strong opportunities for intercounty connectivity. However, there are several opportunities for localized connectivity that may be explored in a microtransit or other study of context-sensitive services, as follows:

- Holland & Zeeland
- Greenville
- Ionia
- Allegan
- Fremont
- Newaygo
- Wayland
- Caledonia

Trips between Zone One and Zone Two

Zone One has 60% more jobs and 12% more households than Zone Two, serving as a more job-dense attractor for trips. However, trip volume between the two zones is relatively low compared to trip volume within each zone. Bi-direction trips between Zone One and Zone Two are about 276,000 in 2020 and expected to be 300,000 in 2050. These bidirectional trips represent an expected growth rate of approximately 9% across the 30-year period.

There are several opportunities for existing routes to be extended or added to meet current and future intercounty connectivity needs between Zone One and Zone Two. Top connections and corridors include the following:

- Chicago Dr between City of Holland and Grand Rapids
- US 131 from Wayland to Grand Rapids.
- Alpine Ave NW from Grand Rapids to Alpine Township
- Plainfield Ave NE from Grand Rapids to Rockford

Potential Service Concepts

The Intercounty Connectivity Analysis also considers service concepts for some of the top ranked corridors. Many service concepts require stakeholder feedback for prioritization, additional feasibility reviews, and implementation planning. Notably, many corridors also enter municipalities that are not part of the ITP Member Communities. Additional consideration must be given to service agreements and funding when exploring any service concepts.

Examples of service concepts* include, but are not limited to, the following.

- A. Pilot a microtransit zone connecting the western termination of The Rapid Laker Line and adjacent areas, such as Allendale Charter Township
- B. Express or limited bus service between Wayland and Grand Rapids with park and ride stops potentially located in Wayland, Moline, Cutlerville, and Kentwood
- C. Extend Route 9 north to 6 Mile Rd and/or pilot a microtransit zone in Alpine Township
- D. Extend Route 11 north to Rockford and/or pilot a microtransit zone in Plainfield Charter Township
- E. Limited or express service between Holland, Grand Haven, and Muskegon

**Note, these concepts are not listed by priority.*

Introduction

This Intercounty Corridor Connectivity Analysis Report builds upon the assessment of potential transit markets outlined in the Task 4 – Market Analysis to identify rank and prioritize connections within and into the study areas of Zone One and Zone Two. These results, along with the public feedback, will inform the Future Options and Scenarios Technical Report, which will identify corridors to link potential transit markets.

Study Area

To analyze both intercounty and local potential corridors, two areas of analysis are used in this report, as depicted in **Figure 1**.

1. **Zone One:** Is made up of Kent County and parts of Ottawa County which intersect the Grand Rapid's urbanized area. The geographic area of zone one in this analysis is the same as zone one studied in the Market Analysis TMP task.
2. **Zone Two:** Encompasses the five counties that make up the Grand Valley Metropolitan Council region, including Ottawa, Kent, Allegan, Barry, Ionia, and Montcalm Counties, as well as Newaygo and Muskegon Counties.

Report Organization

The remainder of this report is divided into two sections: **Trip Volume Analysis** and a **Corridor Analysis**.

In the **Trip Volume Analysis** section of the report, aggregated trip volumes will be summarized for the following trip pairs:

- Originate and end within Zone One (Zone One to Zone One)
- Originate and end within Zone Two (Zone Two to Zone Two)
- Trips between Zone One and Zone Two
 - Originate in Zone One and end in Zone Two
 - Originate in Zone Two and end in Zone One
- Percentage change of overall trips from 2020 to 2050

The **Corridor Analysis** section of the report will identify, rank, and prioritize connections within, into, and outside of the study areas of Zone One and Zone Two by

- Identifying corridors based on the strongest trips pairs in each trip pattern (as listed above).
- Ranking and prioritizing corridors by three measures: recent traffic volume, future trip growth, and adjacent transit-dependent population groups.

Trip Volume Analysis

The trip volume analysis examines aggregated trip volumes to understand overall travel patterns and demographic details of each geographic area, such as the volume of trips taken or the number of households within each of the study areas. Analysis of these metrics can help contextualize the geographic study areas and identify how many people are moving within each geographic area. A comparison of existing and future household and employment conditions is represented in the total number households and jobs per study area, as shown in **Table 1**.

Zone One had 12% more households and 60% more jobs than Zone Two in 2020. Compared to Zone Two, Zone One is expected to exhibit a higher rate of growth from 2020 to 2050. Households are expected to grow by 26.7% in Zone One compared to 16.8% in Zone Two. Employment is also expected to grow by 20% in Zone One compared to 14.4% in Zone Two. Sizable growth is expected across both geographic areas.

Table 1: Increase in the Number of Households and Jobs from 2020 to 2050 in Zones One and Two

Households						Jobs					
Zone One			Zone Two*			Zone One			Zone Two*		
2020	2050	% Growth	2020	2050	% Growth	2020	2050	% Growth	2020	2050	% Growth
298,670	378,579	26.7%	265,042	309,764	16.8%	535,178	642,658	20.0%	333,452	381,715	14.4%

*Data source: 2020 and 2050 MDOT Statewide & Urban Travel Analysis Section
Zone Two excludes the area and associated trip/population data of Zone One.

A comparison of existing and future trip patterns per study area is shown in **Table 2**. The total number of trips that originate and end in Zone One are approximately 1.7M in 2020 and 2.0M in 2050. This represents a 17% increase and the highest rate of expected trip volume change compared to all other trip patterns.

Trips within Zone Two are approximately 2.3M in 2020 and 2.5M in 2050. Although Zone Two is shown to have a higher number of trips in 2020 than Zone One, it's expected trip volume growth increases by 5%. It is unlikely there will be as great of trip volume change within Zone Two between 2020 and 2050.

Bidirectional trip pairs between Zone One and Zone Two are broken up by direction throughout this analysis (Zone One to Two and Zone Two to One), as shown in **Table 2**. The two trip patterns represent each direction of bidirectional trip pairs between the Zone One and Zone Two study areas. Combining the bidirectional trips, trip volume between the Zone One and Zone Two are about 276,000 in 2020 and 300,000 in 2050. These bidirectional trips represent an expected growth rate of approximately 9% across the 30-year period. While it is not as high as the increase in trip volume for origin-destination (O-D) trip pairs within Zone One, it does represent some opportunity for more trips across the boundary of Zone One and Zone Two.

Assuming the same transit service levels, the Grand Valley Metro Council (GVMC) estimates mode split between 2020 and 2045 for the GVMC region This includes all of Kent County and part of Ottawa County, consistent with the boundaries of Zone One. Between 2020 and 2045, the projected transit mode share in the GVMC region will decrease from 0.83% in 2020 to 0.61% in 2045. Applying the 2045 projected mode split to the 2050 Zone One estimated trips result in a rough estimate of 1,192,603 transit trips within Zone One in 2050.

Table 2: Increase in Regional and Study Area Trips for All Trip Purposes

		Destinations					
		Zone One			Zone Two (excluding Zone One)		
		2020	2050	Percent Growth	2020	2050	Percent Growth
Origin	Zone One	1,669,167	1,955,088	17%	138,918	150,982	9%
	Zone Two	137,278	148,599	8%	2,355,786	2,477,923	5%

2050 Data source: 2050 GVMC Projections

Note: 2020 trip volume estimates are likely to be underrepresented due to changing trip patterns during the Covid-19 Pandemic. Given the 2050 trip volume estimates are derived based on the 2020 values, 2050 trip volume may also be underrepresented. A review of projected trips when 2025 data is available may provide a more confident representation of future trip volume. However, the relationship of trip volume across the two timepoints is still a valid representation of growth for the purpose of this analysis.

Corridor Analysis

To understand travel patterns in more detail within and between the two study areas, the corridor analysis examines trip volume data by smaller travel districts. The goal of this analysis is to identify corridors between travel districts with high trip volumes, then prioritize these corridors for future transit service feasibility review by evaluating trip volume, future trip growth, and critical demographic groups.

High-Volume Corridors Analysis

Corridors for analysis were identified by overlaying existing roadways with high-volume origin-destination trip pairs between travel districts. Travel districts were defined by aggregating TAZs to the boundaries of all townships and municipalities within each geographic area, resulting in 237 unique travel districts for analysis.

Replica Spring 2023 trip data was used to calculate the strongest origin-destination (O-D trip volume pairs between these travel districts. Origin-destination trip volume pairs *within* each unique travel district and *between* travel districts are identified in **Tables 3-6** for each of the following trip patterns.

- Originate and end within Zone One travel districts
- Originate and end within Zone Two travel districts
- Between Zone One and Zone Two travel districts

Trips within Zone One

Trips beginning and ending in Zone One show intercounty connectivity consistent with the analysis performed using 2021 spring trip estimates for the same geographic area in the **Market Analysis**. Bidirectional trip volume pairs of **more than 30,000 trips** between top ranked municipalities and townships indicate stronger cross-regional connections, as shown in **Figure 2**.

Connections within and between the top ten ranked municipalities and townships are shown in **Table 3**. Some bidirectional trips are between the same municipality or township (e.g., City of Grand Rapids to City of Grand Rapids, City of Wyoming to City of Wyoming, etc.). To

emphasize strong cross-jurisdictional connectivity, bidirectional trip volume pairs of more than 30,000 trips between different municipalities or townships are bolded in **Table 3**.

Table 3: Top Ten Bidirectional O-D Trip Pairs within Zone One

Rank	From	To	Bidirectional Trip Volume
1	City of Grand Rapids	City of Grand Rapids	434,926
2	City of Wyoming	City of Wyoming	139,683
3	City of Grand Rapids	City of Wyoming	97,705
4	City of Grand Rapids	City of Kentwood	93,697
5	City of Kentwood	City of Kentwood	71,855
6	City of Grand Rapids	City of Walker	60,361
7	Allendale Township	Allendale Township	56,207
8	City of Walker	City of Walker	51,352
9	Ada Township	Ada Township	41,480
10	City of Grandville	City of Wyoming	40,770

Data source: 2023 Replica Spring origin-destination trip pair volume

Within Zone Two

Trips beginning and ending in Zone Two are strongest in areas of localized connectivity compared to intercounty connections. Bidirectional trip volume pairs of **more than 30,000 trips** indicate stronger localized connections, between top ranked municipalities and townships, as shown in **Figure 3**.

Connections within and between the top ten ranked municipalities and townships are shown in **Table 4**. Similar to trips within Zone One, many bidirectional trips within Zone Two are between the same municipality or township (e.g., City of Holland to City of Holland, City of Muskegon to City of Muskegon, etc.). To emphasize strong cross-jurisdictional connectivity, bidirectional trip volume pairs of more than 30,000 trips between different municipalities or townships are bolded in **Table 4**.

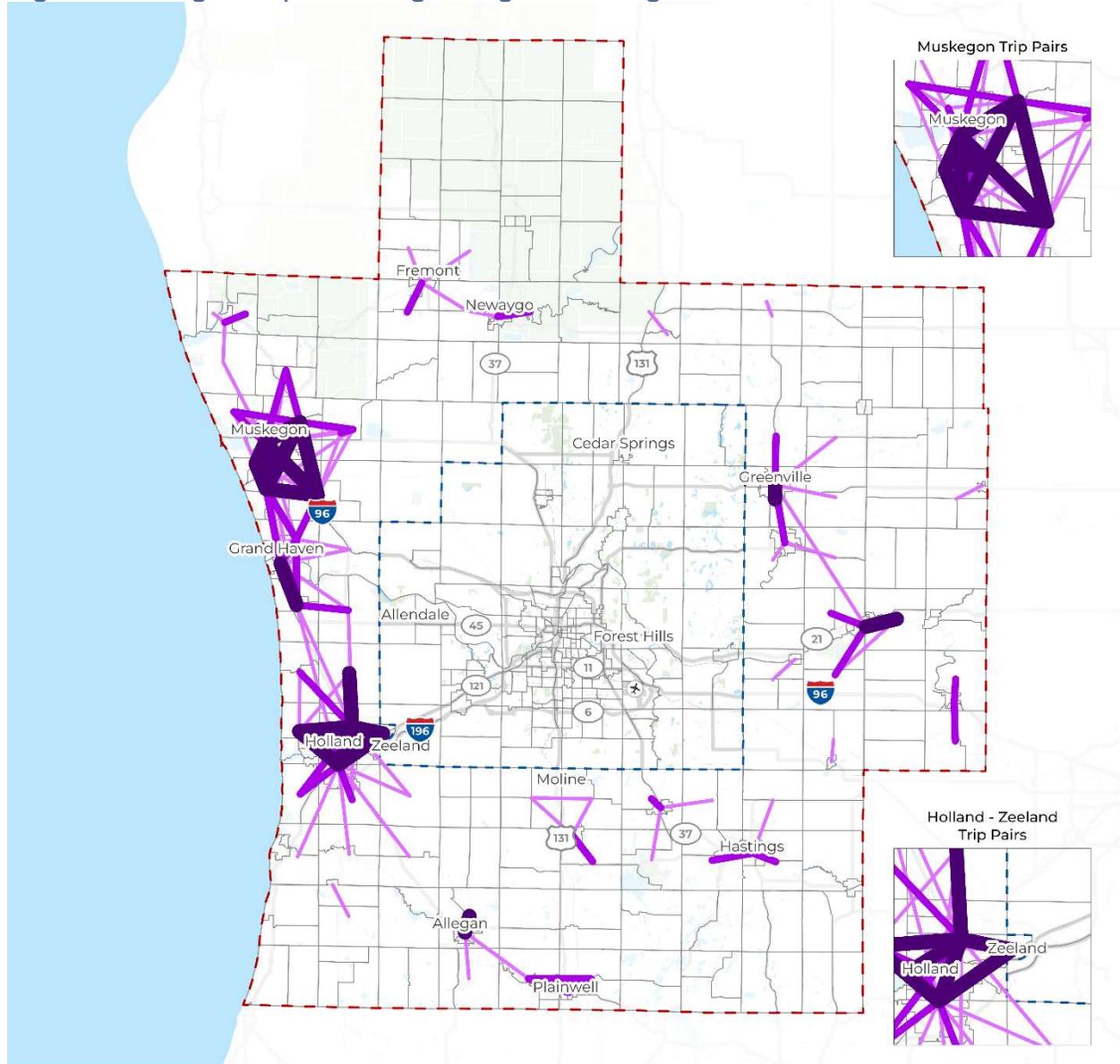
Table 4: Top Ten Bidirectional O-D Trip Pairs within Zone Two

Rank	From	To	Bidirectional Trip Volumes
1	City of Holland	City of Holland	82,136
2	Holland Township	Holland Township	80,279
3	City of Muskegon	City of Muskegon	64,479
4	City of Holland	Holland Township	56,027
5	City of North Shores	City of North Shores	39,406
6	City of Muskegon	City of North Shores	30,894
7	City of Muskegon	Muskegon Township	28,348
8	Holland Township	Park Township	27,152
9	City of Greenville	City of Greenville	26,628
10	Muskegon Township	Muskegon Township	25,559

Data source: 2023 Replica Spring origin-destination trip pair volume

The only areas of intercounty connectivity are shown by bidirectional O-D trip pairs of **less than 8,000 trips** between Holland, Grand Haven, and Muskegon, and between Ionia and Greenville, as shown in **Figure 3**.

Figure 3: Strongest Trip Pairs Originating and Ending within Zone Two Travel Districts



Trip Pairs: Zone Two to Zone Two

- Total Trips (Typical Weekday)**
- < 2,000
- 2,001 - 4,000
- > 4,000
- Zone One Boundary
- Zone Two Boundary
- Unique Travel Districts
- ⊕ Gerald R. Ford International Airport
- Water Bodies
- Parks and Open Space



Data source: 2023 Replica Spring origin-destination trip pair volume

Between Zone One and Zone Two

The 229,000 trips between Zone One and Zone Two are also strongest in areas of localized connectivity rather than intercounty connections, as shown in **Figure 4**. The strongest trip pairs of **more than 8,000 trips** connect the City of Zeeland, Zeeland Township, and Holland Township, as shown in **Table 5**. The next strongest trip pairs **between 4,000 and 8,000 trips** connect Holland and Zeeland Township. Several weaker trip pairs of **less than 4,000 trips** offer regional connectivity between Zone One and Zone Two.

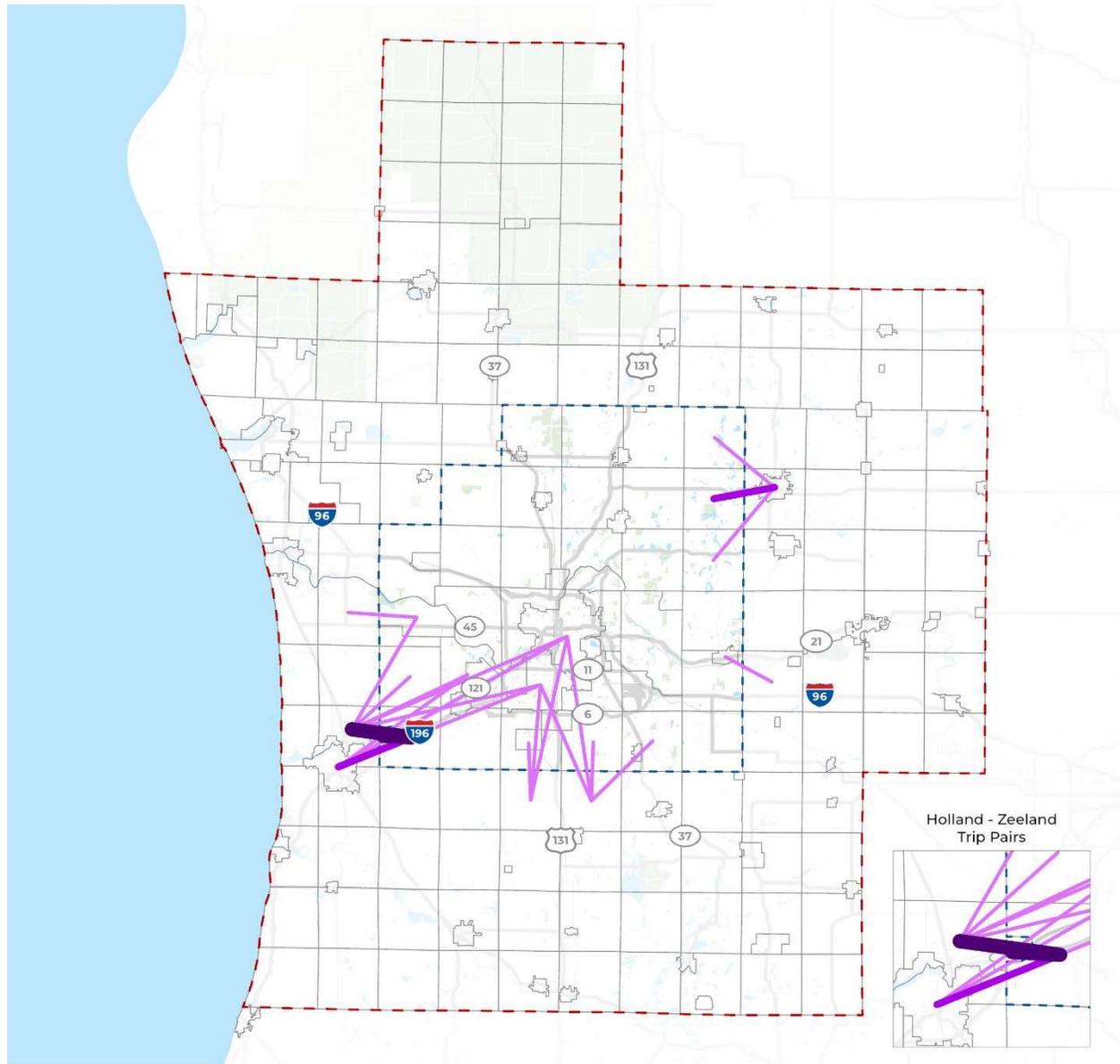
To emphasize strong cross-jurisdictional connectivity, bidirectional trip volume pairs of more than 8,000 trips between different municipalities or townships are bolded in **Table 5**.

Table 5: Top Ten O-D Trip Pairs between Zone One and Zone Two

Rank	Between	And	Trip Volume
1	Holland Township	Zeeland Township	13,324
2	City of Zeeland	Zeeland Township	8,070
3	City of Holland	Zeeland Township	6,574
4	Oakfield Township	City of Greenville	5,464
5	City of Holland	City of Grand Rapids	3,860
6	Holland Township	City of Grand Rapids	3,742
7	Holland Township	Blendon Township	3,419
8	Spencer Township	City of Greenville	3,307

Data source: 2023 Replica Spring origin-destination trip pair volume

Figure 4: Strongest Trip Pairs Originating within Zone One and Ending within Zone Two Travel Districts



Trip Pairs Between Zone One and Zone Two

- | | | | |
|--------------------------------------|-------------------------|----------------------|---------|
| Total Trips (Typical Weekday) | Zone One Boundary | Water Bodies | > 4,000 |
| < 2,000 | Zone Two Boundary | Parks and Open Space | |
| 2,001 - 4,000 | Unique Travel Districts | OD_Pairs_2to1 | |
| > 4,001 | | total_count | |
| | | < 2,000 | |
| | | 2001 - 4000 | |



Data source: 2023 Replica Spring origin-destination trip pair volume

Corridor Identification

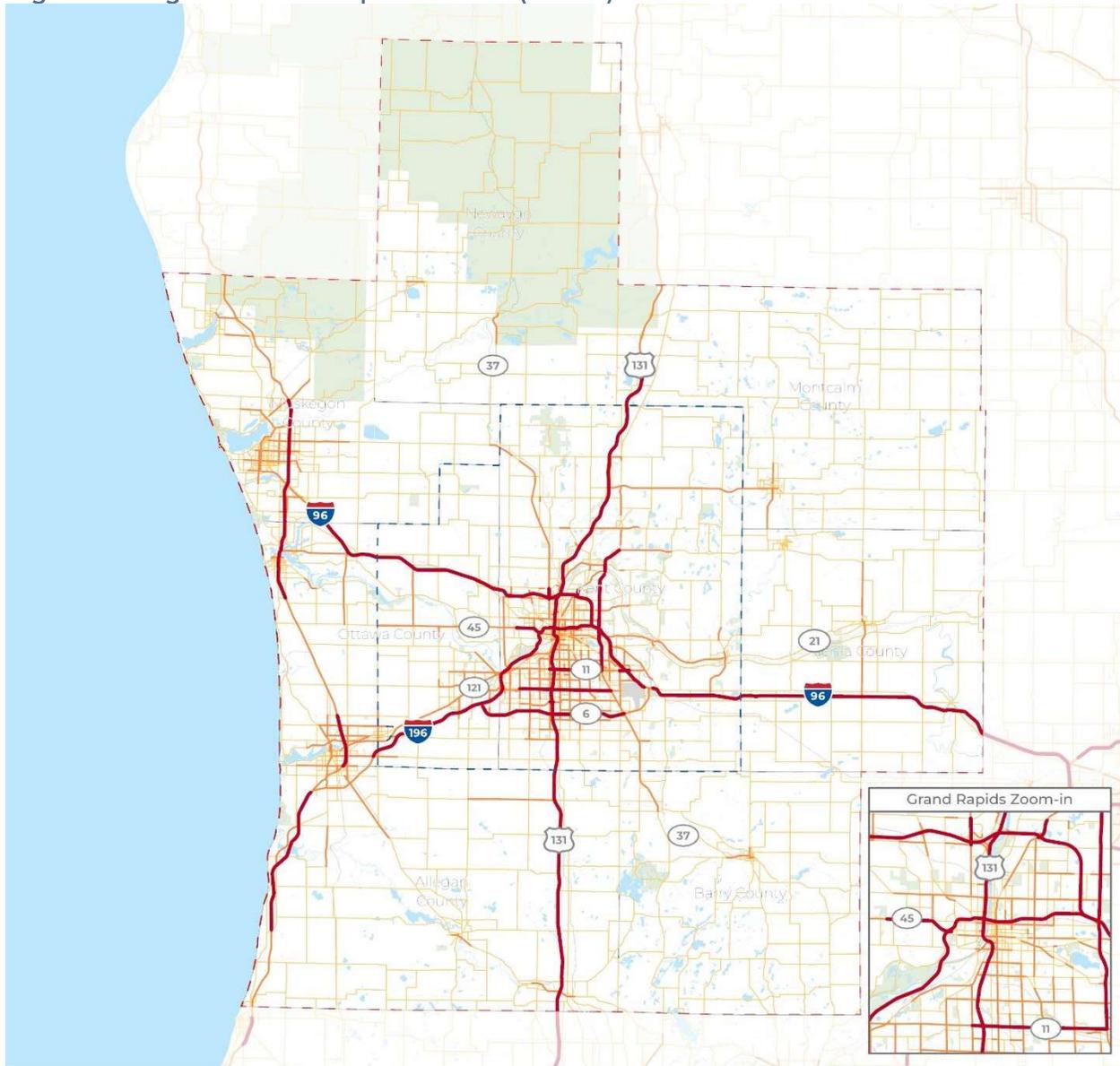
Corridors were defined in attempt to analyze as many as possible connections across and within Zone One and Zone Two. Corridors were identified by overlaying highest-volume origin-destination trip pairs (greater than 4,000 trips) with the best fit high-travel volume roadways (>10,000 AADT) connecting high-volume travel districts, as defined on page 5 under *High-Volume Corridors Analysis* as the 237 townships and municipalities within the study area. High-volume existing roadways are shown in **Figure 5**.

Corridor start and end points were defined using the boundaries of the 237 unique travel districts. The intention of each corridor's start and end point was to capture as much potential connectivity as possible using longer corridor segments. For most corridors, the corridor terminated at the inner boundary of the travel district (the opposite of the side the travel district from which a corridor entered through). There are some exceptions where a corridor's start/endpoint would adhere to the following instead.

- In some cases, a roadway would end before the travel district's boundary. For these corridors, endpoints terminated closer to a travel district's center.
- In other cases, a corridor that had potential connectivity in multiple different directions would end at a natural breakpoint, such as a major intersection of roadways, and another corridor would begin (as in the case of corridors 17 – Beltline Ave SE and 18 – Beltline Ave NE).

This method identified 29 intercounty travel corridors for further evaluation and prioritization, as identified in **Table 7** and illustrated in **Figure 6**.

Figure 5: High-Volume Trip Corridors (AADT)



Traffic Volumes

Annual Average Daily Traffic (AADT)

- < 10,000
- 10,001 - 30,000
- > 30,000

Zone One Boundary

Zone Two Boundary

Water Bodies

Parks and Open Space

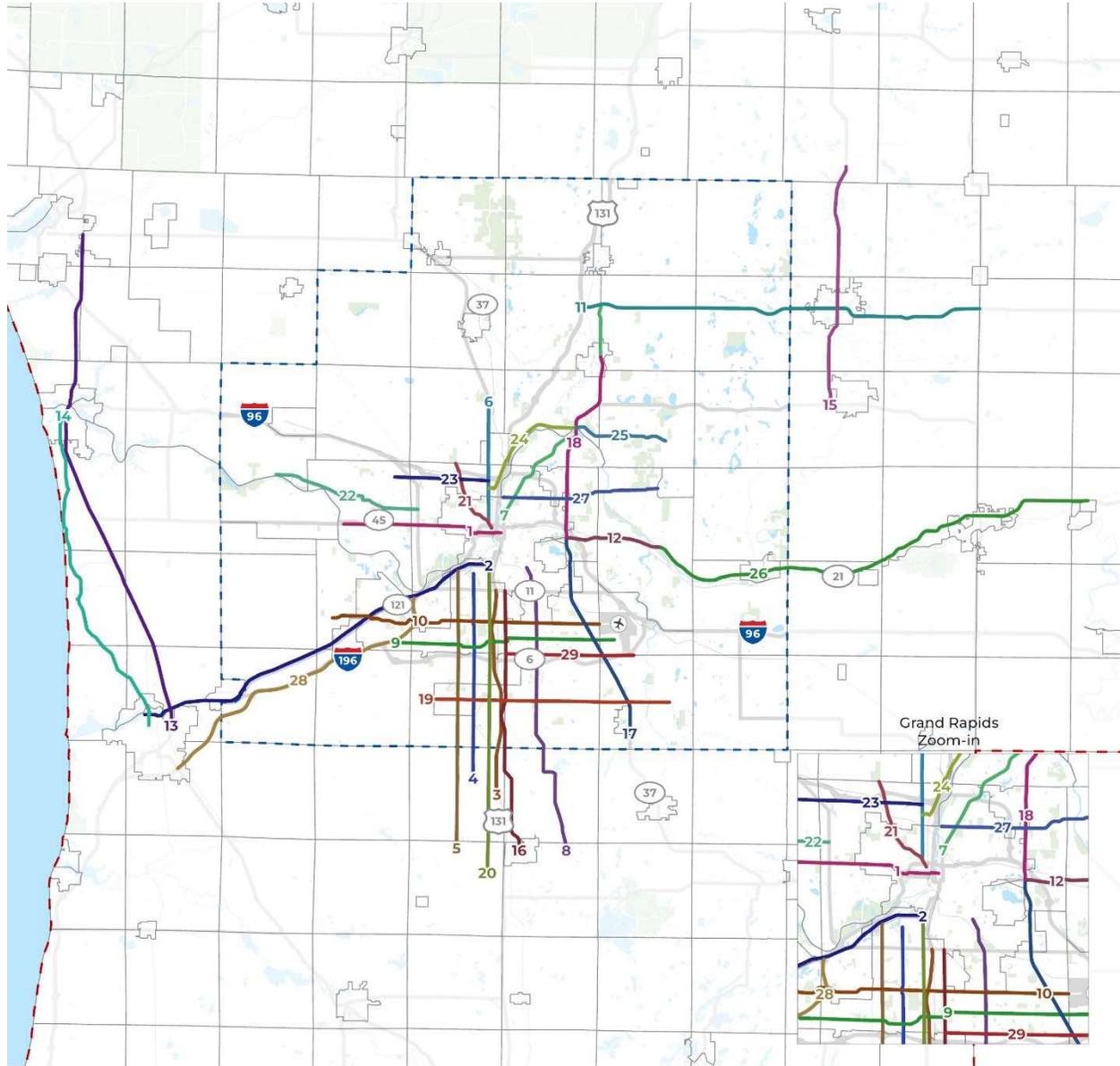


Data source: 2022 MDOT Annual Average Daily Traffic (AADT)

Table 6: Corridors According to the Strongest Trip Pairs (>4,000 Trips)

ID	Corridors	Start	End	Length (mi)
C-01	Lake Michigan Drive NW	city of Grand Rapids	Allendale Charter Township	10.2
C-02	Chicago Drive	City of Grand Rapids	City of Holland	24.8
C-03	US-131	City of Grand Rapids	Dorr Township	13.2
C-04	Burlingame Ave SW	City of Wyoming	Dorr Township	13.1
C-05	Byron Center Ave SW/18th St	City of Wyoming	Dorr Township	17.6
C-06	Alpine Avenue NW	City of Grand Rapids	Alpine Township	7.7
C-07	Plainfield Ave NE/Northland Blvd NE	City of Grand Rapids	Plainfield Charter Township	16.5
C-08	Kalamazoo Ave SE	City of Grand Rapids	Leighton Township	19.0
C-09	Barry St/56th St SW/54th St SW/52nd St SE	South Grandville	City of Kentwood	14.3
C-10	44th St	Georgetown Township	city of Kentwood	17.3
C-11	W Carson City Road	City of Rockford	City of Greenville	25.9
C-12	Fulton St E/21	City of Grand Rapids	City of Ada	21.7
C-13	US-31	City of Holland	City of Muskegon	32.8
C-14	Lakeshore Ave/Butternut Dr	City of Holland	City of Grand Haven	21.9
C-15	SW Greenville Road	City of Belding	City of Greenville	15.5
C-16	Division Ave	City of Grand Rapids	Leighton Township	17.0
C-17	Beltline Ave SE/Broadmoor Ave SE	City of Grand Rapids	Caledonia	13.5
C-18	Beltline Ave NE	City of Rockford	City of East Grand Rapids	12.4
C-19	84th St	Byron Center	Caledonia	15.5
C-20	Clyde Park Ave	City of Wyoming	Dorr Township	19.6
C-21	Walker Ave NW	City of Grand Rapids	City of Walker	5.0
C-22	Leonard St	City of Walker	Allendale Charter Township	9.7
C-23	3 Mile Road NW	City of Walker	Tallmadge Charter Township	5.9
C-24	W River Drive NW	City of Walker	Plainfield Charter Township	7.9
C-25	Cannonsburg Rd NE	Plainfield Charter Township	Cannonsburg	6.0
C-26	Bluewater Highway	City of Ada	Muir	29.5
C-27	Knapp St NE	City of Walker	Grattan	10.0
C-28	Gerald R Ford Highway	City of Holland	City of Grandville	20.2
C-29	60th St SE	City of Kentwood	Cascade Township	8.1

Figure 6: Corridors According to the Strongest Trip Pairs (>4,000 Trips)



Identified Transit Corridors

- Zone One Boundary
- Zone Two Boundary
- Unique Travel Districts
- Gerald R. Ford International Airport
- Water Bodies
- Parks and Open Space

Transit Corridors

- | | | |
|---|-------------------------------------|---------------------------|
| 1: Lake Michigan Dr NW | 11: W Carson City Rd | 22: Leonard St |
| 2: Chicago Dr SW | 12: Fulton St E/21 | 23: 3 Mile Road NW |
| 3: US Hwy 131 | 13: US Hwy 31 | 24: W River Drive NW |
| 4: Burlingame Ave SW | 14: Lakeshore Ave/Butternut Dr | 25: Cannonsburg Rd NE |
| 5: Byron Center Ave SW/18th St | 15: SW Greenville Rd | 26: Bluewater Highway |
| 6: Alpine Ave NW | 16: Division Ave N | 27: Knapp St NE |
| 7: Plainfield Ave NE/Northland Blvd NE | 17: Beltline Ave SE/Broadmor Ave SE | 28: Gerald R Ford Highway |
| 8: Kalamazoo Ave SE | 18: E Beltline Ave NE | 29: 60th St SE |
| 9: Barry St/56th St SW/ 54th St SW/52nd St SE | 19: 84th St SE | |
| 10: 44th St SW | 20: Clyde Park Ave SW | |
| | 21: Walker Ave NW | |



Map source: Corridor prioritization and ranking results

Corridor Prioritization and Ranking

Prioritizing and evaluation will be used to identify which corridors may be best suited for future service planning and feasibility analyses. All identified corridors were prioritized by scoring and equally weighing the following three corridor characteristics:

1. **Future Growth:** Composite score of equally weighted percent change in trips from 2020 to 2050 and percent increase in jobs and households from 2020 to 2050
2. **Current Demand:** 2022 roadway Annual Average Daily Traffic counts (AADTs)
3. **Transportation Need:** Composite score of five equally weighted transportation-dependent demographic groups' population ratio

A breakdown of the scoring methodology and weighting is detailed in **Appendix A**.

Prioritization and Ranking Results

Corridor prioritization and ranking combined equally weighted individual scores from the three corridor characteristics (future growth, current demand, and transportation need) to determine top corridors. The highest possible characteristic score (demand, growth, or needs scores) is 10 and the lowest possible characteristic score is 0. The highest possible composite score for any corridor is 30, a summation of the three characteristic scores.

A higher composite score indicates the following:

- Stronger expected future growth along the corridor between 2020 and 2050, both in number of trips, and in adjacent jobs and households
- Higher levels of current Annual Average Daily Traffic counts (AADTs) along the corridor
- Higher ratio of transportation-dependent demographic groups within a half mile of the corridor

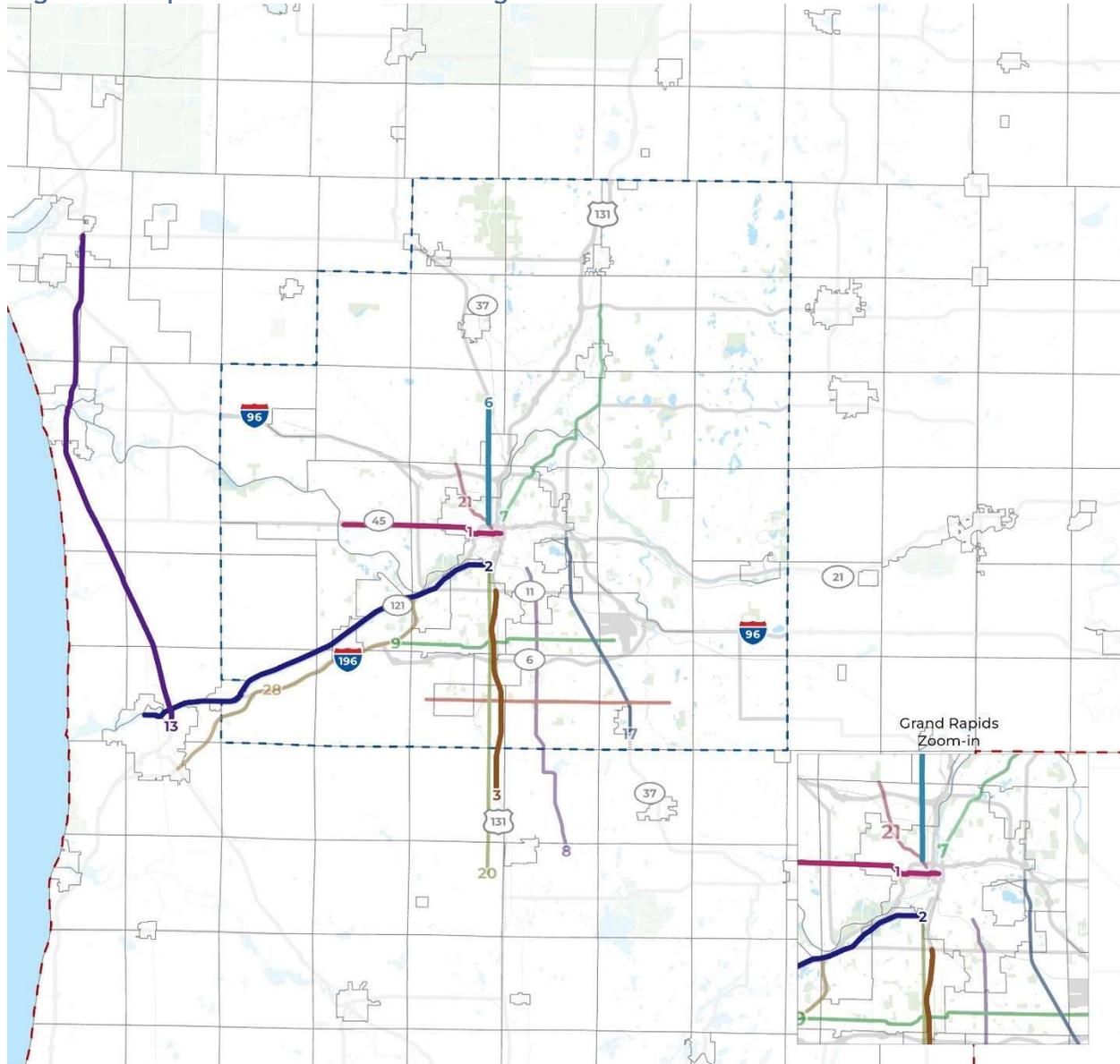
Composite scores for the 29 corridors range from 4.3 to 17.5. The average composite score across all corridors is 10.5. Thirteen corridors (45%) ranked above average and are shown in **Figure 7**. Five corridors with the highest scores (US-31 (17.5), US-131 (16.6), Lake Michigan Drive NW (13.3), Chicago Dr (12.9), and Alpine Avenue NW (12.6)) are shown in bold in **Figure 7**. These top five corridors will be discussed further in the *Conclusions and Next Steps* section.

The final scores from corridor prioritization are shown in **Table 8**. Detailed results for future growth, current demand, and transportation needs are included in the **Appendix B**.

Table 7: Corridor Scores and Prioritization

C-ID	Corridors	Zones	Demand Score	Growth Score	Needs Score	Composite Score	Ranking
C-13	US-31	2	10.0	2.0	5.5	17.5	1
C-03	US-131	1 & 2	9.0	2.6	5.0	16.6	2
C-01	Lake Michigan Drive NW	1	2.3	6.0	5.0	13.3	3
C-02	Chicago Drive	1 & 2	4.8	3.6	4.4	12.9	4
C-06	Alpine Avenue NW	1	2.5	3.1	7.1	12.6	5
C-21	Walker Ave NW	1	1.7	4.5	6.1	12.4	6
C-07	Plainfield Ave NE/Northland Blvd NE	1	4.6	4.1	3.4	12.1	7
C-20	Clyde Park Ave	1 & 2	2.2	2.9	6.4	11.5	8
C-28	Gerald R Ford Highway	1 & 2	3.3	5.5	2.5	11.3	9
C-08	Kalamazoo Ave SE	1 & 2	3.1	2.9	5.2	11.2	10
C-09	Barry St/56th St SW/54th St SW/52nd St SE	1	4.0	3.8	3.0	10.8	11
C-19	84th St	1	2.2	6.6	1.9	10.7	12
C-17	Beltline Ave SE/Broadmoor Ave SE	1	4.5	3.6	2.6	10.7	13
Average Composite Score							10.5
C-26	Bluewater Highway	1 & 2	1.6	2.6	6.2	10.5	14
C-14	Lakeshore Ave/Butternut Dr	2	2.1	4.2	4.1	10.4	15
C-05	Byron Center Ave SW/18th St	1 & 2	2.3	3.9	4.1	10.3	16
C-25	Cannonsburg Rd NE	1	0.8	8.7	0.8	10.2	17
C-10	44th St	1	3.9	2.3	4.0	10.2	18
C-29	60th St SE	1	1.1	4.4	4.6	10.1	19
C-18	Beltline Ave NE	1	4.3	3.8	2.0	10.0	20
C-04	Burlingame Ave SW	1 & 2	1.4	3.9	4.3	9.6	21
C-16	Division Ave	1 & 2	2.1	2.3	4.8	9.2	22
C-24	W River Drive NW	1	2.1	3.6	3.3	9.1	23
C-27	Knapp St NE	1	1.9	3.2	3.8	8.9	24
C-11	W Carson City Road	1 & 2	2.1	1.8	3.9	7.8	25
C-22	Leonard St	1	0.0	6.1	1.5	7.6	26
C-23	3 Mile Road NW	1	0.8	2.7	3.0	6.5	27
C-15	SW Greenville Road	2	0.8	0.9	4.9	6.5	28
C-12	Fulton St E/M-21	1	0.8	1.4	2.1	4.3	29

Figure 7: Top Five and Above Average Ranked Corridors



Identified Transit Corridors

- Zone One Boundary
- Zone Two Boundary
- Unique Travel Districts
- Water Bodies
- Parks and Open Space

Top 5 Corridors

- 1: Lake Michigan Dr NW
- 2: Chicago Dr SW
- 3: US Hwy 131
- 6: Alpine Ave NW
- 13: US Hwy 31

Above Average Corridors (<13)

- 7: Plainfield Ave NE/Northland Blvd NE

- 8: Kalamazoo Ave SE
- 9: Barry St/56th St SW/ 54th St SW/52nd St SE
- 17: Beltline Ave SE/Broadmor Ave SE
- 19: 84th St SE
- 20: Clyde Park Ave SW
- 21: Walker Ave NW
- 28: Gerald R Ford Highway



Map source: Corridor prioritization and ranking results

Conclusion and Next Steps

The results of the high-volume corridors analysis identify strong intercounty connectivity within Zone One. However, connectivity between Zone One and Zone Two, as well as within Zone Two, are strongest within existing or adjacent townships and municipalities. These represent strong localized connectivity rather than intercounty connectivity, often in areas that do not intersect with The Rapid's existing service area.

While there is strong community interest in service expansion, new or improved services should be prioritized in corridors within the existing service area. This is primarily due to a higher potential trip capture. (See **Market Analysis** for more identified opportunities to improve service within the existing service area). Additional consideration must be given to service agreements and funding for any corridors that enter areas outside of the ITP Member Communities.

Findings from the Intercounty Corridor analysis are discussed below for each zone. The below discussion also considers service concepts for some of the top ranked corridors. All service concepts discussed below will require subsequent feasibility reviews and implementation planning.

Within Zone One

There are several opportunities to increase intercounty connectivity within Zone One to meet current needs and potential future growth. Zone One is expected to experience the greatest increase in trip volume growth over the next 30-year period. The total number of trips that originate and end in Zone One was approximately 1.7M in 2020 and is expected to be 2.0M in 2050, a 17% increase. This is likely due to high expected household and employment growth. Households are expected to grow by 26.7% and employment is expected to grow by 20%.

Corridors evaluated for current travel demand, expected future growth, and proximity to transportation dependent population groups represent potential transit service opportunities that align with growth and transportation demand index (TDI) areas identified in the **Market Analysis** and **Existing and Future Conditions Report**.

Lake Michigan Dr NW from Grand Rapids to Allendale

The highest ranked corridor connecting areas within Zone One is **Lake Michigan Dr NW from Grand Rapids to Allendale**. Lake Michigan Dr ranked third overall with a composite score of 13.3.

Lake Michigan Ave scored 2.3 for demand, meaning it had a relatively lower AADT compared to other corridors at 185,976. The needs and growth scores are relatively mid-level at 5.0 and 6.0, respectively. This is a corridor with high expected future growth as households near Lake Michigan Dr NW are expected to see a 41% increase between 2020 and 2050, and jobs expect a 27% increase. Lake Michigan Dr also has a relatively higher needs score because 17% of people living along the corridor are low-income and 12% of households are zero-car households.

Potential Service Concepts:

- A. Pilot a microtransit zone connecting the Laker Line and adjacent areas, such as Allendale Charter Township

Currently, the Laker Line BRT serves most of the Lake Michigan corridor but terminates at Grand Valley State University (GVSU). The Laker Line BRT is the highest performing bus route in The Rapid's network with 16% of The Rapid's overall monthly ridership in October 2022 coming from Laker Line riders. The **2023 Allendale Charter Township Master Plan** identifies collaboration between the Township and The Rapid to extend service west of 48th Avenue as one strategy to accomplish the transportation goals outlined in the master plan.

Additional Above-Average Corridors

In addition to Lake Michigan Dr, four corridors had an above-average composite score, as listed below. These corridors could be studied for the feasibility of existing service extensions or for the establishment of a new service.

Near Term

Walker Ave NW from Alpine Ave NW to 4 Mile Road (Walker)

- Ranked 6th with a composite score of 12.4 (growth score is 4.5 and needs is 6.1)
- Opportunity for a new bus service (as first identified in the **2020 Walker Master Plan**) and/or realignment of the Walker Rapid Connect Zone

Barry St/54th St SW/52nd St from Gerald R Ford Airport to I-196 (Grandville)

- Ranked 11th with a composite score of 10.8 (demand score is 4.0 and growth is 3.8)
- Opportunity to add a new east-west service between the Airport and Bayberry Market along 52nd and 54th Streets, with a potential connection to the northwest near 44th St in Grandville.
- Consistent with findings from the **GVMC Airport Access Study** identifying interest in more public transit and shuttle options to the airport and surrounding area of Caledonia and Cascade Townships.

Long Term

84th St SE from Byron Center to Caledonia

- Ranked 12th with a composite score of 10.7 (growth score is 6.6 and demand is 2.2)
- Opportunity to add a limited or express service in the future if the area's population or travel demand increases

Beltline Ave SE/Broadmoor Ave SE from Caledonia to Fulton St (East Grand Rapids)

- Ranked 13th with a composite score of 10.7 (demand score is 4.5 and growth is 3.6)
- Opportunity to add a new bus corridor or express service in the future if the area's population or travel demand increases
- Consistent with findings from the **GVMC Airport Access Study** identifying interest in more public transit and shuttle options to the airport and surrounding area of Caledonia and Cascade Townships.

Within Zone Two

Given the high volume of trips currently within Zone Two, there may be opportunities to collaborate and implement regional connections. Zone Two is shown to have the highest number of total trips in 2020 at 2.3M compared to all other trip patterns. However, Zone Two trip volume growth is only expected to increase by 5% to 2.5M in 2050. This is likely due to lower expected household and employment growth compared to Zone One. Households are only expected to grow by 16.8% and employment is expected to grow by 14.4%.

Corridors evaluated for current travel demand, expected future growth, and proximity to transportation dependent population groups represent potential transit service opportunities.

US Highway 31 from Muskegon to Holland

The highest ranked corridor connecting areas within Zone Two is **US Highway 31 between Muskegon, Grand Haven, and Holland**. The US Highway 31 corridor ranked first overall with a composite score of 17.5.

US Highway 31 scored 10 for demand with the highest AADT compared to other corridors at 722,122. The needs score for US Highway 31 is relatively mid-range at 5.5. The corridor has a relatively higher needs score because 14% of people living along the corridor report having a disability and 8% of households are zero-car households. The growth score along US Highway 31 is relatively low at 2. Households near US 31 are expected to see a 22% increase between 2020 and 2050, and jobs expect a 16% increase.

Potential Service Concepts:

- A. Limited or express bus service between Holland, Grand Haven, and Muskegon

Currently, there are no transit services operating along the US 31 corridor between Holland, Grand Haven, and Muskegon. While this corridor is located within the Intercounty Corridor Analysis Study Area, it is far outside The Rapid's current service area. Operation of service along the corridor would involve coordination with both Holland and Muskegon, which currently operate transit services adjacent to the US 31 corridor. Notably, the **West Michigan Express Implementation Plan** recommends a Rapid-operated pilot express bus service along the Chicago Dr corridor, offering a potential connection between The Rapid service area and the US 31 corridor via transfers in Holland.

Additional Connectivity Opportunities

Other than US Highway 31, there are not many corridors with strong opportunities for intercounty connectivity. However, there are several opportunities for localized connectivity that may be explored in a microtransit or other study of context-sensitive services.

- Holland & Zeeland
- Greenville
- Ionia
- Allegan
- Fremont
- Newaygo
- Wayland
- Caledonia

Between Zone One and Zone Two

There are several opportunities for existing routes to be extended or added to meet current and future intercounty connectivity needs between Zone One and Zone Two. Zone One has 60% more jobs and 12% more households than Zone Two, serving as a more job-dense attractor for trips. However, trip volume between the two zones is relatively low compared to trip volume within each zone. Bi-direction trips between Zone One and Zone Two are about 276,000 in 2020 and are expected to be 300,000 in 2050. These bidirectional trips represent an expected growth rate of approximately 9% across the 30-year period.

Corridors evaluated for current travel demand, expected future growth, and proximity to transportation dependent population groups represent potential transit service opportunities. One such high-scoring corridor includes Chicago Dr, which ranked fourth overall. Chicago Dr has already been studied in the **TMP West Michigan Express Feasibility Review** and a pilot express bus service is recommended in the **TMP West Michigan Express Implementation Plan**. The proposed West Michigan Express pilot operating model may be used as a template to study and implement other express services along additional intercounty corridors.

US 131 from Wayland to Grand Rapids

The highest ranked corridor connecting areas between Zone One and Zone Two is **US 131 from Wayland to Grand Rapids**. US 131 ranked second overall with a composite score of 13.3.

US 131 scored 9.0 for demand, with the second highest AADT compared to other corridors at 654,230. The needs score for US 131 is relatively average at 5.0. 42% of people living along the corridor represent a minority population group and the income of 14% of people along the corridor fall in the low-income range. The growth score along US 131 is relatively low at 2.6. Households near US 31 are expected to see a 14% increase between 2020 and 2050, and jobs expect a 17% increase.

Currently, there aren't any services that run along US 131, however there are several Rapid bus services that run parallel to it. The closest parallel services include bus routes 10 (15,766 monthly rides in October 2022), 1 (28,341 monthly rides in October 2022), and the Silver Line BRT (41,118 monthly rides in October 2022). Because local and high-frequency services are already available near the US 131 corridor, any additional future services may be limited or express bus services designed to collect riders from areas further south from the existing Rapid bus routes and provide quick connections to high activity centers.

Potential Service Concepts:

- A. Express or limited bus service between Wayland and Grand Rapids with park and ride stops potentially located in Wayland, Moline, Cutlerville, near 84th street, and in Kentwood

Additional Above-Average Corridors

In addition to Chicago Dr and US 131, three other corridors had an above-average composite score, as listed below. These corridors should be studied for feasibility of extending existing services or for new service.

Near Term

Alpine Ave NW from Grand Rapids to Alpine Township

- Ranked 5th with a composite score of 12.6 (needs are 7.1 and growth is 3.1))
- Opportunity to extend Route 9 north as far as 6 Mile Rd and/or pilot a microtransit zone in Alpine Township

Long term consideration: Increase frequency on Route 9 as ridership grows and evaluate feasibility of Bus Rapid Transit (BRT), as identified as a transportation goal in the **2020 Walker Master Plan** (Note: route 9 was a high-performing route that made up 6% of monthly ridership in October 2022).

Plainfield Ave NE from Grand Rapids to Rockford

- Ranked 7th with a composite score of 12.1 (demand is 4.6 and growth is 4.1)
- Opportunity to extend Route 11 north no further than Rockford and/or pilot a microtransit zone in Plainfield Charter Township

Appendix A: Composite Score Methodology

As defined in the *Coordination Prioritization and Ranking* section, corridors were prioritized by scoring and equally weighing the following three corridor characteristics:

1. **Future Growth:** Composite score of equally weighted percent change in trips from 2020 to 2050 and percent increase in jobs and households from 2020 to 2050. Percent change in trips as well as percent change in jobs and households from 2020 to 2050 was calculated by comparing the total trips, jobs, and households in 2020 and 2050 for all Traffic Analysis Zones (TAZs) intersecting a selected corridor. All 2020 and 2050 estimates were pulled from the MDOT Statewide & Urban Travel Analysis Section to indicate projected future travel demand.
2. **Current Demand:** Average roadway ADTs used 2022 point data from the Michigan Department of Transportation (MDOT) to represent current travel demand along each corridor¹.
3. **Transportation Need:** Composite score of five equally weighted transportation-dependent demographic groups' population ratio for all census block groups² within a half-mile of a selected corridor.
 - a. Minority population
 - b. Low-income population
 - c. Senior (65+) population
 - d. Zero-vehicle households
 - e. Population with a disability

Component	Weight / Max. Possible Score
Future Growth	10
Percent Change in Number of Trips	5
Percent Change in Jobs	2.5
Percent Change in Households	2.5
Current Demand	10
Average Annual Daily Trips (AADT)	10
Transportation Demand	10
Percent Minority population	2
Percent Low-income population	2
Percent Senior Senior (65+) population	2
Percent Zero-vehicle households	2
Percent Population with a disability	2
Total Possible Score	30

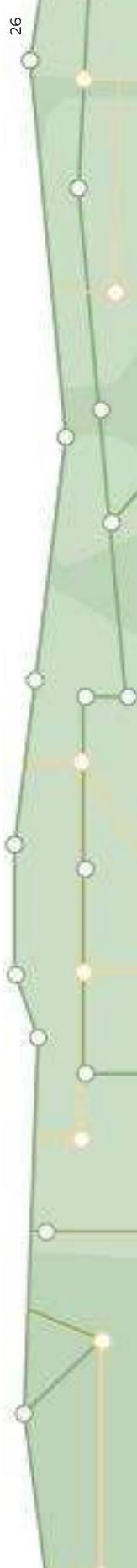
¹ AADT data was not available south of the Zone One boundary for the Clyde Park Ave, Kalamazoo Ave SE, and Burlingame Ave SW corridors.

² All characteristics were summarized by census block groups intersecting the selected corridor with the exception of individuals with disabilities, which was available at the census tract level.

Appendix B: Detailed Characteristics

Detailed Characteristics for Future Growth – Trips

C-ID	Corridors	2020	2050	Percent Trips Growth	Score
C-01	Lake Michigan Drive NW	10,829	15,484	43%	1.4
C-02	Chicago Drive	76,722	117,089	53%	1.7
C-03	I-131	14,356	18,638	30%	0.9
C-04	Burlingame Ave SW	53,519	68,894	29%	0.9
C-05	Byron Center Ave SW/18th St	47,372	66,262	40%	1.3
C-06	Alpine Avenue NW	28,664	34,470	20%	0.6
C-07	Plainfield Ave NE/Northland Blvd NE	53,363	70,766	33%	1.0
C-08	Kalamazoo Ave SE	32,202	43,468	35%	1.1
C-09	Barry St/56th St SW/54th St SW/52nd St SE	42,515	55,854	31%	1.0
C-10	44th St	68,077	86,948	28%	0.8
C-11	W Carson City Road	19,860	24,505	23%	0.7
C-12	Fulton St E/21	14,711	17,341	18%	0.5
C-13	US-31	43,679	44,927	3%	0.0
C-14	Lakeshore Ave/Butternut Dr	49,675	75,001	51%	1.6
C-15	SW Greenville Road	11,435	12,664	11%	0.3
C-16	Division Ave	31,834	42,657	34%	1.1
C-17	Beltline Ave SE/Broadmoor Ave SE	39,244	49,264	26%	0.8
C-18	Beltline Ave NE	22,926	30,680	34%	1.0
C-19	84th St	30,190	46,305	53%	1.7
C-20	Clyde Park Ave	31,806	42,643	34%	1.1
C-21	Walker Ave NW	40,112	48,231	20%	0.6
C-22	Leonard St	6,645	10,148	53%	1.7
C-23	3 Mile Road NW	6,281	7,549	20%	0.6
C-24	W River Drive NW	15,680	21,206	35%	1.1
C-25	Cannonsburg Rd NE	630	1,580	151%	5.0
C-26	Bluewater Highway	22,403	24,929	11%	0.3
C-27	Knapp St NE	22,729	27,501	21%	0.6
C-28	Gerald R Ford Highway	20,290	30,730	51%	1.6
C-29	60th St SE	33,486	46,057	38%	1.2
	Total Trips in the Study Area	891,233	1,181,791	33%	

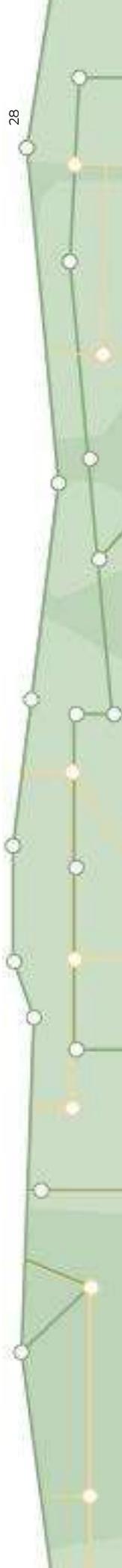


Detailed Characteristics for Future Growth – Households and Jobs

C-ID	Corridors	Households				Jobs				Sum Score
		2020 Households	2050 Households	Growth in Households	Household Score	2020 Jobs	2050 Jobs	Growth in Jobs	Jobs Score	
C-01	Lake Michigan Drive NW	10,342	14,615	41%	2.4	40,432	51,299	27%	2.3	4.7
C-02	Chicago Drive	15,934	20,069	26%	1.4	43,515	48,876	12%	0.5	1.9
C-03	I-131	7,865	8,947	14%	0.6	16,231	19,049	17%	1.1	1.7
C-04	Burlingame Ave SW	10,738	13,728	28%	1.5	16,399	19,851	21%	1.6	3.1
C-05	Byron Center Ave SW/18th St	9,973	12,498	25%	1.3	13,726	16,384	19%	1.4	2.7
C-06	Alpine Avenue NW	7,687	9,140	19%	0.9	14,065	17,053	21%	1.6	2.5
C-07	Plainfield Ave NE/Northland Blvd NE	13,682	17,060	25%	1.3	20,812	25,577	23%	1.8	3.1
C-08	Kalamazoo Ave SE	12,652	14,166	12%	0.4	13,102	15,672	20%	1.4	1.8
C-09	Barry St/56th St SW/54th St SW/52nd St SE	12,272	15,297	25%	1.3	23,224	28,053	21%	1.5	2.8
C-10	44th St	18,015	21,053	17%	0.8	29,017	33,126	14%	0.7	1.5
C-11	W Carson City Road	3,531	4,158	18%	0.8	4,044	4,456	10%	0.2	1.1
C-12	Fulton St E/21	2,504	2,634	5%	0.0	11,244	12,993	16%	0.9	0.9
C-13	US-31	12,829	15,633	22%	1.1	33,536	38,799	16%	0.9	2.0
C-14	Lakeshore Ave/Butternut Dr	9,411	12,114	29%	1.6	21,669	25,316	17%	1.0	2.6
C-15	SW Greenville Road	1,821	2,079	14%	0.6	2,796	3,024	8%	0.0	0.6
C-16	Division Ave	9,388	10,477	12%	0.4	18,933	21,748	15%	0.8	1.2
C-17	Beltline Ave SE/Broadmoor Ave SE	7,790	9,894	27%	1.4	28,327	34,005	20%	1.4	2.9
C-18	Beltline Ave NE	6,117	7,751	27%	1.4	13,829	16,427	19%	1.3	2.7
C-19	84th St	3,978	5,645	42%	2.4	7,678	9,894	29%	2.5	4.9
C-20	Clyde Park Ave	11,820	13,489	14%	0.6	18,850	22,321	18%	1.2	1.8
C-21	Walker Ave NW	7,462	9,751	31%	1.7	14,718	18,690	27%	2.3	4.0
C-22	Leonard St	1,436	2,053	43%	2.5	1,347	1,671	24%	1.9	4.4
C-23	3 Mile Road NW	2,038	2,303	13%	0.5	10,536	12,798	21%	1.6	2.1
C-24	W River Drive NW	4,458	5,203	17%	0.8	9,167	11,266	23%	1.8	2.5
C-25	Cannonsburg Rd NE	1,159	1,532	32%	1.8	1,049	1,298	24%	1.9	3.7
C-26	Bluewater Highway	5,401	6,291	16%	0.7	8,949	10,861	21%	1.6	2.3
C-27	Knapp St NE	7,225	8,890	23%	1.2	10,185	12,218	20%	1.4	2.6
C-28	Gerald R Ford Highway	6,083	8,271	36%	2.0	11,448	14,079	23%	1.8	3.8
C-29	60th St SE	5,451	6,581	21%	1.0	9,092	11,489	26%	2.2	3.2

Detailed Characteristics for Current Demand - AADT

Corridor Description		Traffic Demand	
C-ID	Corridors	AADT	Demand Score
C-01	Lake Michigan Drive NW	185,976	2.3
C-02	Chicago Drive	362,640	4.8
C-03	I-131	654,230	9.0
C-04	Burlingame Ave SW	121,003	1.4
C-05	Byron Center Ave SW/18th St	183,211	2.3
C-06	Alpine Avenue NW	195,879	2.5
C-07	Plainfield Ave NE/Northland Blvd NE	343,344	4.6
C-08	Kalamazoo Ave SE	238,630	3.1
C-09	Barry St/56th St SW/54th St SW/52nd St SE	305,201	4.0
C-10	44th St	295,583	3.9
C-11	W Carson City Road	170,719	2.1
C-12	Fulton St E/21	82,430	0.8
C-13	US-31	722,122	10.0
C-14	Lakeshore Ave/Butternut Dr	167,588	2.1
C-15	SW Greenville Road	77,536	0.8
C-16	Division Ave	172,556	2.1
C-17	Beltline Ave SE/Broadmoor Ave SE	339,221	4.5
C-18	Beltline Ave NE	320,955	4.3
C-19	84th St	175,193	2.2
C-20	Clyde Park Ave	180,413	2.2
C-21	Walker Ave NW	144,710	1.7
C-22	Leonard St	24,347	0.0
C-23	3 Mile Road NW	78,697	0.8
C-24	W River Drive NW	173,898	2.1
C-25	Cannonsburg Rd NE	78,105	0.8
C-26	Bluewater Highway	139,021	1.6
C-27	Knapp St NE	160,302	1.9
C-28	Gerald R Ford Highway	252,366	3.3
C-29	60th St SE	100,531	1.1



Detailed Characteristics for Transportation Need – Demographics

Corridor Description		Demographic Needs Score										
C-ID	Corridors	Minority %	Minority Score	Low Income %	Low Income Score	Senior %	Senior Score	ZVH* %	ZVH* Score	Disabled %	Disabled Score	Needs Score
C-01	Lake Michigan Drive NW	22%	0.7	17%	1.7	10%	0.0	12%	1.7	12%	0.9	5.0
C-02	Chicago Drive	30%	1.1	10%	0.8	10%	0.0	9%	1.2	13%	1.3	4.4
C-03	I-131	42%	1.7	14%	1.2	13%	0.6	6%	0.8	11%	0.6	5.0
C-04	Burlingame Ave SW	33%	1.2	8%	0.7	13%	0.6	6%	0.8	12%	1.0	4.3
C-05	Byron Center Ave SW/18th St	27%	0.9	9%	0.8	13%	0.6	7%	1.0	11%	0.8	4.1
C-06	Alpine Avenue NW	37%	1.4	20%	2.0	12%	0.5	12%	1.8	14%	1.4	7.1
C-07	Plainfield Ave NE/Northland Blvd NE	20%	0.6	10%	0.9	12%	0.5	5%	0.7	11%	0.7	3.4
C-08	Kalamazoo Ave SE	48%	2.0	11%	0.9	11%	0.2	8%	1.2	11%	0.8	5.2
C-09	Barry St/56th St SW/54th St SW/52nd St SE	35%	1.3	6%	0.4	13%	0.6	5%	0.6	9%	0.0	3.0
C-10	44th St	34%	1.3	9%	0.8	11%	0.3	7%	1.0	11%	0.7	4.0
C-11	W Carson City Road	12%	0.2	9%	0.8	14%	0.8	7%	1.0	13%	1.2	3.9
C-12	Fulton St E/21	16%	0.4	2%	0.0	13%	0.7	7%	1.0	8%	0.0	2.1
C-13	US-31	31%	1.1	11%	0.9	13%	0.6	8%	1.2	14%	1.6	5.5
C-14	Lakeshore Ave/Butternut Dr	26%	0.9	12%	1.0	10%	0.0	6%	0.9	13%	1.3	4.1
C-15	SW Greenville Road	12%	0.2	12%	1.1	12%	0.4	8%	1.2	16%	2.0	4.9
C-16	Division Ave	41%	1.6	13%	1.2	13%	0.6	5%	0.6	11%	0.7	4.8
C-17	Beltline Ave SE/Broadmoor Ave SE	24%	0.8	8%	0.6	10%	0.0	7%	1.1	9%	0.1	2.6
C-18	Beltline Ave NE	11%	0.1	8%	0.6	12%	0.3	5%	0.7	10%	0.3	2.0
C-19	84th St	14%	0.3	3%	0.1	15%	1.0	3%	0.3	10%	0.3	1.9
C-20	Clyde Park Ave	48%	2.0	14%	1.3	13%	0.7	9%	1.3	12%	1.0	6.4
C-21	Walker Ave NW	30%	1.1	18%	1.8	11%	0.1	14%	2.0	13%	1.1	6.1
C-22	Leonard St	10%	0.1	7%	0.5	11%	0.2	3%	0.4	10%	0.4	1.5
C-23	3 Mile Road NW	14%	0.3	7%	0.5	15%	1.0	2%	0.2	12%	1.0	3.0
C-24	W River Drive NW	14%	0.3	7%	0.5	13%	0.7	3%	0.4	14%	1.4	3.3
C-25	Cannonsburg Rd NE	8%	0.0	6%	0.4	10%	0.1	0%	0.0	9%	0.3	0.8
C-26	Bluewater Highway	21%	0.6	11%	0.9	20%	2.0	11%	1.6	12%	1.1	6.2
C-27	Knapp St NE	23%	0.7	13%	1.2	11%	0.3	7%	0.9	11%	0.6	3.8
C-28	Gerald R Ford Highway	18%	0.5	6%	0.4	11%	0.3	4%	0.6	11%	0.8	2.5
C-29	60th St SE	47%	1.9	16%	1.5	13%	0.6	3%	0.3	9%	0.2	4.6

*ZVH – Zero Vehicle Households