GVMC

Grand Rapids Airport Access Study

Technical Memorandum: Existing Conditions Summary

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Quality information

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Glossary of Terms

Abbreviation	Meaning
AOA	Airport Operations Area
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
GRR	Gerald R. Ford International Airport
GVMC	Grand Valley Metro Council (Metropolitan Planning Organization for the Grand Rapids region)
KCRC	Kent County Road Commission
MDOT	Michigan Department of Transportation
PUD	Planned Unit Development
TNC	Transportation Network Company (example: Uber/Lyft)
TSA	Transportation Security Administration

Executive Summary

The Grand Rapids Airport Access Study was initiated by the Grand Valley Metro Council (GVMC) because current access to the airport's central core is limited to the Patterson Avenue and 44th Street/Oostema Boulevard intersection and lacks direct Interstate access. This Existing Conditions memo examines current transportation needs and changing travel patterns including current airport access points and paths, airport passenger and cargo traffic, airport security, road connections, traffic operations and safety, bike and pedestrian circulation, transit service, railroad connections, and development surrounding the airport.

Findings from this Existing Conditions memo, summarized below, will be used to develop and evaluate different airport access alternatives, leading to a recommended alternative (or alternatives) and an accompanying implementation and action plan.

Airport Planning Themes and Goals

Gerald R. Ford International Airport (GRR) experienced rapid growth over the past few years and is positioned for continued growth in the future. Therefore, the airport plans to accommodate more flights and passengers through:

- Road system improvements;
- Terminal and concourse expansion;
- New parking facilities; and
- Additional runways.

Local/Regional Planning Themes and Goals

As established by household and employment data from the GVMC 2045 Metropolitan Transportation Plan, the airport area is one of the areas expected to grow the most in the entire region and has a need to plan for smart growth. Goals identified by previous plans and studies for doing so include:

- Coordinating land use and transportation by carefully planning the number, location, and design of access points to maintain safe and efficient traffic flow;
- Fully leveraging existing freeway access points before adding additional ones; and
- Improving the viability of alternative modes of transportation, making it possible to get around without a private automobile and preventing problematic influxes of traffic with the addition of more people to the area.

Current and Future Airport Access Issues

Access to GRR is a critical local and regional priority and is key to the growth strategy for the airport itself. While it does not appear that current access is a major challenge, at least for the majority of people who drive and park at the airport, there are several potential ways that access could be made more convenient or reliable, especially considering the projected growth in airport utilization as well as in jobs and residents nearby. Important issues to consider include:

- **Limited access points to the airport's central core:** Public access to the airport terminal is currently limited to the Patterson Avenue and 44th Street/Oostema Boulevard intersection and, secondarily, the Patterson Avenue and Van Laar Drive intersection. Periodic safety events or congestion could significantly limit the ability to access GRR. Additional access to and potentially through GRR could add redundancy to the airport access network.
- **Indirect circulation:** Public access from major expressways and cargo access from the FedEx Sort Facility on 52nd Street follows a circuitous route along local streets. Based on previous planning for the I-96 and M-6 corridors, there may be opportunities to create a more direct access route that enables faster access, especially from areas north and east of GRR.
- **Airport expansion plans:** Grand Rapids is a growing region, and recent growth as well as future projections for GRR reflect the important relationship between regional and airport expansion. As GRR grows in scale and importance, a reality demonstrated in recent airport master planning, the demand for direct and reliable access will only grow. At the same time, this momentum toward airport expansion makes it increasingly important that any new access paths are determined in the near term to help ensure compatibility with other airside infrastructure investments and their construction.
- **Surrounding development and growth:** Plans for the area immediately surrounding the airport include several areas of new development as well as many new nonmotorized facilities, presenting potential future challenges in accommodating more people traveling in the study area and ensuring the safety of nonmotorized users as more of them are introduced to the current vehicle-oriented environment.
- **Expanding access options:** Technology is changing how people get to and from the airport, with an uptick in Transportation Network Company (TNC, such as Uber or Lyft) and carshare use decreasing the expected future parking demand. In addition, The Rapid has recently initiated or planned additional public transit services that could improve access to GRR. These shifts underscore a potential need to prioritize curbside access for these modes in the future as a way to reduce congestion and the need for additional parking.
- **Resiliency:** Changes to the transportation network for the purpose of enhancing airport access can also advance broader goals of responding effectively to disruptions such as crashes, congestion, inclement weather, and infrastructure failures by improving safety at current high-crash locations and providing redundant access points for greater mobility in the event of an emergency.

1.0 Introduction

Because of rapid growth at and surrounding the Gerald R. Ford International Airport (GRR), now is an important time to consider how to best facilitate future access in the area. The Grand Valley Metro Council (GVMC) initiated this Grand Rapids Airport Access Study because current access to the airport's central core is limited to the Patterson Avenue and 44th Street/Oostema Boulevard and Patterson Avenue and Van Laar Drive intersections. These routes to GRR lack direct Interstate access, the potential for which was previously studied during planning for the I-96/36th Street interchange.

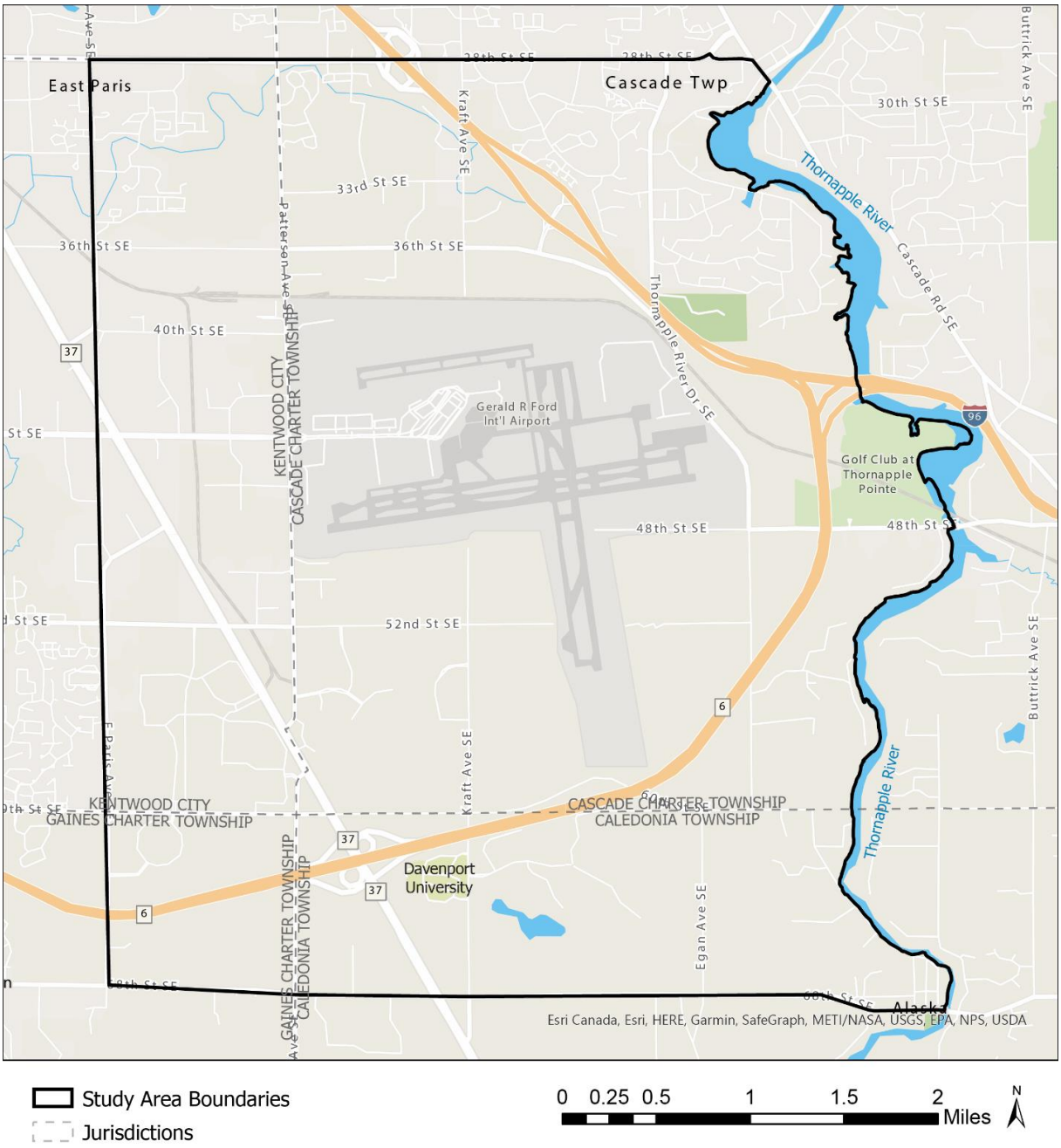
As part of the study, the project team will investigate ways to improve access to the airport as well as the surrounding local road and freeway systems. This memorandum, developed at the outset of the study, includes the examination of current transportation needs and changing travel patterns including current airport access points and paths, airport passenger and cargo traffic, airport security, road connections, traffic operations and safety, bike and pedestrian circulation, transit service, railroad connections, and development surrounding the airport.

The study will ultimately consider airport access alternatives, leading to a recommended alternative (or alternatives) and an accompanying implementation and action plan.

1.1 Study Area

The study area is bounded by 28th Street to the north, the Thornapple River to the east, 68th Street to the south, and East Paris Avenue to the west, as shown in Figure 1 below. It is generally a one-mile area around the airport to consider potential access paths and surrounding land use and development. The study area includes parts of the City of Kentwood, Cascade Charter Township, Gaines Charter Township, and Caledonia Township, all within Kent County, Michigan. It encompasses the GRR, I-96 and M-6, the CSX rail lines, Davenport University, and the large concentration of industrial and commercial development surrounding the airport.

Figure 1: Study Area Map



2.0 Airport Conditions

GRR is the second largest airport in Michigan behind the Detroit Metropolitan Wayne County Airport (DTW) with about 3,200 acres of land, $3.1 billion of annual economic impact to West Michigan, and over 100 businesses supporting over 2,000 direct jobs.

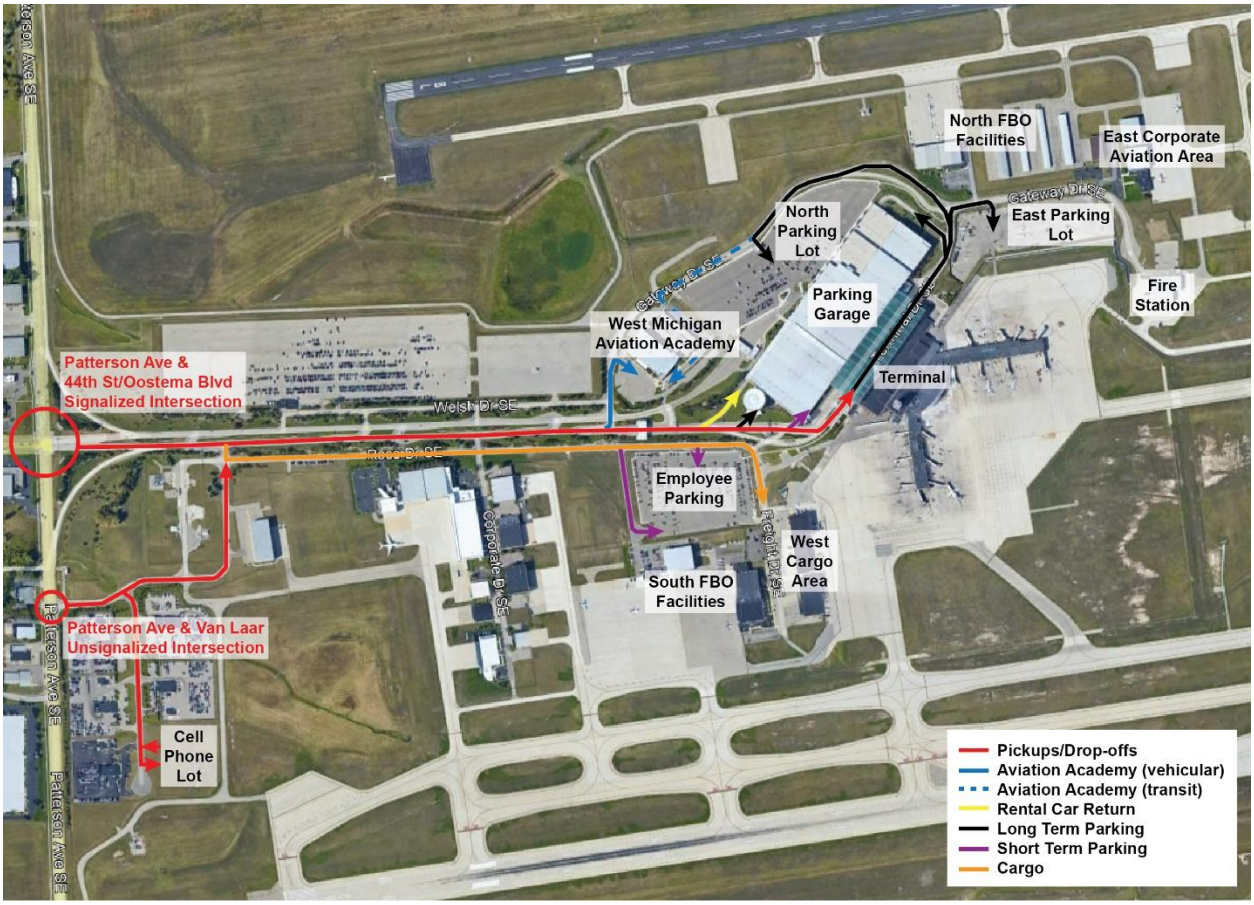
2.1 Current Airport Access

Primary Airport Access

The primary ground access entrance to the airport's central core is from the west via the Patterson Avenue and 44th Street/Oostema Boulevard signalized intersection, which serves as the gateway to access the terminal, associated parking facilities, and the following airport support facilities (see Figure 2):

- Airport Traffic Control Tower
- General aviation corporate hangars
- General aviation fixed base operators and maintenance facilities
- West Cargo Area
- Aircraft Rescue and Fire Fighting Station (ARFF)
- West Michigan Aviation Academy
- Airport Field Maintenance Storage Building

Figure 2: Primary Airport Access Points



Vehicular Access

Patterson Avenue is located west of the Airport and runs in a north-south direction. The road acts as the boundary between the City of Kentwood and Cascade Township. It is a four-lane arterial separated by a center median turn lane. Located west of the airport, 44th Street runs in an east-west direction. It is a four-lane arterial separated by a raised landscaped median.

When entering, vehicles accessing the airport's central core from southbound Patterson Avenue can queue and execute a left turn onto Oostema Boulevard using the single, dedicated turn lane with a protected left turn signal. Vehicles accessing the airport's central core from northbound Patterson Avenue can use the curved drive south of the intersection with Oostema Boulevard to access eastbound Oostema Boulevard and bypass the intersection. Vehicles can also turn right from the rightmost through lane on Patterson Avenue at the intersection with Oostema Boulevard. Vehicles accessing the airport's central core from 44th Street can continue straight using either of two through lanes at the intersection with Patterson Avenue to access eastbound Oostema Boulevard (see Figure 3).

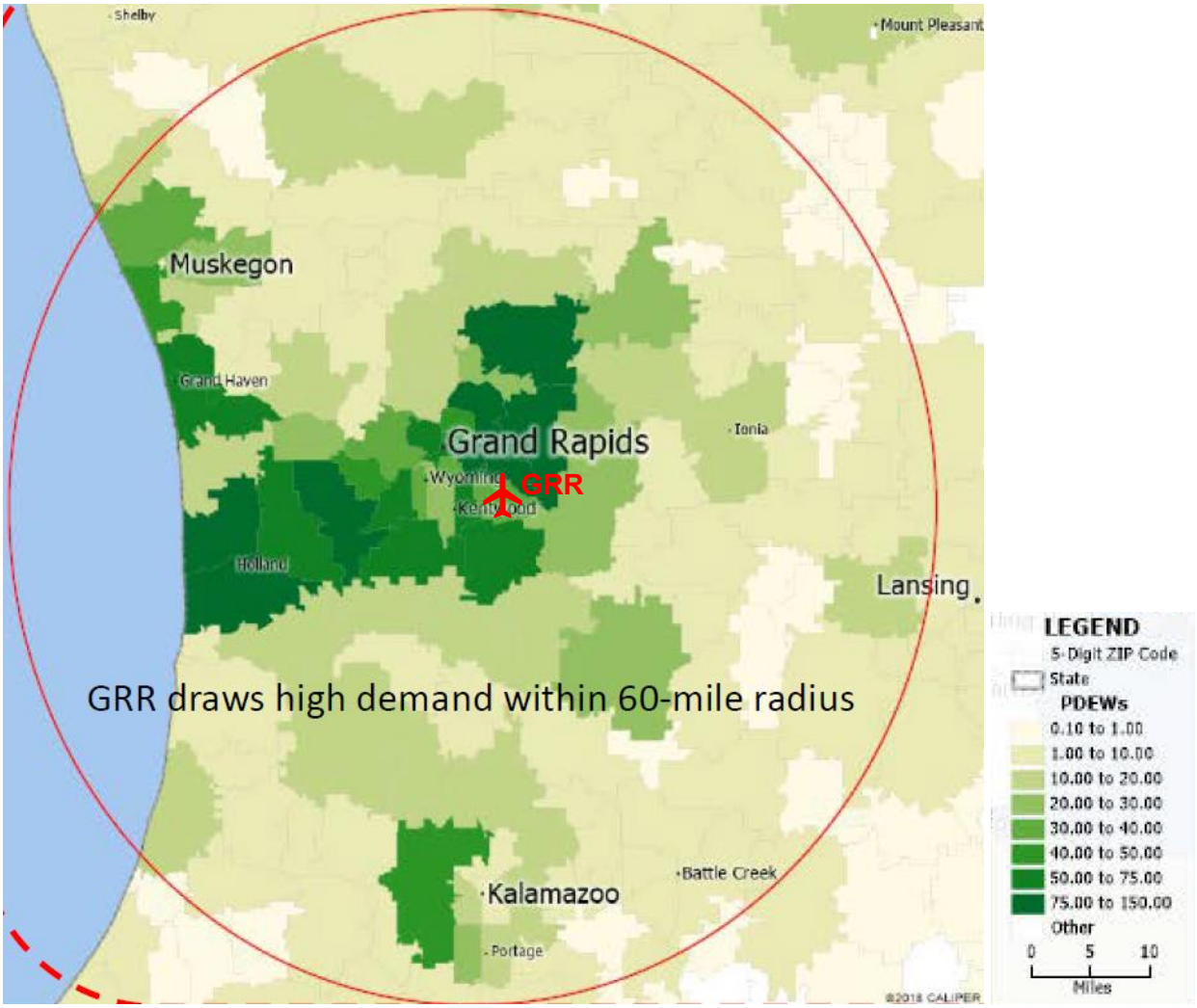
When exiting, vehicles heading northbound on Patterson Avenue from Oostema Boulevard can use the merge lane east of the intersection with Patterson Avenue to access northbound Patterson Avenue and bypass the intersection. The lane merges into a dedicated acceleration lane that extends approximately 950 feet before merging into the northbound through lanes. Vehicles can also turn right using the single, dedicated turn lane with a protected right turn signal at the intersection with Patterson Avenue. Vehicles heading westbound on 44th Street can continue straight using either of two through lanes at the intersection with Patterson Avenue to access westbound 44th Street. Vehicles heading southbound on Patterson Avenue can queue

and execute a left turn using the single, dedicated turn lane with a protected left turn signal (see Figure 3).

Figure 3: Patterson Avenue and 44th Street/Oostema Boulevard

GRR draws from a very large region; there is high demand for the airport within a 60-mile radius, including places like Muskegon, Holland, and Kalamazoo. Figure 4 implies that most trips accessing the terminal come from the east on M-6 or from the north on I-96.

Figure 4: GRR Catchment Area



PDEWs: Passengers Daily Each Way
Source: GRR

Current vehicular access routes to the Patterson Avenue and 44th Street/Oostema Boulevard intersection include M-37 (Broadmoor Avenue) and Patterson Avenue from the north and south as well as 28th Street and 36th Street from the east and west (see Figure 5). Travelers approaching the airport area from the east must travel around the airport via Thornapple River Drive, 36th Street, and/or 60th Street in order to access the GRR entrance off of Patterson Avenue. Table 1 lists the current travel times to GRR from highway interchanges and major intersections surrounding the airport.

Figure 5: Primary Vehicular Access Routes

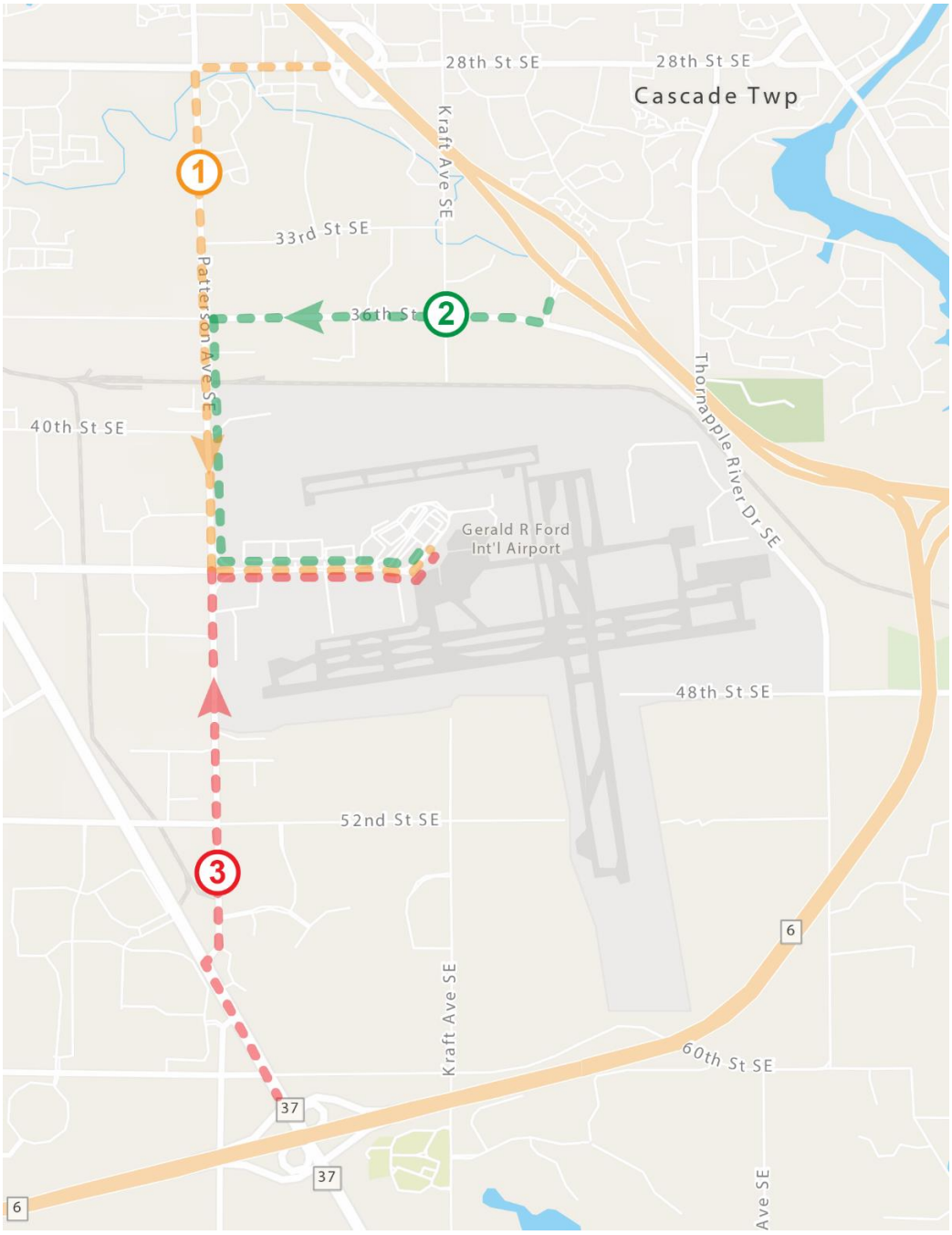


Table 1: Typical Travel Times from Interchanges

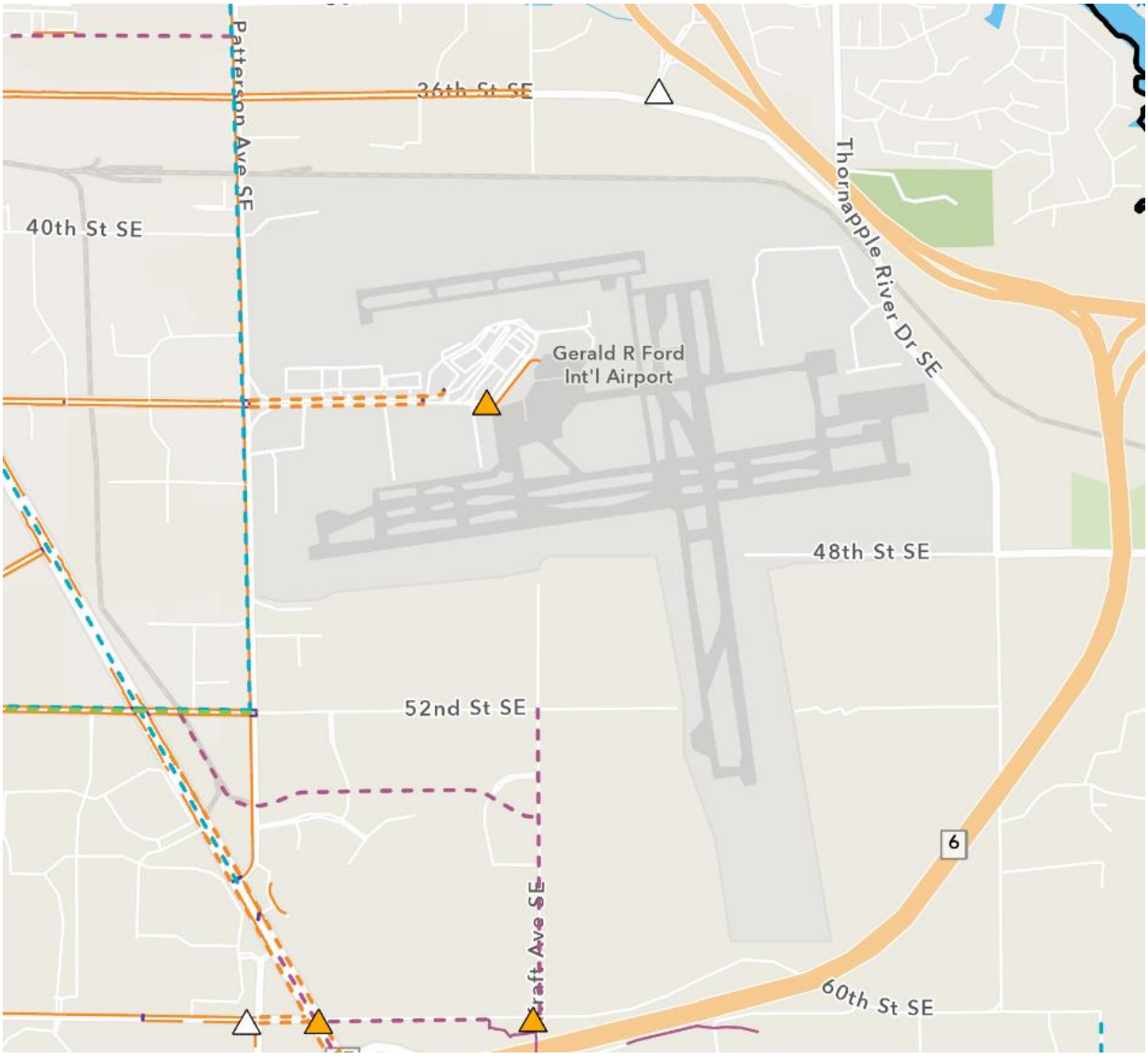
To GRR From	Distance	Typical Peak Travel Time (Arrive by 9am)	Typical Off-Peak Travel Time (Arrive by 9pm)
1. I-96 & M-11 (28th Street)	3.5 miles	5-10 minutes	5-8 minutes
2. I-96 & 36th Street	3.3 miles	4-8 minutes	4-6 minutes
3. M-6 & M-37 (Broadmoor Avenue)	3.2 miles	4-7 minutes	4-6 minutes

Source: Google Maps

Nonmotorized Access

Existing sidewalks end at the Patterson Avenue and 44th Street/Oostema Boulevard intersection and do not continue east onto airport property (see Figure 6). There are also no existing bicycle facilities accessing the airport's central core, although complimentary bicycle racks are available adjacent to the short-term parking lot on the first level of the parking garage.

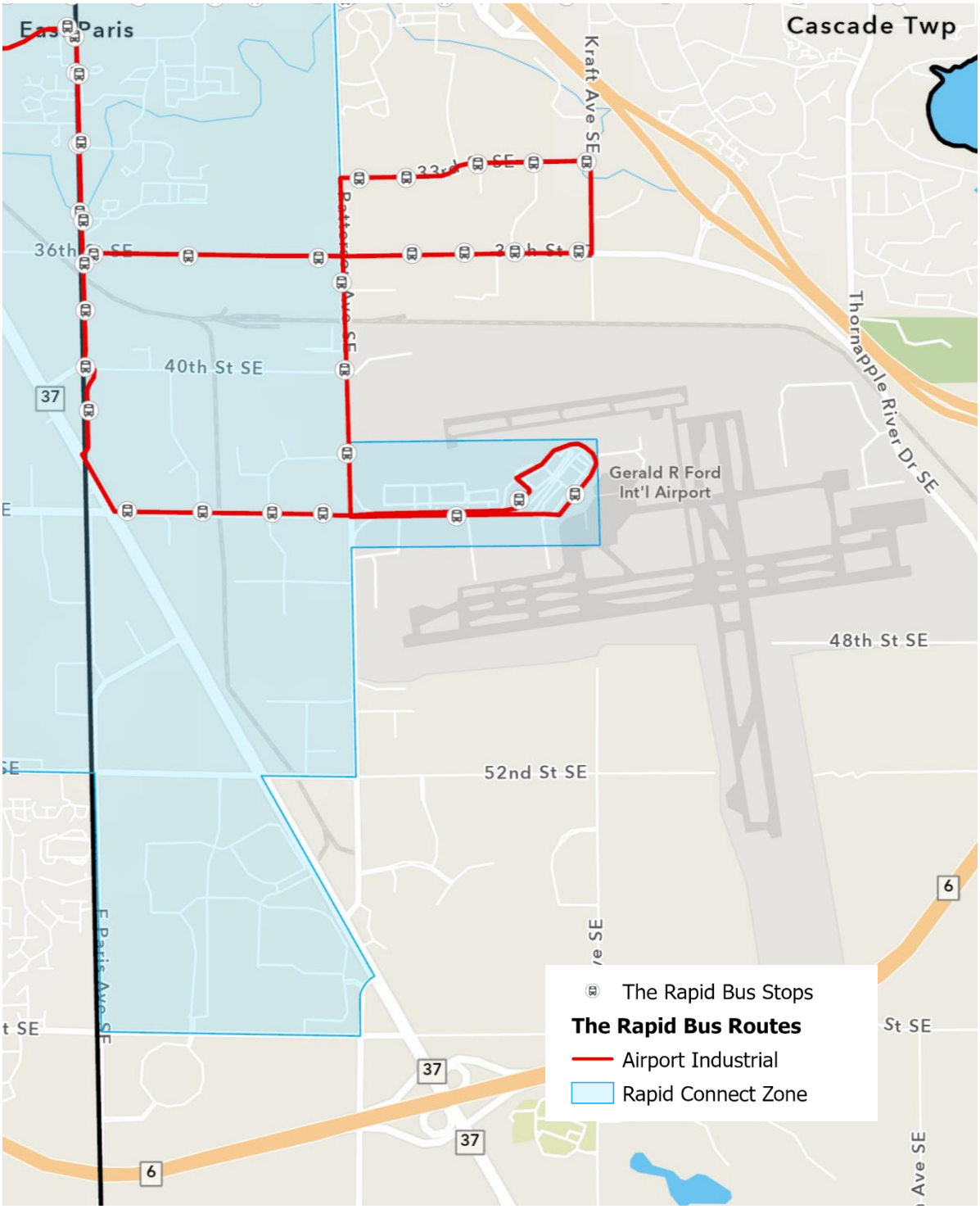
Figure 6: Primary Nonmotorized Access Routes



Transit Access

The Rapid Route 27 (Airport Industrial) serves the airport's central core via Oostema Boulevard, Terminal Drive, Gateway Drive, and 44th Street with bus stops at the Amway Hangar, the terminal, and West Michigan Aviation Academy. The airport's central core is also served by Rapid Connect service that launched in January 2022. Passengers can book trips to and from anywhere within the zone shown in Figure 7.

Figure 7: Primary Transit Access Routes

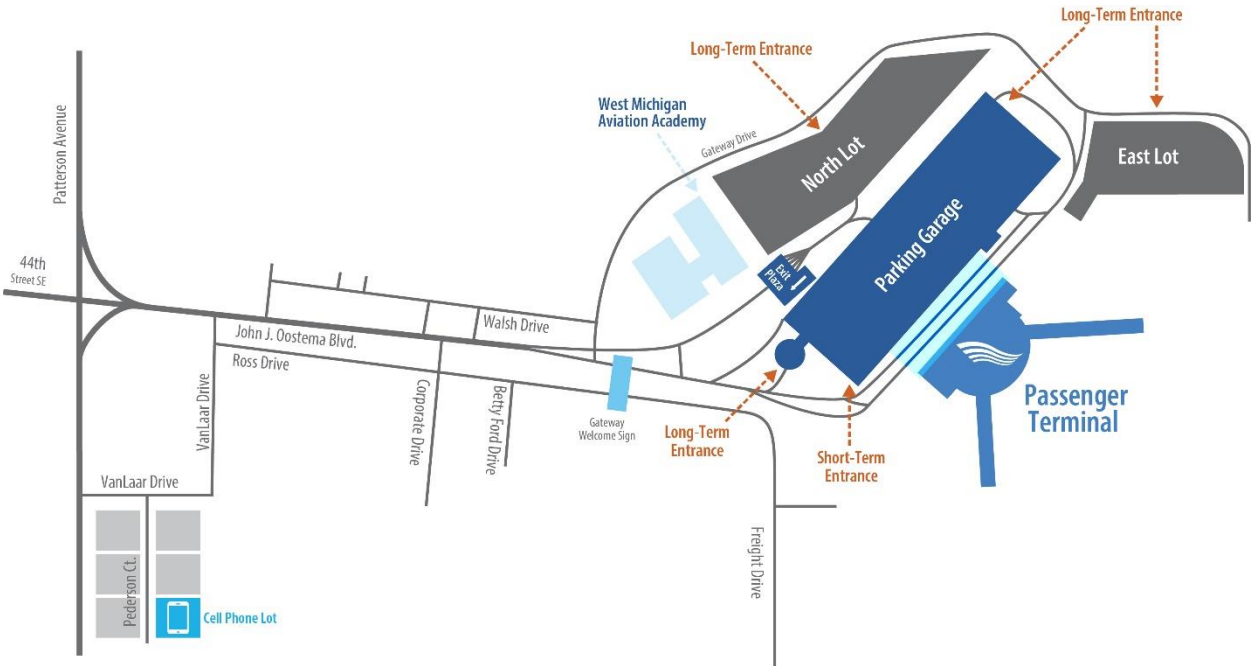


Terminal and Parking

Parking

Figure 8 shows where passengers can park at the airport and how much it costs to park in each area.

Figure 8: Parking Locations and Rates



North Lot	East Lot	Long-term Garage	Short-term Garage
$2/hour	$2/hour	$2/hour	$2 /first ½ hour
$10/day	$15/day	$18/day	$1/additional ½ hour
$70/week	$105/week	$126/week	$24/day

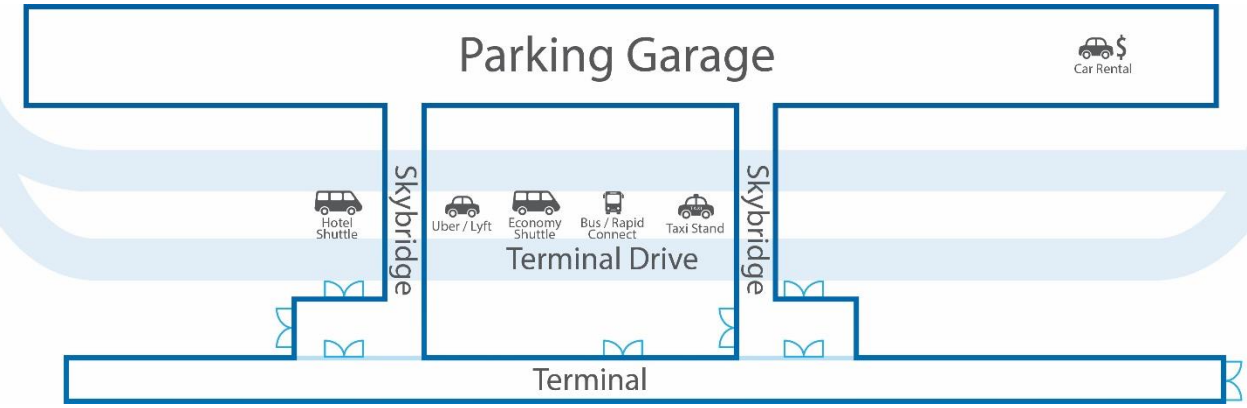
Source: GRR Parking Map

Pickup/Drop-off: Informal and Rideshare

GRR offers a Cell Phone Lot located on Pederson Court for those who are picking up arriving passengers (see the blue box with the cell phone icon in Figure 8). Time-limited, free parking is provided while waiting for passengers to call and let their driver know they are ready to be picked up at the terminal curb front.

Both Uber and Lyft provide rideshare, or Transportation Network Company (TNC), services to GRR. Passengers can catch rideshare at the shelter just outside the terminal on Terminal Drive (see the Uber/Lyft icon in Figure 9).

Figure 9: Terminal Curbside



Source: GRR Terminal Map

Taxi, Limousine, and Hotel/Motel Shuttle Service

Passengers can access taxi, limousine, or hotel/motel shuttle service just outside the terminal on Terminal Drive (see Figure 9).

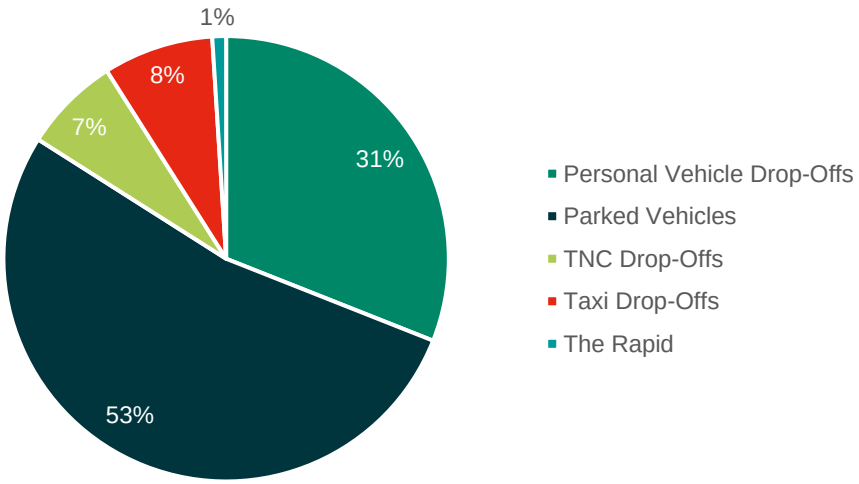
Transit

Passengers can catch The Rapid Route 27 (Airport Industrial) or the Rapid Connect service at the city bus loading area just outside the terminal on Terminal Drive (see the bus icon in Figure 9).

Mode Share

Based on data from GRR, passengers mostly used the parking facilities at the airport or were dropped off by a personal vehicle at the terminal curbside, while a significant volume of passengers used taxi or rideshare (TNC) service (see Figure 10). Uber has had a much stronger presence at the airport than Lyft.

Figure 10: Passenger Mode of Access

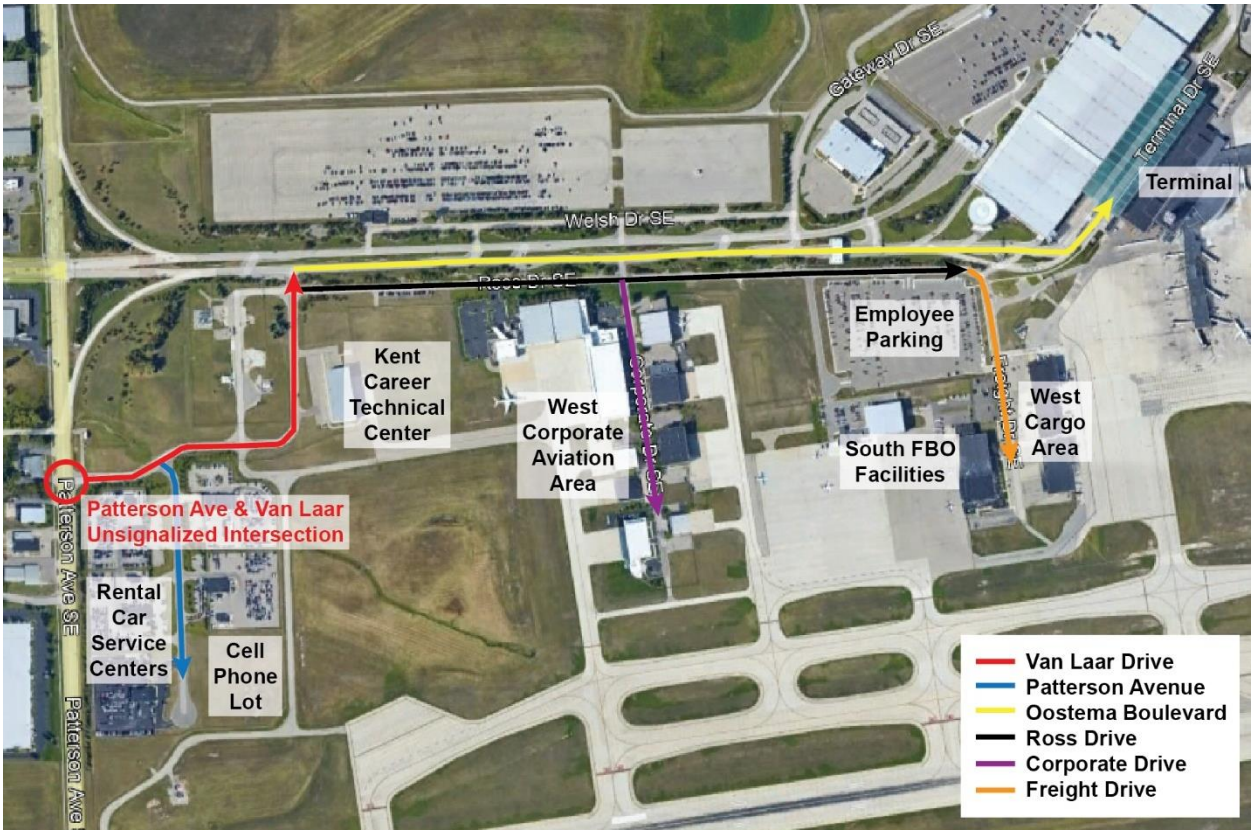


Source: GRR Mode of Access Summary

Secondary Airport Access

Several other airport facilities can be accessed via secondary airport access points other than the Patterson Avenue and 44th Street/Oostema Boulevard intersection. Van Laar Drive connects to Patterson Avenue south of the 44th Street/Oostema Boulevard intersection. This is an unsignalized intersection that provides access to the rental car service centers and Cell Phone Lot via Pederson Court and the Kent Career Technical Center (see Figure 11). Van Laar Drive connects to Oostema Boulevard, and that connection is critical should there be an incident that closes the intersection of Patterson Avenue and 44th Street/Oostema Boulevard. In addition, Van Laar Drive connects to Ross Drive, which is an access point to the West Corporate Aviation Area, employee parking, South Fixed Base Operators and maintenance facilities, and the West Cargo Area. Ross Drive is the designated route used for construction traffic and all deliveries to the terminal building.

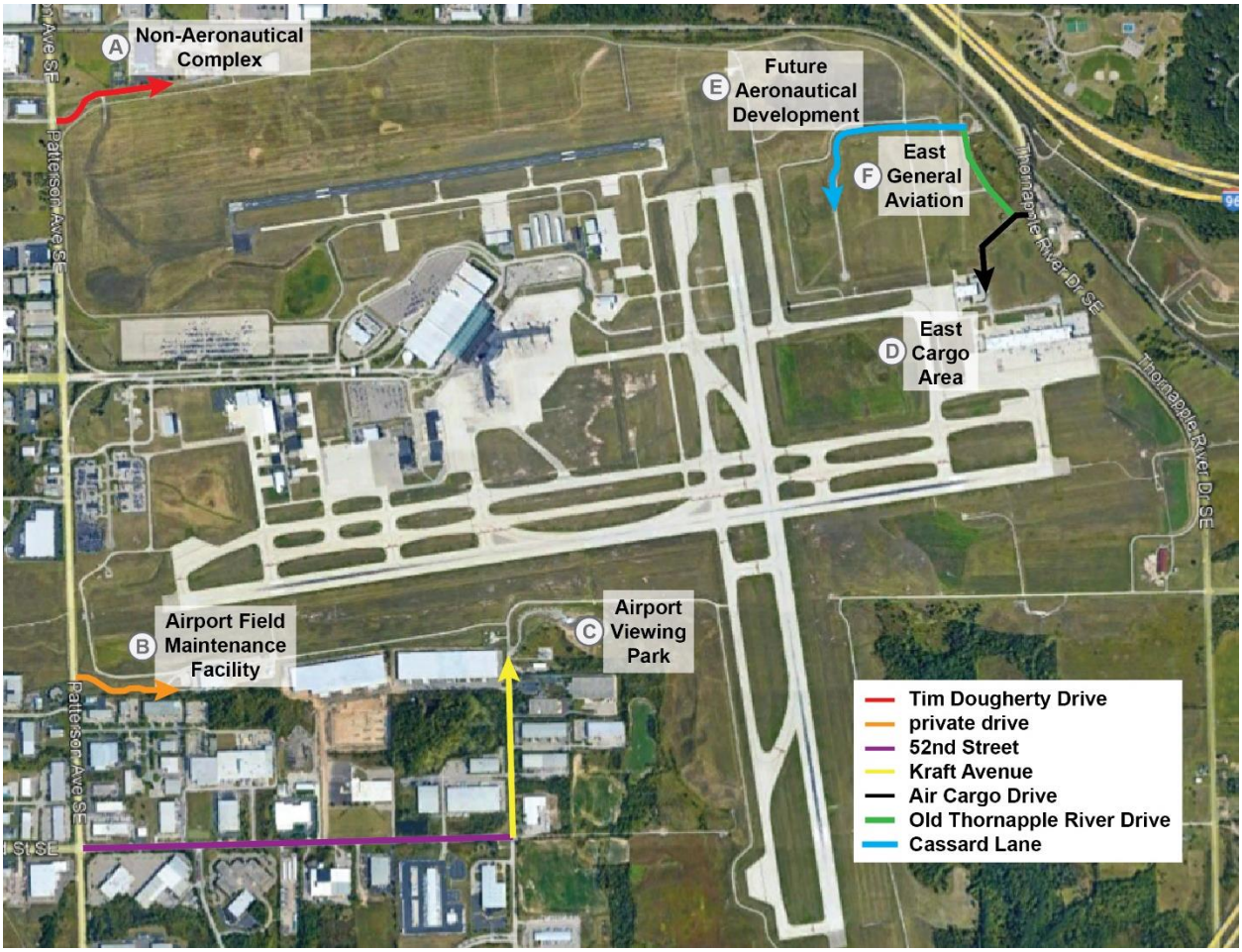
Figure 11: Van Laar Drive and Ross Drive Access



A non-aeronautical complex is located on airport property northwest of the airport's northern runway (A in Figure 12). This complex is comprised of a National Weather Service facility and the Kent County Road Commission's South Complex facility. The complex is accessible from Patterson Avenue via Tim Dougherty Drive opposite to 40th Street at the signalized intersection. The airport field maintenance facility, located southwest of the airport's southern runway (B in Figure 12), is accessible via a private drive that connects to Patterson Avenue near 50th Street. This is an unsignalized intersection. In addition, the Airport Viewing Park is located south of the airport's southern runways (C in Figure 12) and is accessible from Patterson Avenue via 52nd Street east and Kraft Avenue north.

FedEx and UPS represent the primary tenants in the East Cargo Area located on the east side of the airport (D in Figure 12). The facilities are accessed via Thornapple River Drive by way of Air Cargo Drive. An area has been designated for aeronautical development on the northeastern quadrant of the airport (E in Figure 12). Access to this area is provided by Old Thornapple River Drive north off of Air Cargo Drive, and Cassard Lane off of Old Thornapple River Drive, which ends in a cul-de-sac. The east fuel farm is located south of Cassard Lane and west of Old Thornapple River Drive (F in Figure 12).

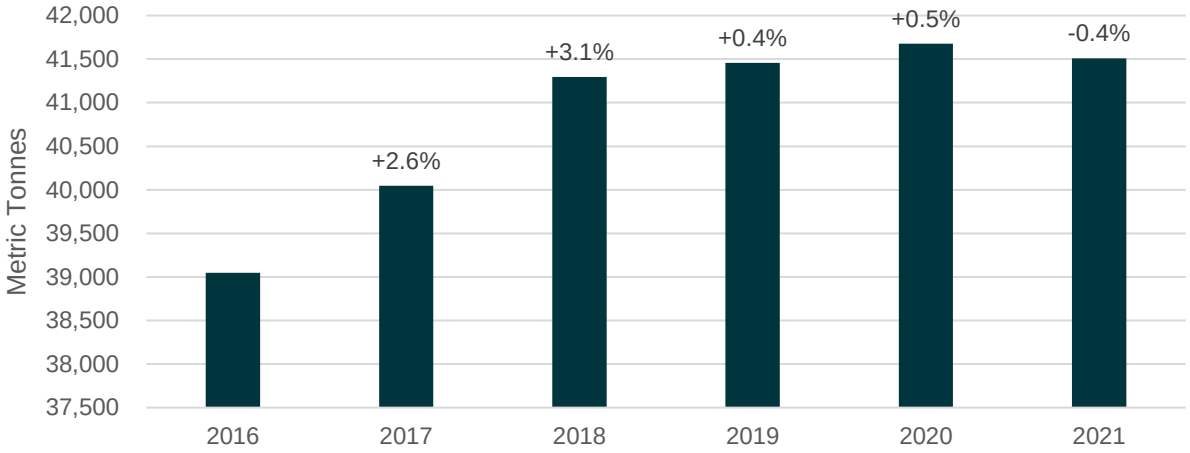
Figure 12: Secondary Airport Access



Cargo

In 2021, GRR processed 41,510 metric tons of cargo, consistent with the volume of cargo processed in 2019 and 2020 (see Figure 13). Cargo volumes grew substantially between 2016 and 2018 but have since levelled off.

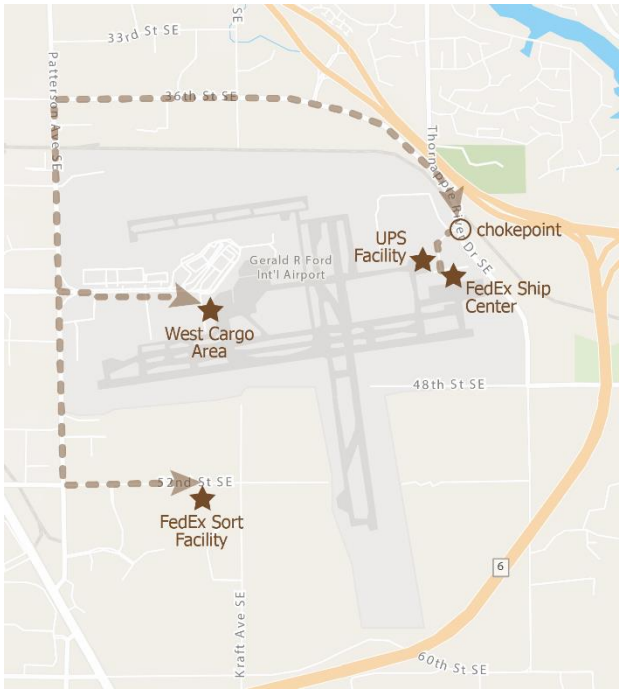
Figure 13: Cargo Carried to or from GRR 2016-2021



Source: GRR Cargo Activity Reports

Two types of cargo are handled at GRR: belly cargo traveling in commercial passenger aircraft, and raw and dedicated air cargo traveling in dedicated aircraft. Belly cargo is handled on the terminal side of the airport at the West Cargo Area (see Figure 14). This cargo is typically brought to the airport on semi-trucks, but they comprise a very small portion of traffic on the airport's entry road system; belly cargo accounts for less than 1 percent of total cargo at GRR[1].

Figure 14: Cargo Airport Access



Raw and dedicated cargo is handled at the East Cargo Area of the airport which includes a smaller facility leased by UPS and a larger facility leased mostly by FedEx (see Figure 14). FedEx cargo accounts for nearly all cargo at GRR and is transported between the facility at the airport and an off-airport sort facility at 5454 52nd Street. Monday through Saturday mornings, tractor trailers make 6 round trips between the airport facility and the sort facility, and Monday through Friday afternoons, they make 4 round trips between the facilities for a total of 10 round trips on weekdays and 6 round trips on Saturdays[2]. Monday through Friday mornings, smaller vehicles make 25 round trips from the airport facility to the sort facility and back, and do not return to the sort facility until the following morning. Nearly all these vehicles take the following route from the airport: Air Cargo Drive to Thornapple River Drive to 36th Street to Patterson Avenue to 52nd Street. This route is

[1] GRR Cargo Activity Reports 2019-2021
[2] FedEx Coordination Call January 18, 2022

preferred due to better road conditions and a lower likelihood of hitting deer than on the more wooded Thornapple River Drive – 60th Street – Kraft Avenue – 52nd Street route. Since FedEx's lease at the airport will continue for another 3 to 4 more years, these travel patterns for freight vehicles are expected to continue, although there is an opportunity to consolidate the facilities in the longer-term future.

An issue identified for freight vehicles coming from the East Cargo Area is the chokepoint at Thornapple River Drive & Air Cargo Drive. The speed limit on Thornapple River Drive is 55 miles per hour and there is a hill just north of the intersection, leading to long wait times and safety challenges for vehicles turning out of Air Cargo Drive. This issue precipitated the inclusion of a new access road to the East Cargo Area in the 2019 Airport Master Plan Update (see Figure 17 in section *2.3 Airport Planning* of this memo).

Security

GRR maintains specific separation between the airside (airport operations area, or AOA) and landside through the employment of fencing and secure gates. The AOA is fenced by a ten-foot-tall fence with three strands of barbed wire at the top. Gates are located at various locations along the AOA fencing. In the commercial terminal vicinity, delivery and access inside the AOA is granted through a staffed security gate. Beyond this staffed security gate, tenants are required to escort the delivery vehicle to the loading dock where goods are unloaded for delivery to tenant space on the secure side of the commercial passenger terminal building. At various tenant locations like those of the cargo operators, these tenants maintain secure access to their aircraft parking areas, ramps, and aprons through security access gates that have a key card access or keypad access system. Access is controlled by the tenant and GRR. For those drivers who have privileges within the AOA, specific training and badging is required to maintain an appropriate level of safety for vehicle and aircraft traffic within the AOA.

Within the commercial passenger terminal building, separation between the secure and non-secure side is maintained through locked and controlled access doors for GRR employees and those of vendors and tenants inside the terminal building. For passengers, this separation is provided through the security screening process conducted by the Transportation Security Administration (TSA) in cooperation with GRR.

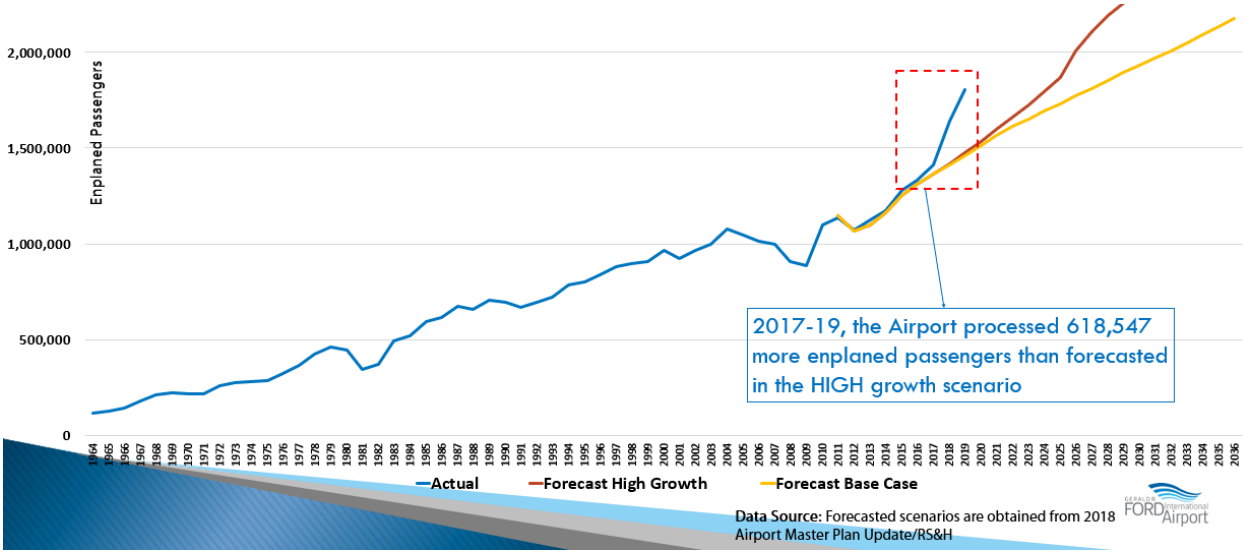
Public access to the airport is available via established roadways like Oostema Boulevard/44th Street, GRR's entrance road, and others that grant access to various public and tenant space around the airfield while maintaining the separation by ten-foot-tall fencing with security gates. Public access beyond landside tenant facilities is maintained by each individual tenant restricting this access into the AOA by pedestrians through escort or specific approvals.

Changes in future airport access may impact both vehicular and pedestrian access to various parts of GRR. These will be considered as future development options are identified and evaluated.

2.2 Projected Airport Passenger Growth

Passenger volumes at GRR were growing rapidly before the COVID-19 pandemic and are quickly recovering. Between 2009 and 2019, total passengers grew more than 100 percent with 1.77 million passengers in 2009 and 3.58 million passengers in 2019. Passenger traffic at GRR from 2017 to 2019 outpaced the Federal Aviation Administration (FAA)'s 2016 high growth forecast by an average of 9 percent, processing 618,547 more passengers than forecasted (see Figure 15). Current trends are already ahead of the airport's high growth scenario recovery forecast for enplaned passengers and are expected to exceed 2019 passenger volumes in 2022[3].

Figure 15: GRR Passenger Growth Over Time

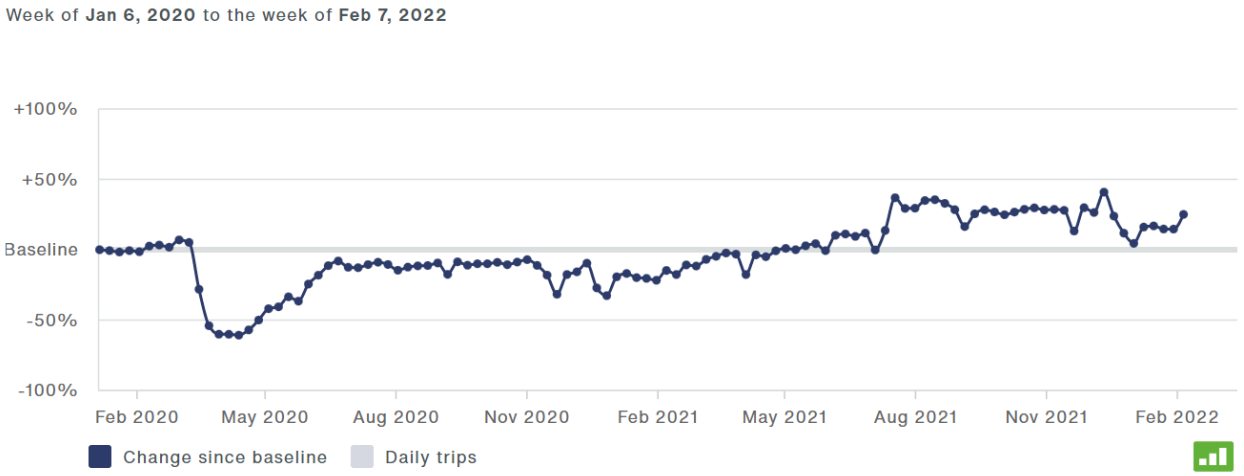


Source: GRR Airport Access Study Overview

[3] Forecasted scenarios are obtained from the 2018 Airport Master Plan Update.

Growth in airport passengers is consistent with observed growth in traffic in the study area over the last two years, which has rebounded to greater than pre-pandemic levels (see Figure 16). Additionally, regional growth forecasts indicate that trips to and around the airport could grow an additional 37%-75% over the next 25 years (see Table 2).

Figure 16: Change in Trips in the Study Area 2020-2022



Source: Replica Trends[4] data

Table 2: Change in Trips in the Study Area 2015-2045

	2015 Total Trips	2045 Total Trips	Change
Trips to the Traffic Analysis Zone Containing the Airport	4,860	8,520	75%
Trips to the Study Area	76,667	105,328	37%

Source: GVMC Travel Demand Model

[4] Replica Trends are near-real-time insights into mobility and spending patterns based on activity-based travel models that simulate the movements of residents, visitors, and commercial vehicles in a given area. Replica builds its simulations using mobile location data, consumer resident data, land use / real estate data, credit transaction data, and "ground truth" data including auto and freight volumes, transit ridership, and bike and pedestrian counts provided by customers. http://help.replicahq.com/en/articles/5632479-replica-methodology

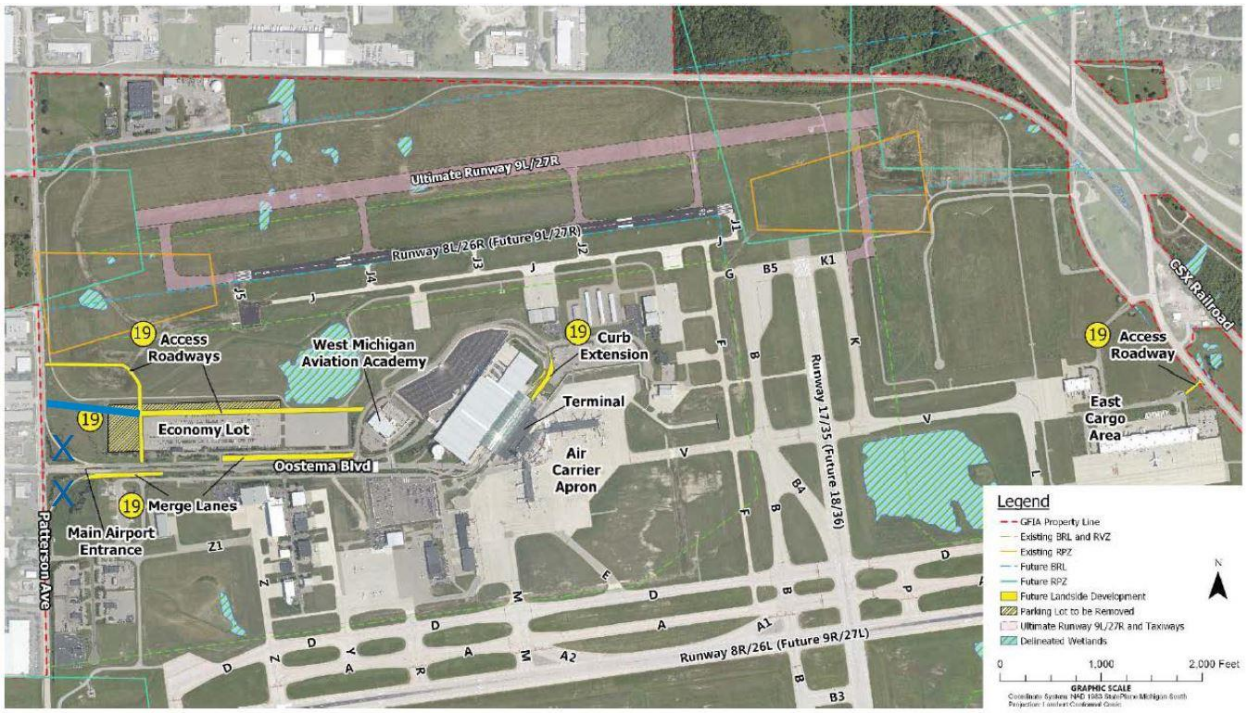
2.3 Airport Planning

Airport Master Plan Update (2019)

The Airport Master Plan identified airfield, terminal, landside, and general administration and support projects to implement over the next 5, 10, and 20 years. Figure 17 illustrates the planned road system improvement projects, which include:

- A new access point to the airport's main entrance north of 44th Street/Oostema Boulevard (the yellow line on the map denotes where this access point was originally planned, and the blue line denotes a more likely location),
- Extending two existing merge lanes onto 44th Street,
- Eliminating the "sweeps" between Patterson Avenue and 44th Street/Oostema Boulevard (denoted by the blue X's),
- A sidewalk system along 44th Street/Oostema Boulevard from Patterson Avenue to the West Michigan Aviation Academy,
- Extending the east portion of the terminal curb front, and
- Adding a new roadway from Thornapple River Drive to provide direct access into the airport's East Cargo Area.

Figure 17: Planned Road System Improvements at GRR



Source: GRR Airport Access Study Overview

Project Elevate

Other projects coming out of the Airport Master Plan that may impact airport access include relocating the air traffic control tower to allow more terminal and capacity expansion, concourse expansion, a new parking structure north of the terminal, reconfigured airfield geometry including the “Ultimate Runway” shown in Figure 4 at the north end of the airport property, and expanded air carrier aprons, all of which would be accompanied by the introduction of more people and vehicles to the airport area.

Ground Transportation Study (2018)

InterVISTAS conducted a sensitivity test of the Airport Master Plan methodology and resulting requirements to reflect potential future changes in mode choice due to increased use of TNCs and increasing share of automated vehicles. The study estimated that share of passengers using public parking and rental car facilities (versus curbside facilities) would decrease from 53% (2016, based on a 2004 survey) to 48% by 2036. In addition, of passengers using curbside facilities, the study estimated that the share using TNCs would increase from 7% (InterVISTAS estimate based on Airport Master Plan documentation) to 20% by 2036 and the share using taxis would decrease from 8% in 2016 to 1% by 2036.

As a result, the study concluded that inner curb requirements could be slightly lower than Airport Master Plan estimates and outer curb requirements could be higher, but both requirements can be accommodated within existing facilities. Parking requirements could be lower than Airport Master Plan estimates and could be accommodated within existing facilities (including the East Lot and Overflow Lot) through the planning period. Rental car requirements could be lower than Airport Master Plan estimates but will still require expansion beyond existing capacity by the time GRR is serving 2.0 million annual enplanements.

The study recommended reviewing Airport Master Plan recommendations to confirm flexibility of development plans in the event parking and rental car demands increase at a slower rate than originally forecast.

44th & Patterson Development

GRR is working with FAA and a developer to lease property on the northeast corner of the 44th Street and Patterson Avenue intersection for hotel, restaurant, and commercial services (see Figure 18). The project would eliminate the north sweep from westbound 44th Street to northbound Patterson Avenue, shifting traffic to the controlled intersection instead.

Figure 18: 44th & Patterson Development Location

Fuel Farm Access

Another project is also under development that would isolate public access to the airport from fuel farm access, making access to the fuel farm airfield access only to eliminate risk. The project would eliminate the south sweep from northbound Patterson Avenue to eastbound Oostema Boulevard and would reroute Van Laar Drive (see Figure 19).

Figure 19: Potential Impacts to Fuel Farm Access

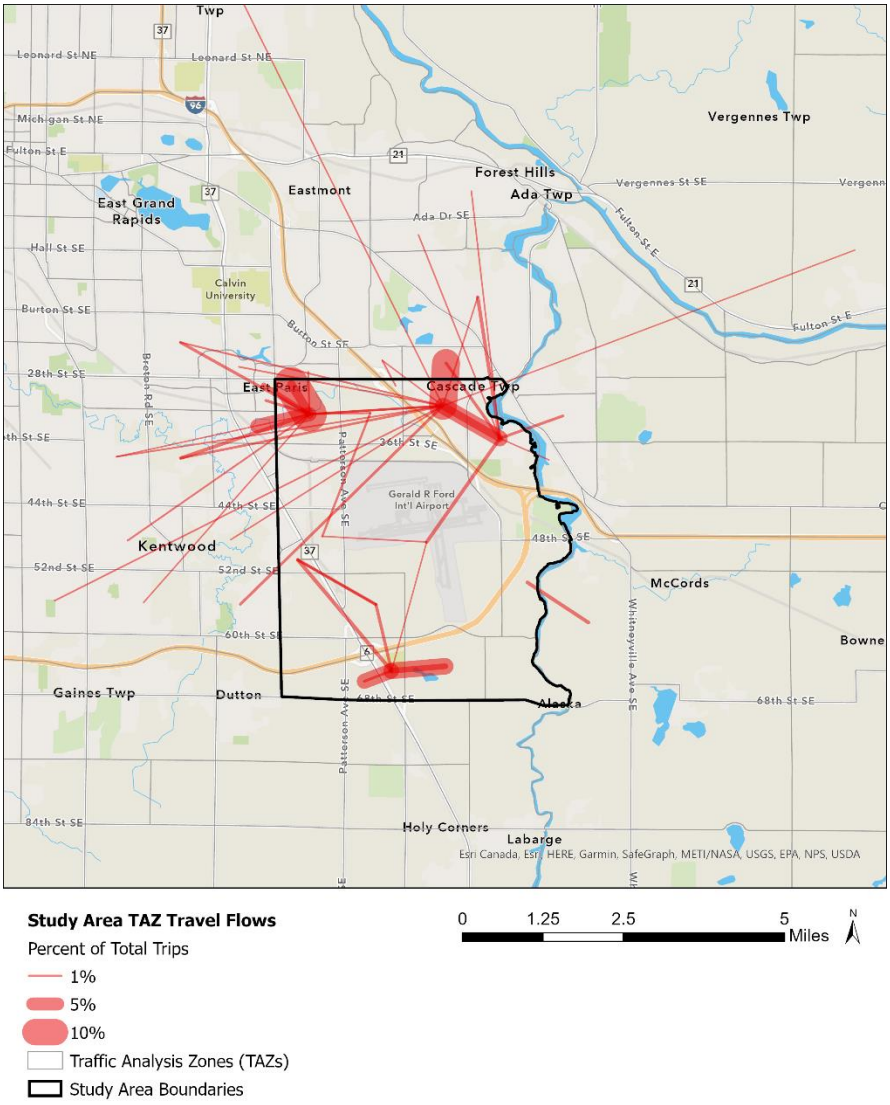
3.0 Study Area Conditions

3.1 Current Study Area Access

General Travel Patterns

Transportation needs in the study area stem from a much broader base than airport passenger traffic alone. Based on September to November 2019 Replica Places[5] data for the study area, 91,000 trips were made either to or from the study area by 50,000 people on a typical weekday. The vast majority of these trips were made within the study area itself and only 3 percent were made by people who live outside the region (see Figure 20).

Figure 20: Study Area Major Travel Flows (>100 Weekday Trips)

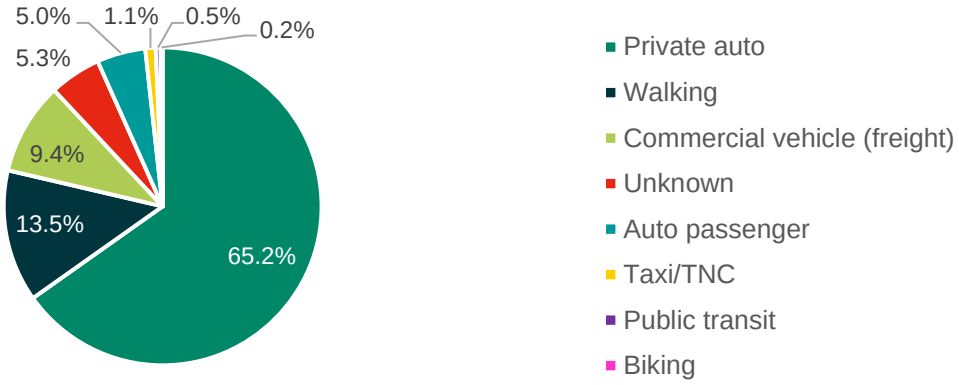


Source: September to November 2019 Replica Places data

[5] Replica Places are high-fidelity activity-based travel models that simulate the movements of residents, visitors, and commercial vehicles in a given area. Replica builds its simulations using mobile location data, consumer resident data, land use / real estate data, credit transaction data, and "ground truth" data including auto and freight volumes, transit ridership, and bike and pedestrian counts provided by customers. http://help.replicahq.com/en/articles/5632479-replica-methodology

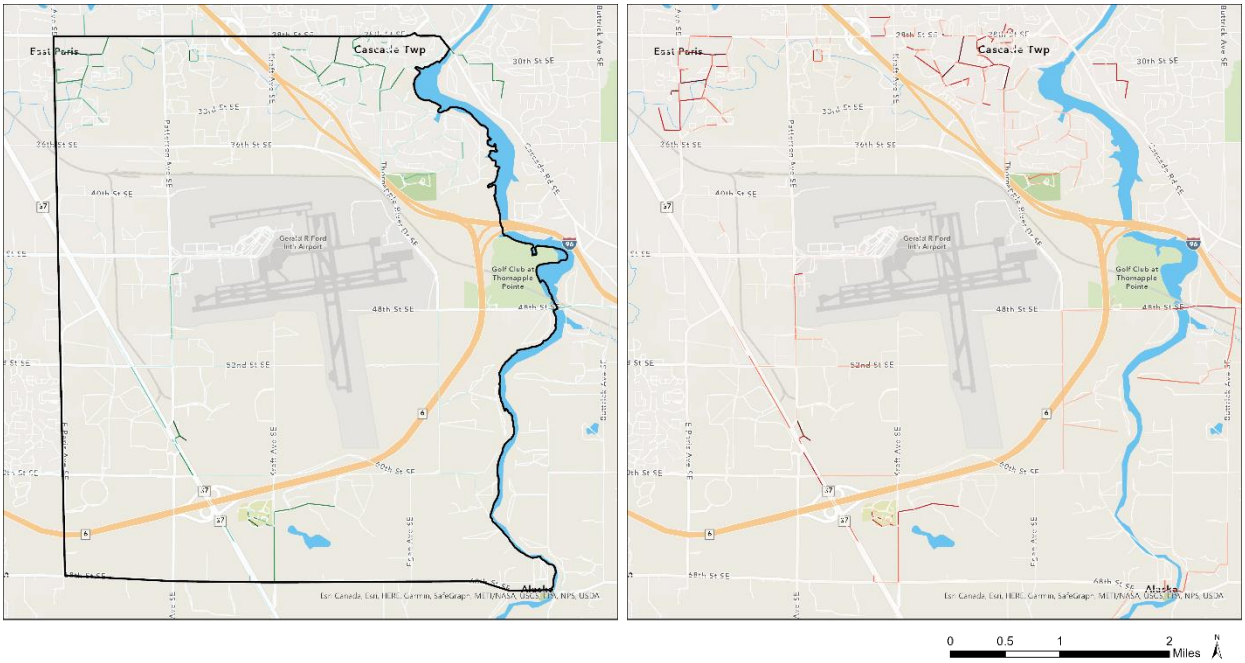
Private automobile trips accounted for most trips to or from the study area, but a significant proportion of trips (14 percent) were walking trips (see Figure 21). Walking trips are concentrated in the shopping centers along 28th Street and on streets that connect them to surrounding housing, as well as on streets that access Davenport University, although about 100 walking trips happen along segments of Patterson Avenue, M-37 (Broadmoor Avenue), and 52nd Street on a typical weekday (see Figure 22). The median distance for trips to or from the study area was 7 miles and the median duration was 14 minutes.

Figure 21: Mode Share for Trips to and from the Study Area



Source: September to November 2019 Replica Places data

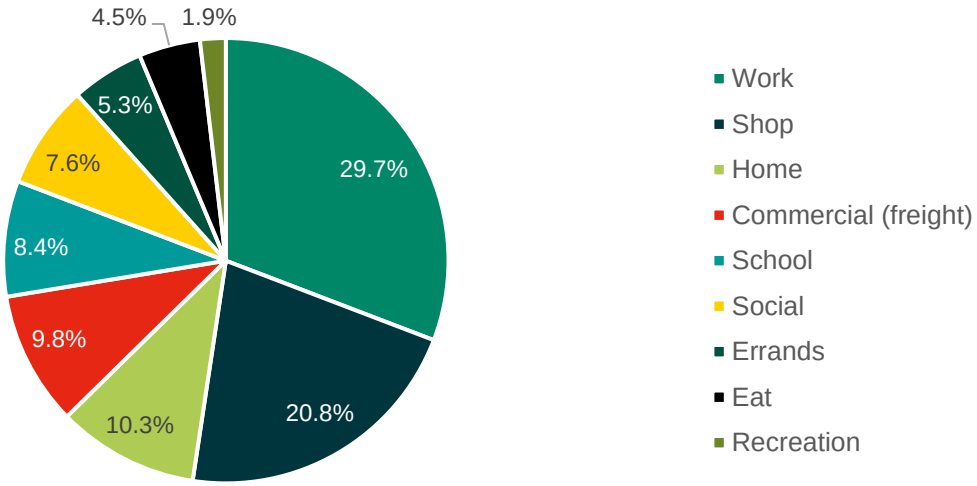
Figure 22: Walking Trips to and from the Study Area



Source: September to November 2019 Replica Places data

Trip purposes appear to be a mix of regional travel related to the airport and more localized travel between residences and businesses in the area. Regarding trips *to* the study area, about 600 trips (0.7 percent) were specifically airport trips; other trip purposes are shown in Figure 23. The busiest start times for trips to the study area were between 7am and 8am (18 percent of all trips to the study area started during that timeframe).

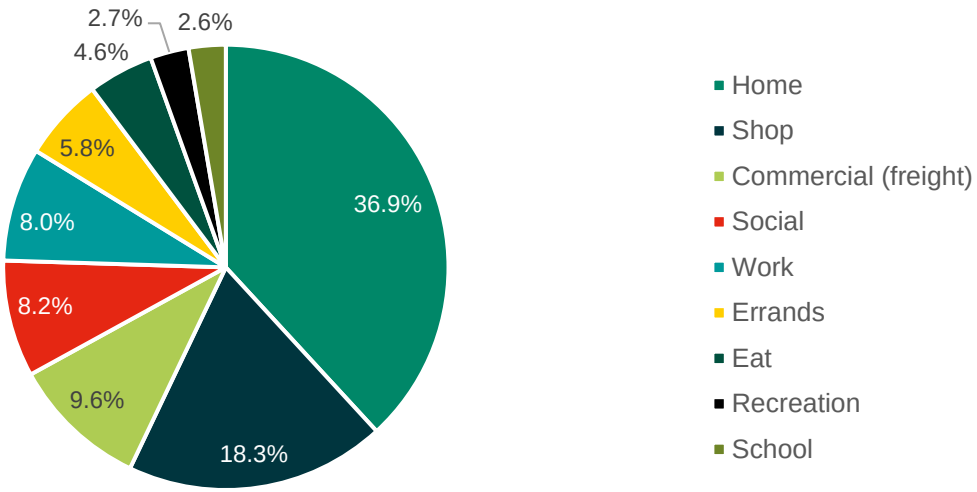
Figure 23: Trip Purposes for Trips to the Study Area



Source: September to November 2019 Replica Places data

Meanwhile, regarding trips *from* the airport area, about 400 trips (0.4 percent) were specifically airport trips; other trip purposes are shown in Figure 24. The busiest start times for trips from the study area were between 3pm and 5pm (31 percent of all trips from the study area started during that timeframe).

Figure 24: Trip Purposes for Trips from the Study Area



Source: September to November 2019 Replica Places data

Vehicular

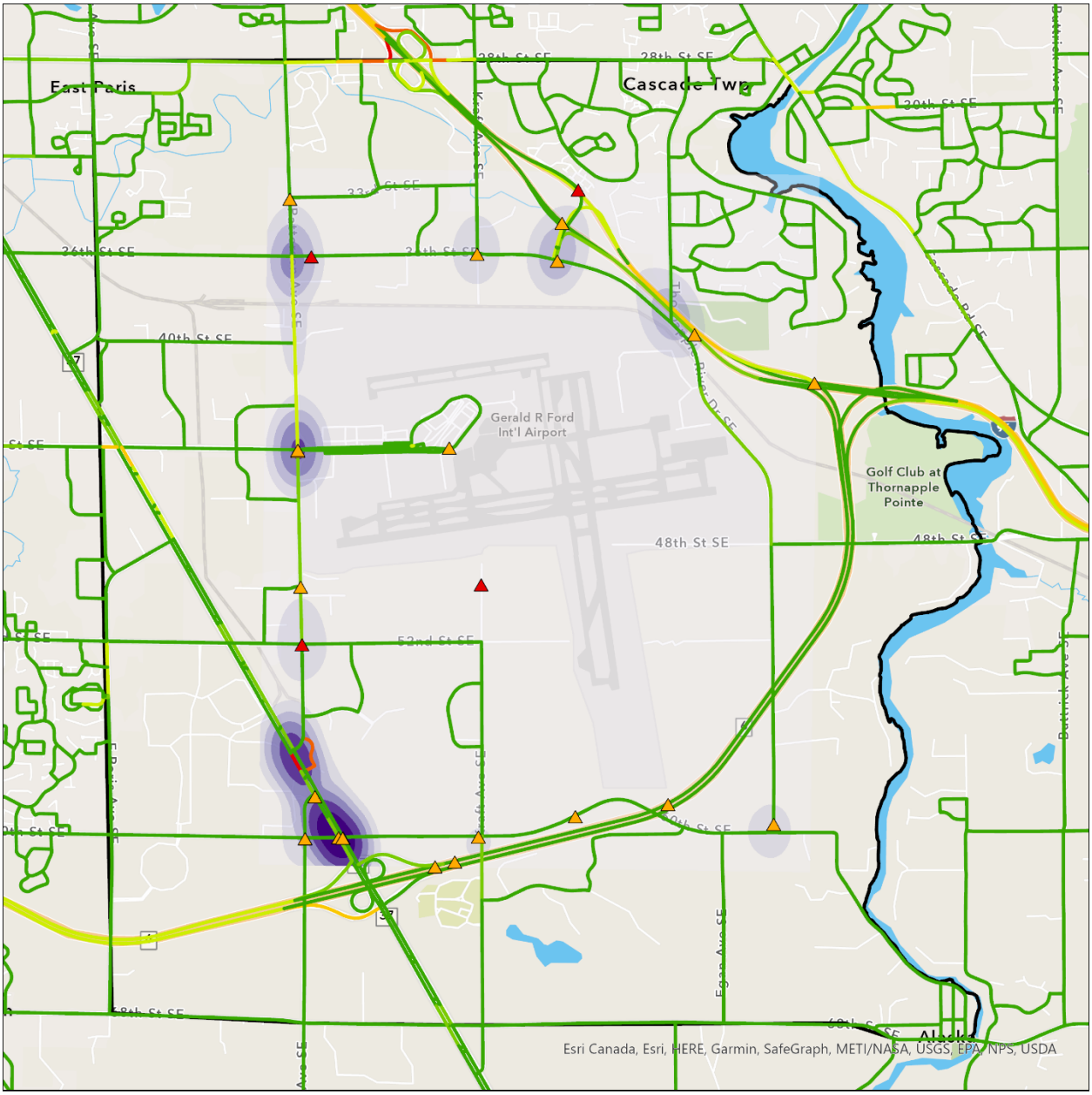
Based on September to November 2019 Replica Places data, about 63,800 trips per weekday to or from the study area are made by private automobiles and 8,600 are made by commercial vehicles (freight) – about 70 and 9 percent, respectively. Another 1,000 trips per weekday (1 percent of total trips) are made by taxis or Transportation Network Companies (TNCs) such as Uber and Lyft.

Level of Service (LOS) is a measure of traffic congestion that compares the volume of a roadway segment to its capacity. LOS A represents the highest driver comfort (free flowing traffic) while LOS F represents the highest level of driver frustration (excessive traffic delays). In general, there are limited traffic delays in the study area. The only roadway segments in the study area that currently have high or excessive traffic delays are the northbound I-96 ramp from 28th Street and its approach, the southbound I-96 ramp to 28th Street, 28th Street leading up to the I-96 interchange from both directions, southbound Broadmoor Avenue (M-37) just past the intersection with Patterson Avenue, and Town Center Drive (see Figure 25 for LOS based on peak maximum volumes[6]). While Figure 25 illustrates current congestion, the GVMC 2045 Metropolitan Transportation Plan identified roadways that are expected to experience congestion in the future (2045), which includes all of the segments identified by the LOS analysis listed above as well as Patterson Avenue between 36th Street and 40th Street.

In terms of safety, the greatest density of crashes for 2016-2020[7] occurred at the Broadmoor Avenue (M-37) & 60th Street and the Broadmoor Avenue (M-37) & Patterson Avenue intersections (see Figure 25). Other areas with a high density of crashes include the Patterson Avenue & 44th Street/Oostema Boulevard intersection, the Patterson Avenue & 36th Street intersection, the I-96 ramps to/from 36th Street, and the Thornapple River Drive & 36th Street intersection. Serious injury and fatal crashes for 2016-2020 tended to be in these locations as well.

[6] LOS data is obtained from GVMC's Travel Demand Model.
[7] Crash data is obtained from GVMC's crash database.

Figure 25: Vehicular Traffic and Safety

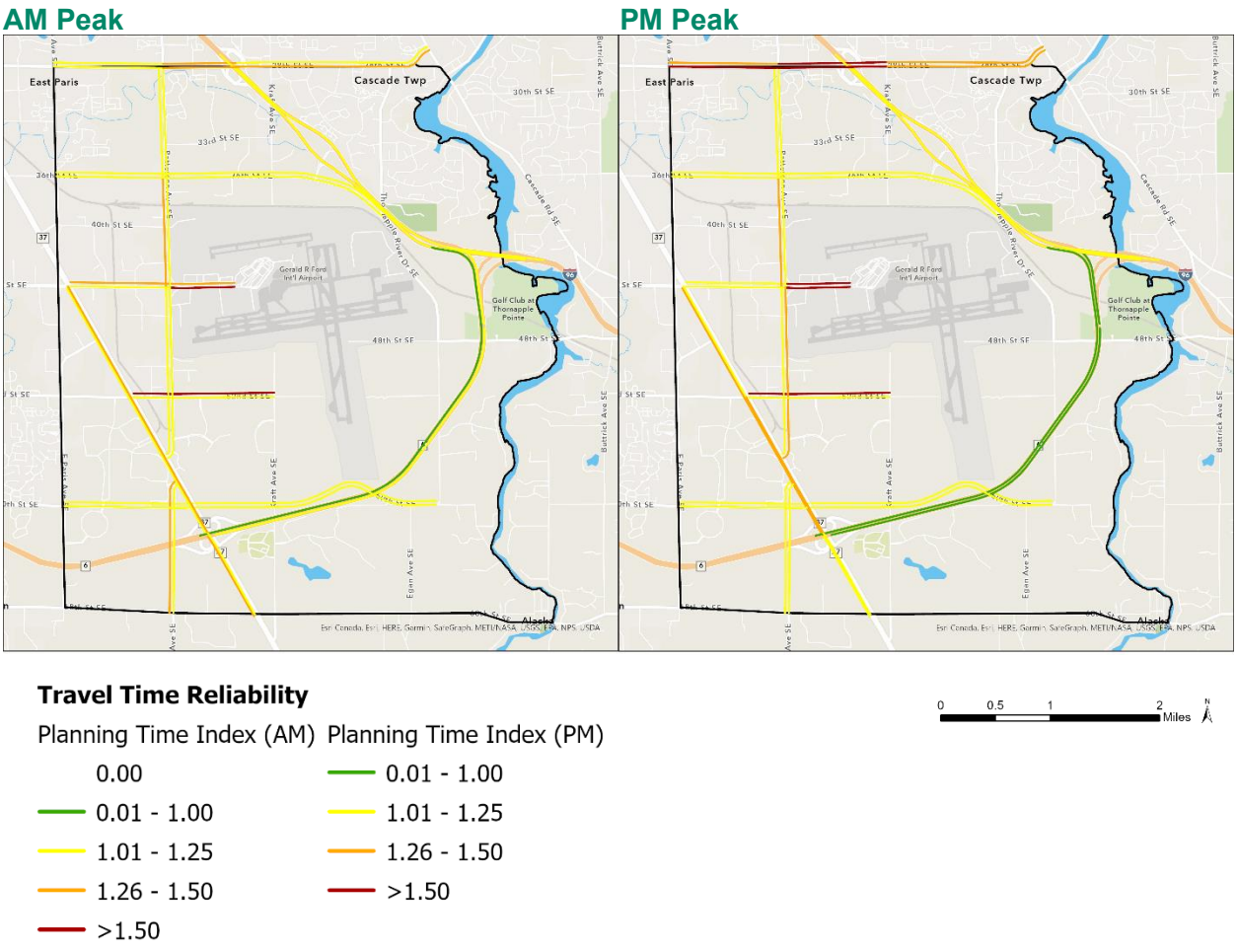


The Level of Service shown in the map represents the maximum volume for either the morning or afternoon peak period, whichever is larger.

On roadways with unreliable traffic conditions, drivers must plan extra time to arrive at their destination on time. This extra time is measured by the Planning Time Index (PTI), which is the ratio of the 95th percent peak period travel time to the free flow travel time. PTI data is obtained from the GVMC Travel Demand Model. For the GVMC region, a PTI less than 2.0 is considered reliable, a PTI between 2.0 and 3.0 is considered moderately unreliable, and a PTI greater than 3.0 is considered unreliable.

The average PTI for the region in 2021 was 1.22 for the morning peak period and 1.26 for the afternoon peak period. As shown in Figure 26, the PTI for roadways in the study area are consistent with these regional averages and are considered reliable. The only roadway in the study area that approaches a moderately unreliable PTI is eastbound 28th Street between East Paris Avenue and I-96 in the afternoon peak period.

Figure 26: Vehicular Travel Time Reliability



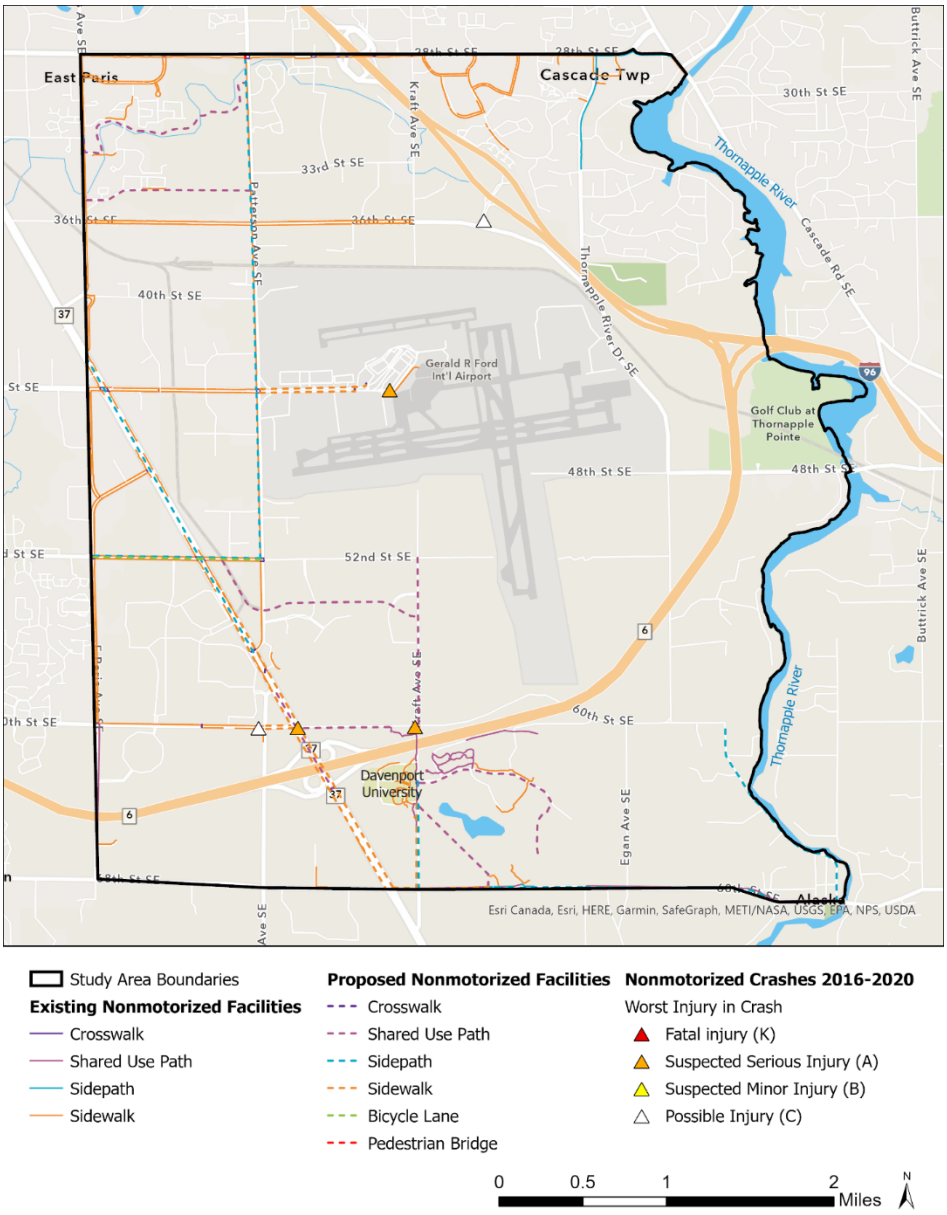
Source: GVMC Travel Demand Model

Nonmotorized

Based on September to November 2019 Replica Places data, about 12,200 trips per weekday to or from the study area are walking trips and 200 are biking trips – about 14 and 0.2 percent of all trips, respectively.

There are currently no routes for accessing the airport on foot or by bicycle, despite the Airport at Amway eastbound bus stop on Oostema Boulevard. The 2019 Airport Master Plan Update included plans for sidewalks along 44th Street/Oostema Boulevard from Patterson Avenue to West Michigan Aviation Academy (see Figure 27). New nonmotorized facilities are also planned along Patterson Avenue, Broadmoor Avenue (M-37), in the 52nd Street and Kraft Avenue corner of the Four Corners, and in the Davenport University area. 60th Street should be a focus for safety; three nonmotorized injury crashes have occurred there since 2016[8].

Figure 27: Nonmotorized Facilities



[8] Crash data is obtained from GVMC's crash database.

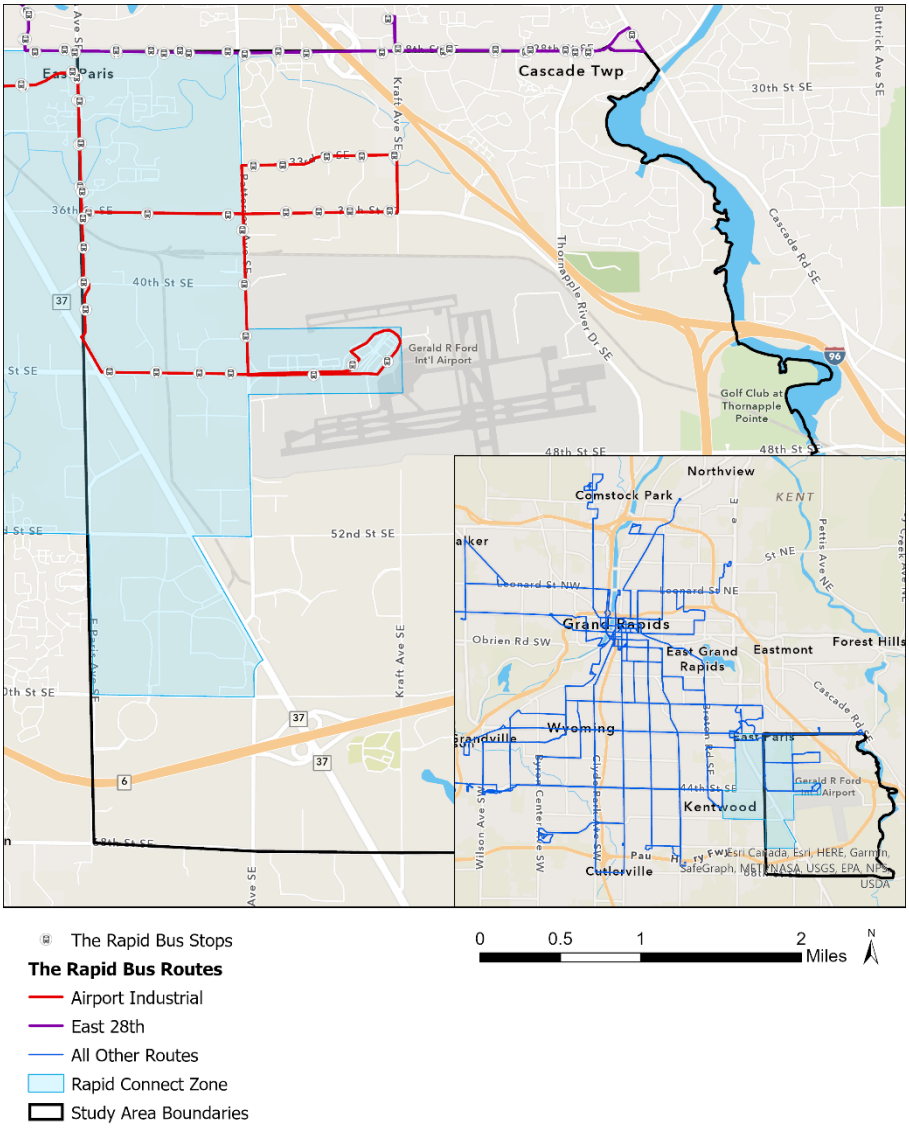
Transit

Based on September to November 2019 Replica Places data, about 500 weekday trips to or from the study area (0.5 percent of all trips) are made by public transit. This includes activity at bus stops along 28th Street.

The Rapid Route 27 (Airport Industrial) is the only fixed bus route that serves the airport (see Figure 28). It stops at the Amway Hangar on Oostema Boulevard (which lacks nonmotorized access), the airport terminal, and West Michigan Aviation Academy. Route 27 only operates on weekdays and runs every 30 minutes from 6am to 9am, every 45 minutes from 9am to 3pm, every 30 minutes from 3pm to 6pm, and every 45 minutes from 6pm to 10pm. Connections to other fixed bus routes are available at Kentwood Station in front of Woodland Mall.

Rapid Connect service was implemented in January 2022 and allows customers to book rides in real-time via mobile app. Smaller vehicles (Ford Transit vans) provide curb-to-curb service within the defined on-demand zone. In the initial beta-testing phase, Rapid Connect service is available Monday through Friday from 6am to 6pm.

Figure 28: Transit



Rail

There are two CSX rail lines in the study area: one active line running east-west through the north end of the airport property and one inactive line running north-south about a half-mile west of Patterson Avenue (see Figure 29).

In the City of Kentwood, the community utilizes the existing CSX railroad line to connect and transport materials for businesses along 36th Street, and can serve as an example of multi-modal freight operations with the airport cargo area where opportunities for freight transloading has been considered.

Development of one or both of these rail lines for passenger service has been considered by several previous plans with a potential station location identified near the active rail line's intersection with Kraft Avenue. In addition, the 2019 Airport Master Plan Update identified the opportunity to develop light rail service extending from the inactive north-south MDOT rail line parallel to 44th Street directly to the airport terminal (see Figure 48 in section *4.0 Summary of Previous Planning* of this memo). This option would be more difficult and costly to construct but would provide a high level of customer service.

Figure 29: Rail

Railroads
CSX
Active
Inactive
Study Area Boundaries

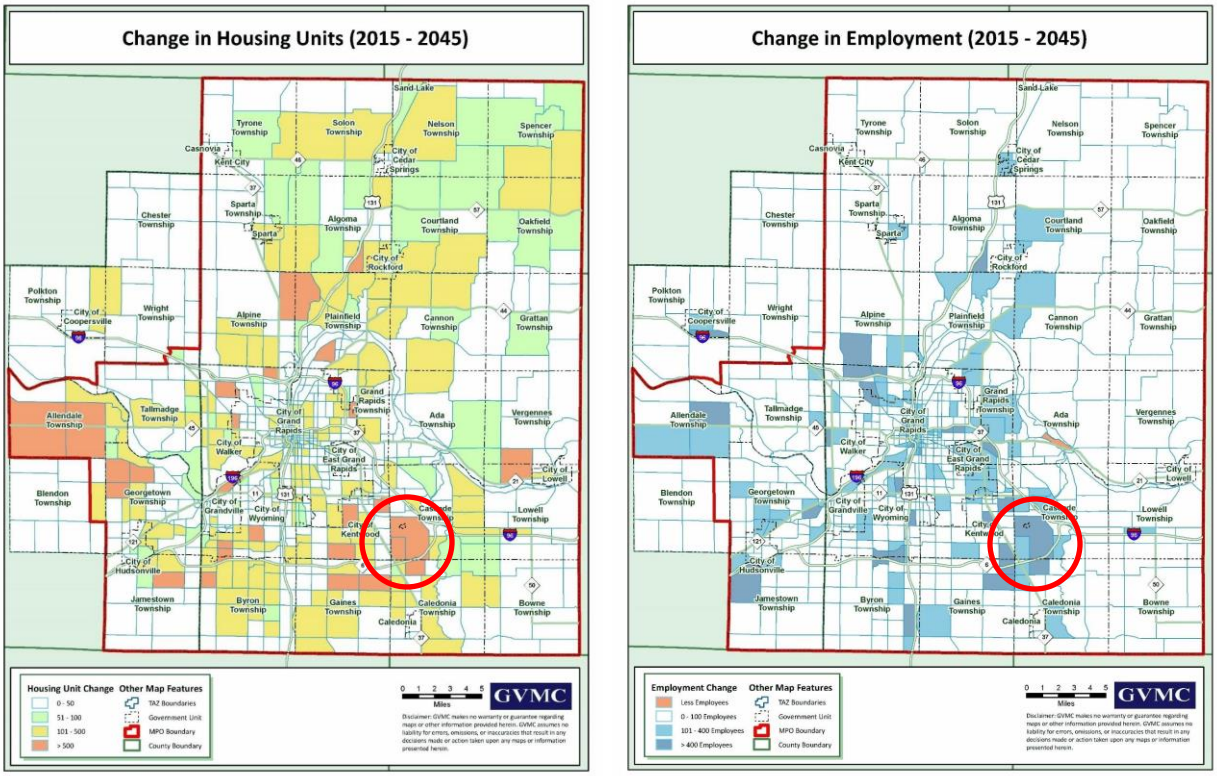
0 0.5 1 2 Miles

N

3.2 Projected Household and Employment Growth

The airport area is one of the areas in the GVMC region expected to grow the most over the next 25 years, as shown in Figure 17. The Traffic Analysis Zone (TAZ) containing the airport includes greenfield areas just outside airport property that are projected for future housing development and, therefore, growth in housing units. Table 3 shows how growth projected for the region compares to growth projected for the study area.

Figure 30: Regional Projected Household and Employment Growth



Source: GVMC 2045 Metropolitan Transportation Plan pages 30-31

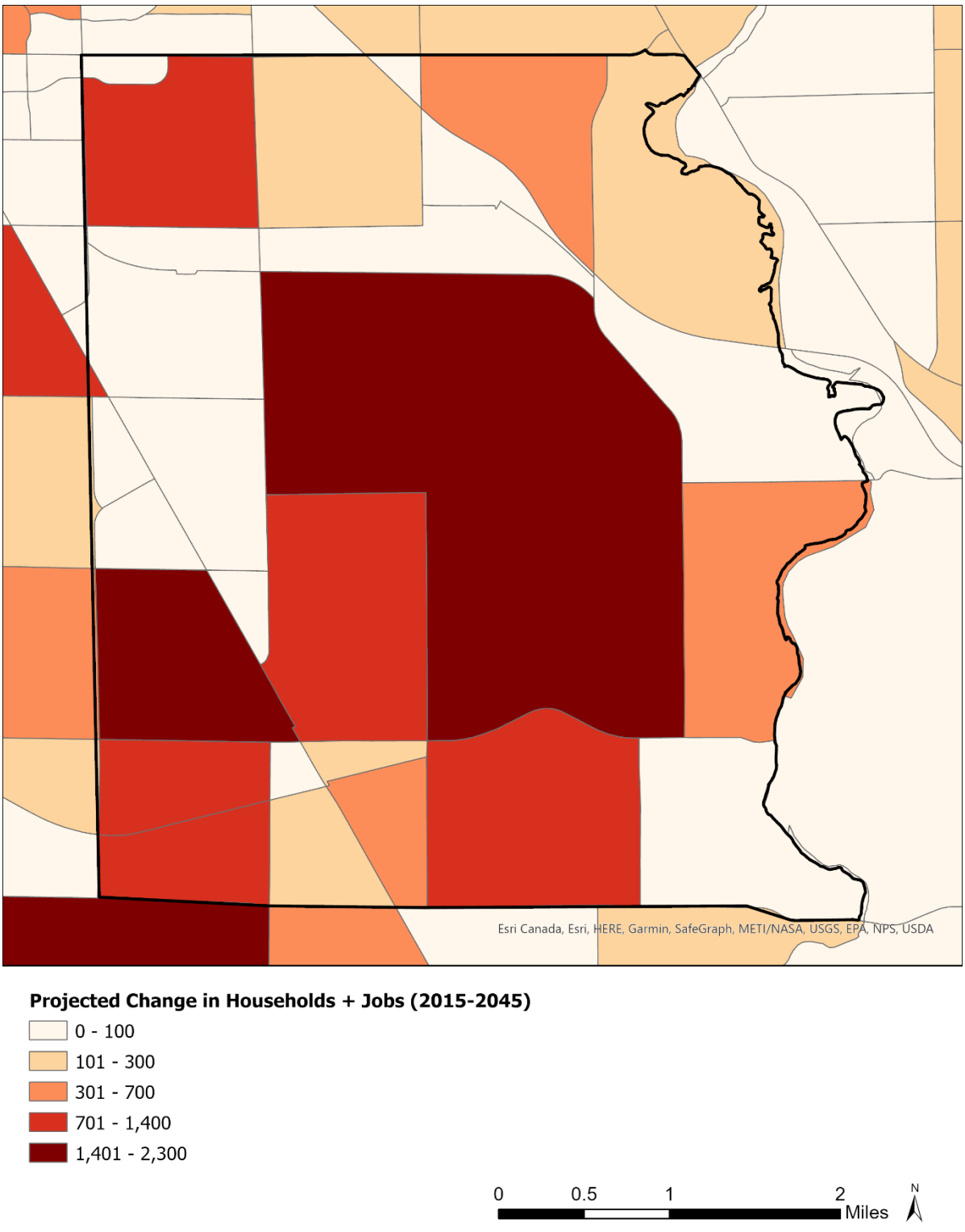
Table 3: Project Household and Employment Growth Comparison

	GVMC Region	Study Area
Housing Units		
2015	281,409	3,152
2045	367,039	6,407
% Change	30%	103%
Employment		
2015	458,039	38,587
2045	522,555	46,290
% Change	14%	20%
Housing Units and Employment		
2015	739,448	41,739
2045	889,594	52,697
% Change	20%	26%

Source: GVMC Travel Demand Model

The study area itself is projected to grow by 3,255 housing units and 7,703 jobs between 2015 and 2045, according to the GVMC travel demand model. Figure 18 illustrates where this growth is projected. Darker areas have higher combined projected household and employment growth. Areas expected to grow the most are concentrated near Broadmoor Avenue (M-37) and Patterson Avenue and within the airport TAZ itself (likely along 52nd Street and Kraft Avenue).

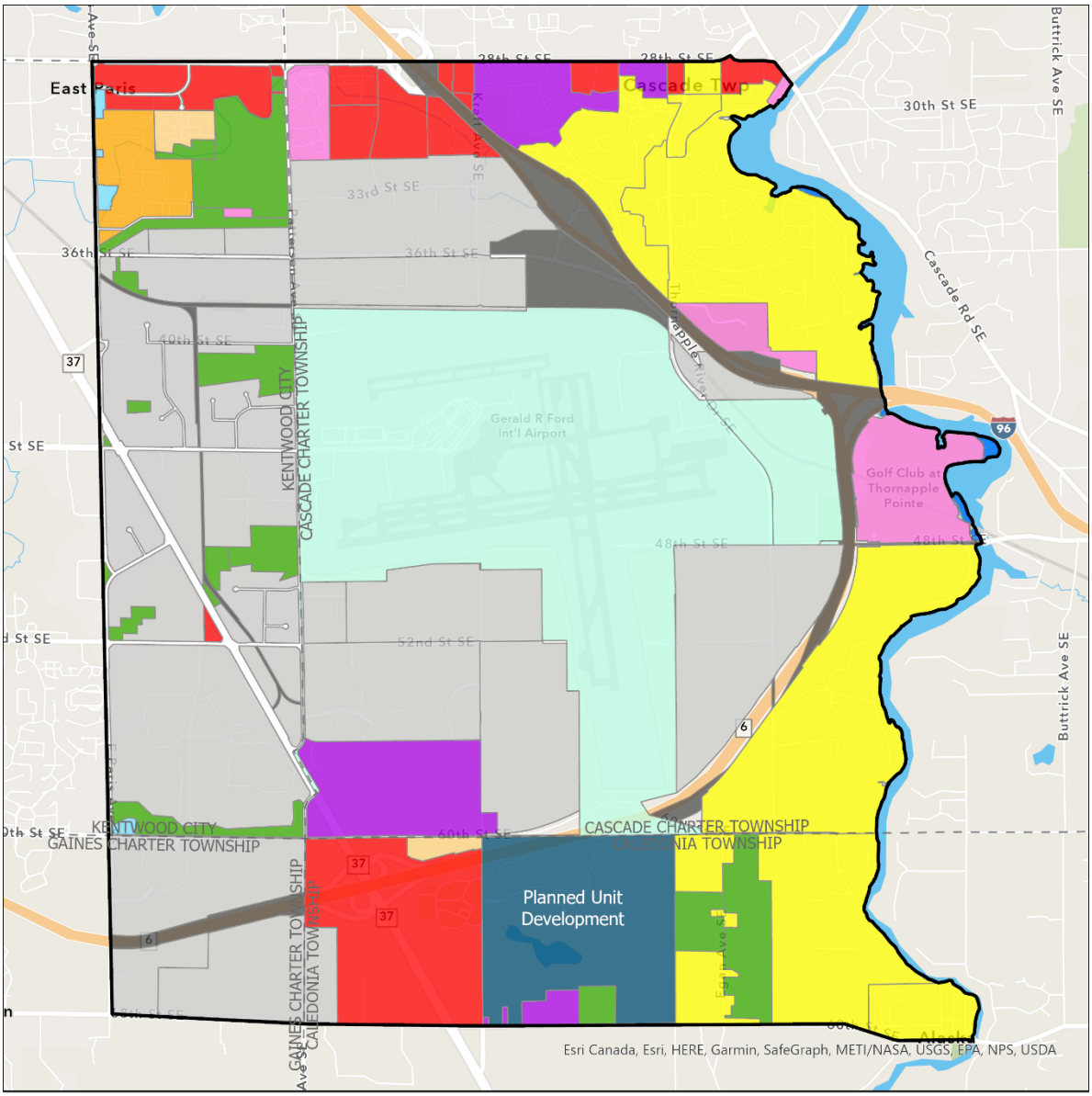
Figure 31: Study Area Projected Household and Employment Growth



3.3 Local Land Use and Development Planning

Figure 19 illustrates the land uses planned for the study area by the local communities' Master Plans. Planned land uses are consolidated across communities by GVMC and were obtained from REGIS.

Figure 32: Planned Land Use

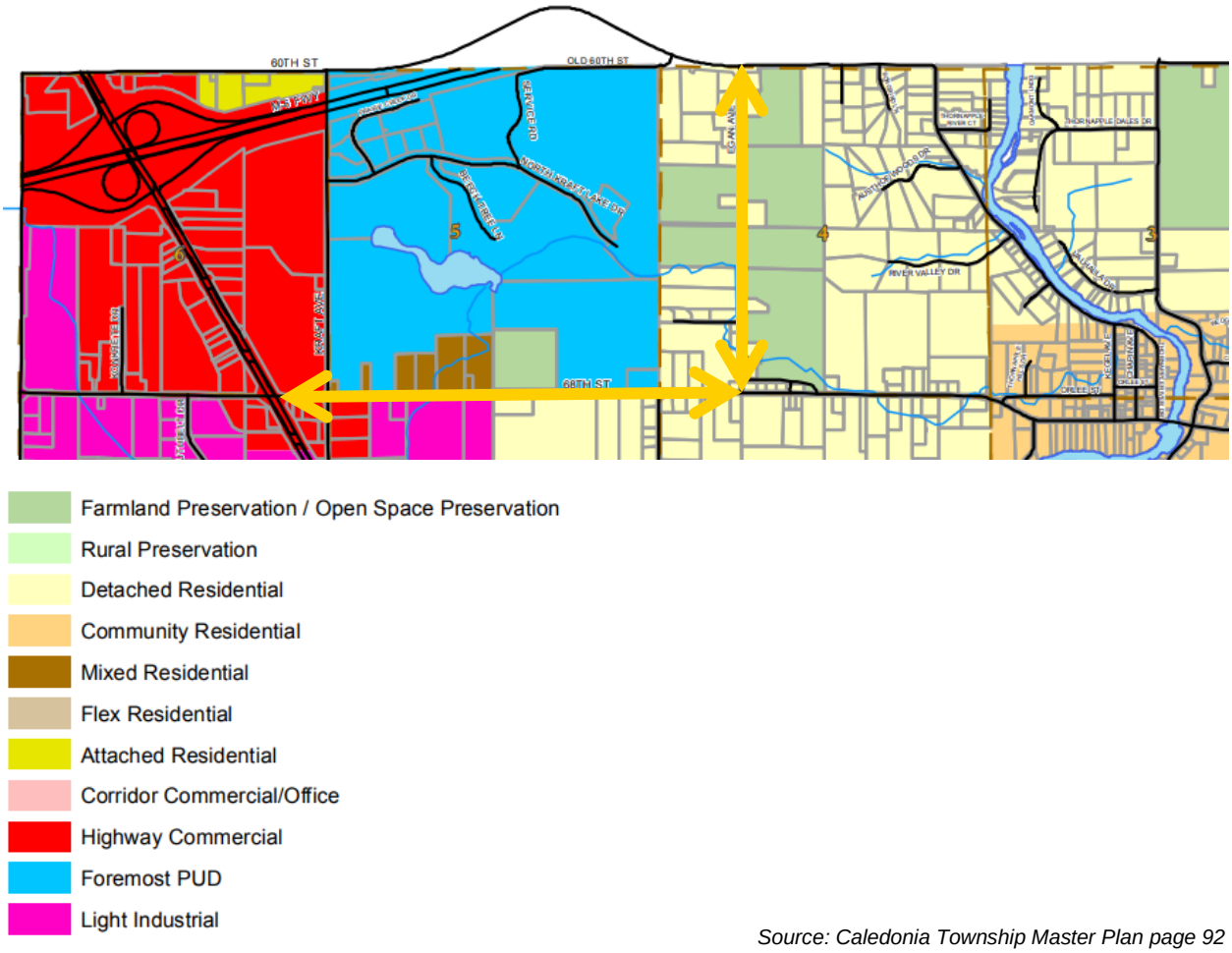


Caledonia Township

Actions identified by the Caledonia Township Master Plan (2015) that may impact airport access include:

- Potential major widening of Egan Avenue as an extension of Thornapple River Drive, and
- Possible improvement of 68th Street from Egan Avenue west to M-37 (see Figure 33).

Figure 33: Caledonia Township Master Plan



Source: Caledonia Township Master Plan page 92

Specific types of development planned for Caledonia Township's portion of the study area include:

Educational and Office

Within the Planned Unit Development area west of Kraft Avenue and also along portions of 68th Street east of Kraft Avenue, educational and office uses are envisioned. Davenport University athletic facilities are along 68th Street and may grow. They include practice fields, training buildings, parking, and interconnected sidewalks. Office buildings and accessory educational buildings and uses are planned.

Multi-Family/Attached Housing

Multi-family development in the form of student housing, townhouses, and mixed use is envisioned as the residential pattern within this quadrant of the Township. The form would be 3-5 story buildings with parking, accessory uses, and interconnectivity with sidewalks or non-

motorized pathways. This development pattern may also include hotels to serve the traveling public.

Single-Use Commercial
Suburban-pattern national and regional retailers and chains are planned along the Broadmoor Avenue (M-37) corridor, including large-scale grocers, convenience commercial, and eating and drinking establishments including drive-thru and sit-down entities with stand-alone parking lots connected by sidewalks.

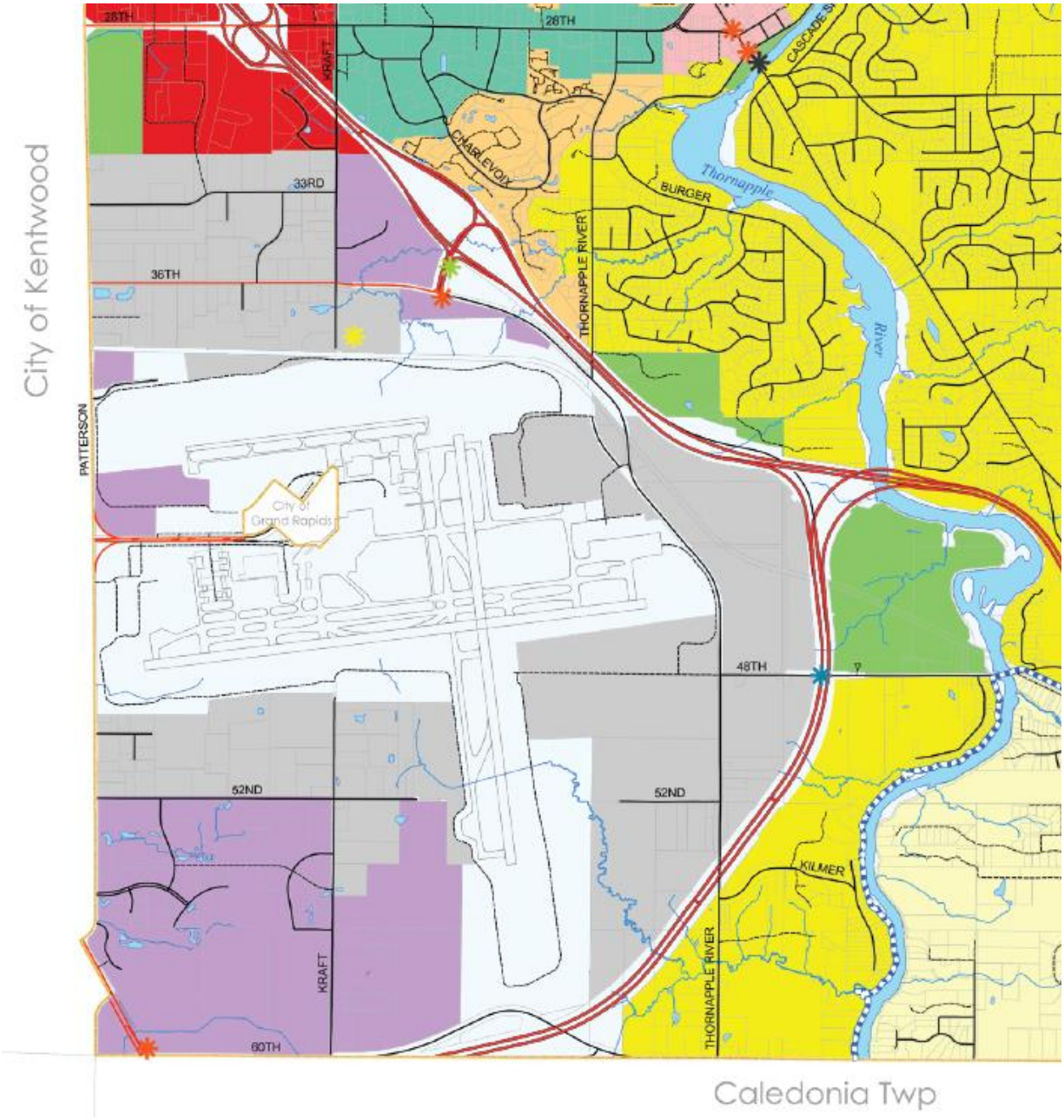
Industrial Warehouse and Manufacturing
Large-scale warehousing and logistics users with shipping and receiving bays is envisioned with heavy semi-truck and panel truck movement mixed with manufacturing.

Cascade Township

Actions identified by the Cascade Township Master Plan (2020) that may impact airport access include:

- Establishing a park and ride lot near the 36th Street and I-96 interchange in partnership with MDOT and the airport,
- Leveraging the cluster of tech companies located near Patterson Avenue & 60th Street (the Four Corners area where Kentwood, Cascade Township, Gaines Township, and Caledonia Township meet) and working with the airport to promote land available for development, and
- Establishing a mixed-use node near the Four Corners area to house workers and create a walkable, connected community.

Table 4: Cascade Township Master Plan



Future Land Use Key

- GATEWAY FEATURE
- EXPRESSWAY INTERCHANGE
- PARK 'N' RIDE
- RAIL STATION
- REDEVELOPMENT READY
- UTILITY SERVICE AREA
- FARMLAND PRESERVATION
- RURAL RESIDENTIAL
- SUBURBAN RESIDENTIAL
- COMMUNITY RESIDENTIAL
- CASCADE VILLAGE
- COMMUNITY MIXED USE
- HIGHWAY COMMERCIAL
- TRANSITIONAL MIXED USE
- INDUSTRIAL
- COMMUNITY FACILITY / GOLF COURSE

Source: Cascade Community Vision Future Land Use map

Specific types of development planned for Cascade Township's portion of the study area include:

Transitional Mixed Use
Research and development, office, warehouse, fulfillment, retail, showrooms, eating and drinking establishments, hotels, attached residential, multiple-use buildings, incubators, and indoor recreation. Residential density of 6-8 dwelling units per acre with density bonuses up to 12 units per acre when residential is mixed with other uses within the same building. Features including crosswalk demarcations, countdown walk signs, sidewalks, sufficient landscaping between incompatible uses, street trees, streetlights, bicycle racks, and transit service.

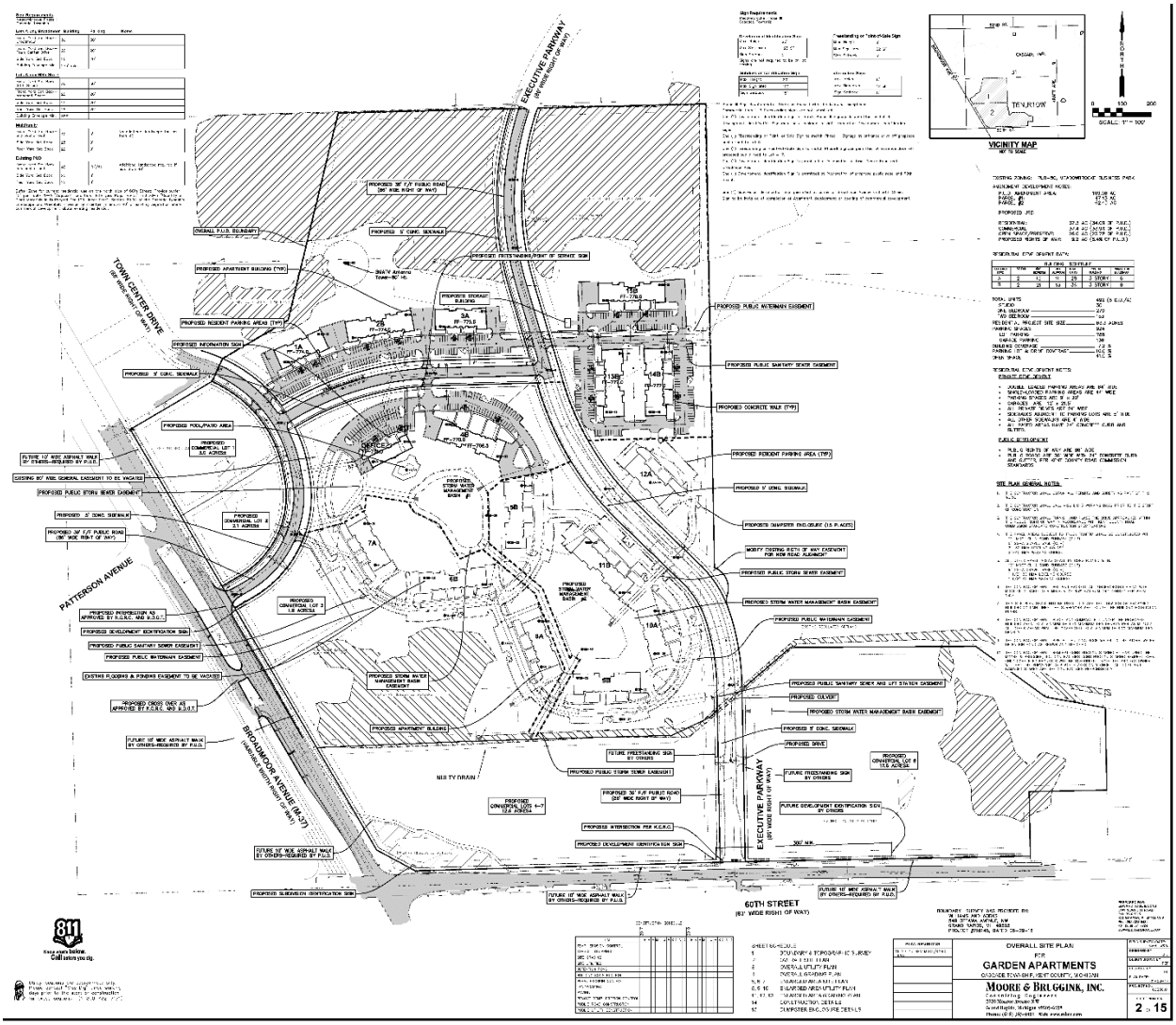
Industrial
Warehousing, manufacturing and assembly, mini-storage, contractor's offices and yards, fulfillment and shipping facilities, research and development. Features including arterial connections, direct access to airport property, crosswalk demarcations, landscaping between incompatible uses, street trees, streetlights, and transit service.

Highway Commercial
Hotels, eating and drinking establishments, retail, convenience shopping, offices, attached residential. Residential density of 4-8 dwelling units per acre. Features including crosswalk demarcations, countdown walk signs, sidewalks, plantings, wayfinding signage, street trees, streetlights, bicycle racks, and transit service.

Gateways
At the I-96/36th Street interchange and at Broadmoor Avenue (M-37) & 60th Street. Could include signage, monuments, landscaping, boulevards, or a combination of all, and may be used to announce community events, to promote local businesses, and to beautify and unify the corridor. Local businesses may sponsor a gateway.

The newest development is at the corner of Broadmoor Avenue and 60th Street. A residential development has been approved at that location for approximately 490 apartments in 15 buildings (see Figure 34 below). The project also allows for the development of commercial properties located along both Broadmoor Avenue and 60th Street.

Figure 34: Broadmoor Avenue and 60th Street Site Plan

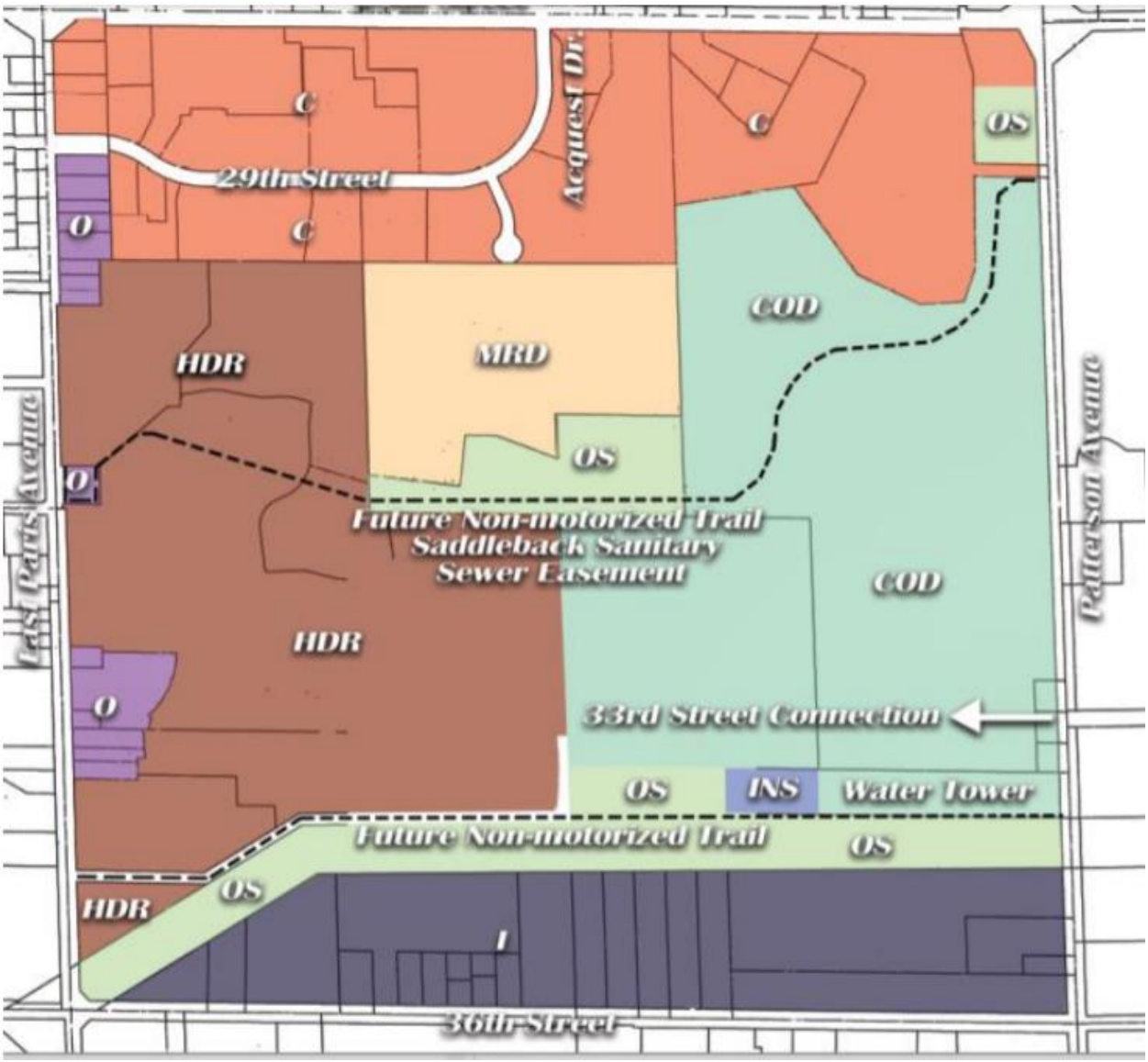


Source: Cascade Township Planning

City of Kentwood

Airport access-related goals coming out of the City of Kentwood's Master Plan (2020) and Non-Motorized Trail Plan (2017) include considering how nonmotorized facilities can interface with the airport and planning for roadway improvements to keep pace with the growth in passenger and freight activity at the airport. In particular, the City's Sub Area Plan for Section 13 / Patterson Farm (see Figure 35) makes a goal of collaborating and supporting the efforts of the KCRC to maintain and improve the condition and design of Patterson Avenue, recognizing that the land uses that develop in the Sub Area as well as the number, location, and design of access points need to be carefully planned, designed, and constructed to maintain safe and efficient traffic flow.

Figure 35: Section 13 / Patterson Farm Sub Area Plan



Source: Kentwood Master Plan Update (2020) page 78

Specific types of development planned for the City of Kentwood's portion of the study area include:

Industrial
Modern technology-based industry and more traditional industrial uses generally associated with manufacturing and warehousing/distribution.

High Density Residential
Eight to 12 residential units per acre.

Conservation Oriented Development
Reserved for undeveloped land tracts of significant size and containing natural features that lend themselves to alternative planning approaches for residential and/or mixed-use development.

Commercial
Primarily for commercial goods and services.

Planned Unit Developments (PUDs)

Patterson Farm (west of Patterson Avenue between Home Depot and 33rd Street): Design will preserve wetlands and floodplain. Development will be connected with internal roads and non-motorized trails. No big box retail. Limited ingress and egress with cross access easements to minimize driveways on Patterson Avenue. Access to existing traffic signal at 33rd Street as well as reduced and better aligned driveways on 36th Street to eliminate left turn conflicts.

Figure 36: Patterson Farm Site Plan

Source: City of Kentwood Planning

4200-4500 36th Street: Industrial use with increased building and parking setbacks, additional screening, and landscape buffers. Reduced and better aligned driveways on 36th Street to eliminate left turn conflicts.

Figure 37: 4200-4500 36th Street Site Plan

Source: City of Kentwood Planning

Steelcase (west of Broadmoor Avenue between 52nd and 60th and Streets): The campus consists of six 800,000 square-foot major manufacturing plants located around a central shipping facility with an industrial coal plant in the middle of the site, fleet operations along 52nd Street, 15 service-type buildings along E Paris Avenue, and a ring road within and along the perimeter of the site connected to one drive access along each major street frontage. Two of the three manufacturing plans were sold in 2006 and 2014. Approximately 55 acres of land in the southeast corner have been sold and developed by other industrial users. Steelcase has continued manufacturing, distribution, and fleet services on its remaining 320-acre site portion of the PUD.

Figure 38: Steelcase Site Plan and Photo

Source: City of Kentwood Planning

Muller (west of Patterson Avenue between the utility easement and 36th Street): Currently zoned for industrial use, but property owner is seeking redesignation to commercial development for the easternmost 10 acres. Plans include locating driveways along Patterson Avenue as far from intersections as possible, creating a future street connection at 33rd Street to the existing traffic signal, and locating driveways on 36th Street as far from the intersection as possible and aligning with industrial development on the south side of the street to eliminate left turn conflicts.

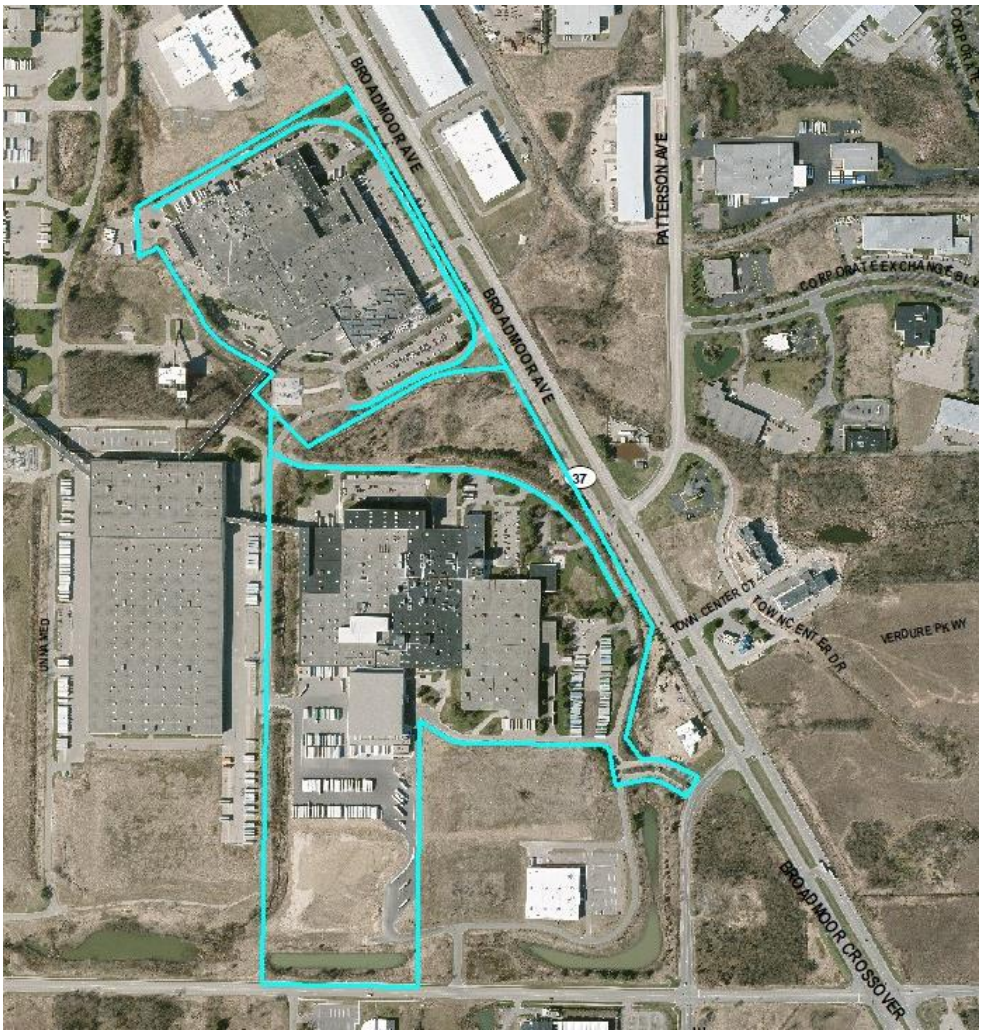
Figure 39: Muller Site Plan and Photo

Source: City of Kentwood Planning

Additional Planned Development

Roskam Baking Co. (west side of Broadmoor Avenue, north of 60th Street): Planned expansion of 5565 Broadmoor Avenue facility to make room for two new contracted product lines and 238 new jobs[9].

Figure 40: Roskam Baking Co. Site Plan



Source: City of Kentwood Planning

[9] Source: https://mibiz.com/sections/food-agribusiness/roskam-baking-plans-85-2-million-expansion-in-kentwood

Gaines Township

According to the Gaines Township Nonmotorized Transportation Plan (2010), no nonmotorized facilities are planned in Gaines Township within the study area. Actions identified by the Gaines Township Master Plan (2008) that may impact airport access include:

Attracting New Economy businesses to the Dutton Subarea (see Figure 41) south of M-6, north of Mistywood Street, east of Terra Cotta Avenue, and west of Patterson Avenue, and

High-tech development at the Steelcase property. Steelcase owns 1,000 acres of land near existing facilities on both sides of 68th Street and west of Patterson Avenue (see Figure 41).

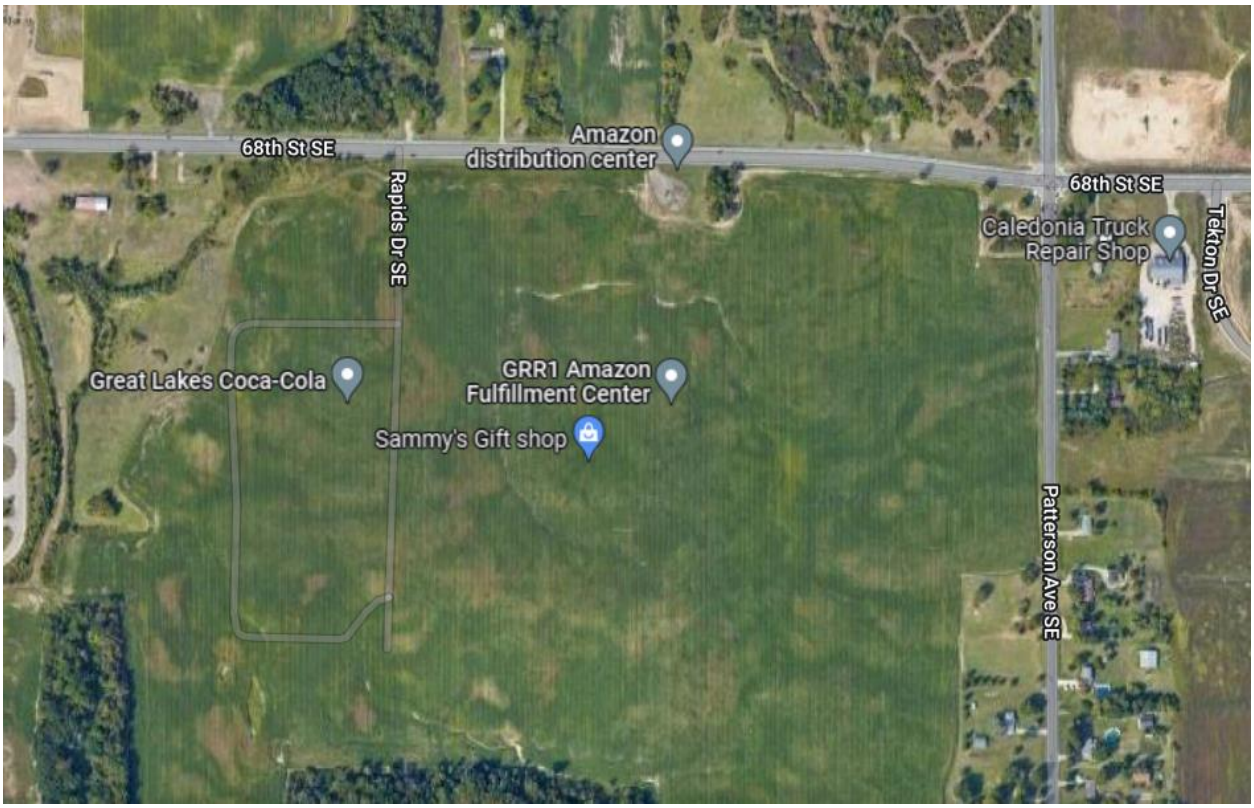
Figure 41: Gaines Township Master Plan

Source: Gaines Township Master Plan Map (2017)

Planned Developments

Amazon is building a sorting and delivery center to house more than 100 employees near its existing 850,000 square foot fulfillment center at 4675 68th Street[10]. A distribution center is planned at the neighboring 6900 Rapids Drive site that would house Great Lakes Coca Cola[11].

Figure 42: Amazon and Great Lakes Coca Cola Site Locations



Source: Google Maps satellite view

[10] Source: https://www.mlive.com/news/grand-rapids/2021/09/amazon-to-build-sorting-delivery-center-in-gaines-township-creating-hundreds-of-jobs.html
[11] Source: https://cms2files.revize.com/gaines/02_27_2020%20Planning%20Commission%20Minutes_Approved.pdf

3.4 Regional Transportation Planning

Various efforts have shaped airport access over the years. Table 5 outlines key milestones in the history of airport access at GRR.

Table 5: Airport Access History

Year	Milestone
1962	The airport (called Kent County International Airport at the time) relocated to current site in Cascade Township
Early 1990s	MDOT, KCRC, GVMC, and the airport began to study needs and improvement options in the airport area, as well as new I-96 access options, leading to the I-96/36th Street Environmental Impact Statement process
1997	Environmental Impact Statement initiated
2002	Preferred Alternative selected, Interstate Access Justification Report completed
2003	Construction of 36th Street extension started
2004	Interchange project allowed to proceed; design modifications made (ramps under the freeway instead of over)
2005	36th Street extension opened to traffic, work on interchange and connecting freeway segment started
2006	Interchange opened to traffic

I-96 / Airport Area Access Study Environmental Impact Statement (2003)

The EIS led to the construction of the I-96/36th Street interchange, the extension of 36th Street from Kraft Avenue to Thornapple River Drive, and intersection improvements at Burton Street & Patterson Avenue, 36th Street & Patterson Avenue, 44th Street & Patterson Avenue, and 36th Street & Kraft Avenue.

Early on, the EIS considered tunneling under the airfield from 36th Street given the proximity of the interchange to the airport (see Figure 43). The EIS also considered improving the I-96/28th Street interchange, new interchange access to Patterson Avenue north of Burton Street, and new collector-distributor roads.

Figure 43: Envisioned 36th Street Tunnel Access

Source: Kent County Road Commission

Local Access to I-96 Near Whitneyville Avenue (2009)

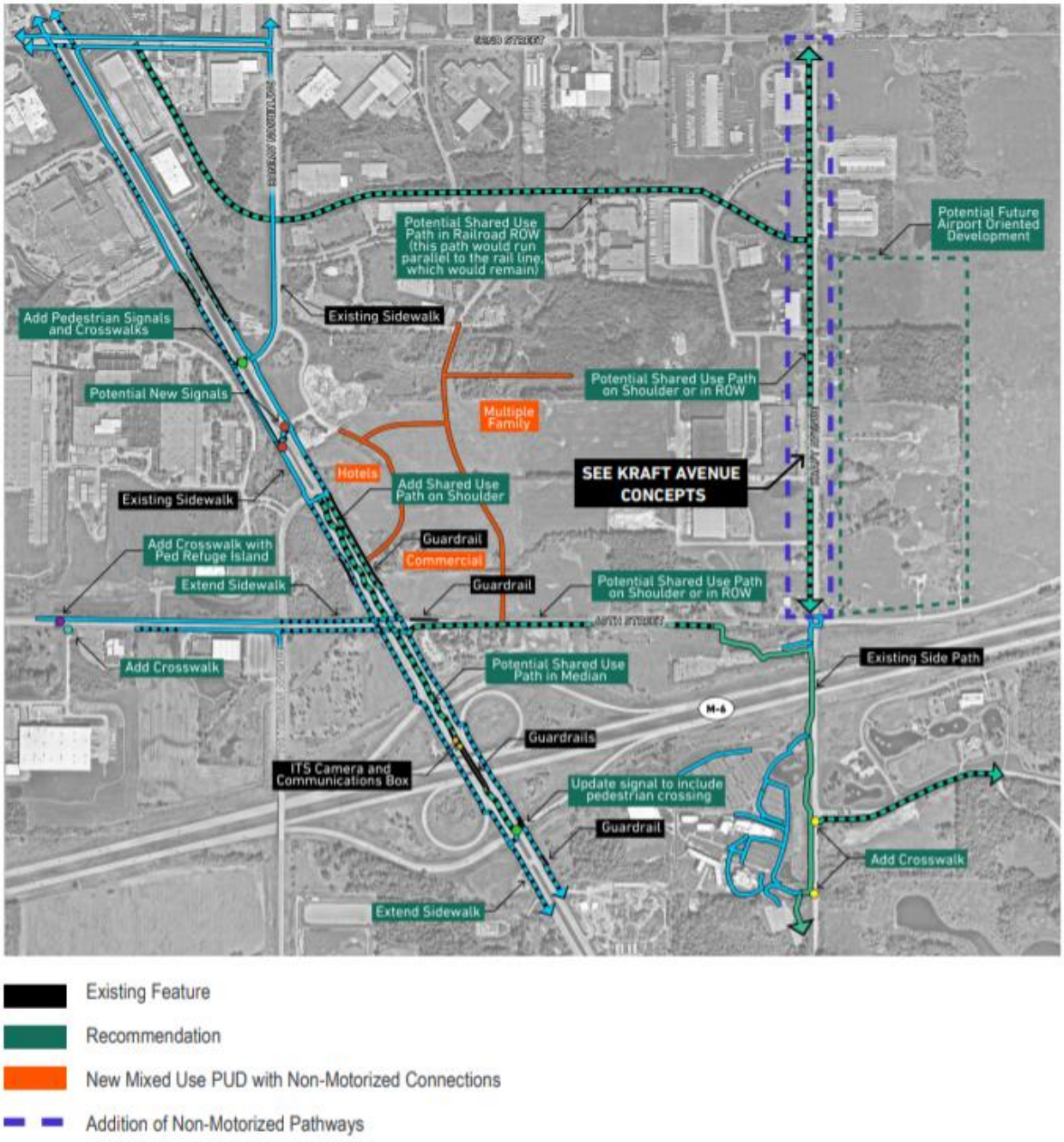
Prior to the construction of the M-6 freeway and the I-96 at 36th Street interchange, no additional freeway access on I-96 and the surrounding communities was available between M-50 south of Lowell and M-11 (28th Street) in Cascade Township. MDOT's findings from the local access study, and FHWA comments previously, encouraged any new access in the area should be on M-6, not I-96. New freeway access may be considered if/when the I-96 @ 36th Street interchange experiences operational challenges.

Four Corners Transportation Plan (2019)

The Plan's airport access-related recommendations in the study area (see Figure 44) include:

- Planned Unit Development at the corner of Broadmoor Avenue (M-37) and 60th Street,
- Airport-oriented development east of Kraft Avenue,
- Nonmotorized pathways along Kraft Avenue,
- A potential transit connection to the park and ride lot near the M-6/Broadmoor Avenue interchange, and
- Expansion of The Rapid bus service with transit-friendly site design.

Figure 44: Four Corners Transportation Plan for Southwest Cascade Township



Source: Four Corners Transportation Plan page 38

GVMC 2045 Metropolitan Transportation Plan (MTP)

Table 6 documents the needs and proposed solutions included in the MTP related to airport access.

Table 6: MTP Needs and Proposed Solutions

Need	Proposed Solution
Additional airport access besides 44th Street/Oostema Boulevard and Van Laar Drive	Develop an access route to the airport's passenger terminal along Patterson Avenue north of 44th Street/Oostema Boulevard just south of Danvers Drive. This solution is also included in the GRR Airport Master Plan Update (2019).
Bottlenecks on I-96 between Cascade Road and I-196 west of M-37 that hinder truck freight operations	Build peak use lanes and/or apply Active Traffic Management (ATM) which includes shoulders that are built to the standard of a lane and are opened up during peak periods along some freeway corridors. Add an interchange at M-6 & 48th Street east of the airport. The new interchange solution is also included in the Cascade Township Master Plan (2020).
Direct intermodal rail service from Grand Rapids	Build an intermodal facility on vacant land along existing rail lines. This solution is also included in the Cascade Township Master Plan (2020).
Truck parking FedEx airport facility	Build truck parking positions in other adjacent locations.
Enhanced visibility at Air Cargo Drive & Thornapple River Drive	Construct a new connector from the vicinity of FedEx to Thornapple River Drive (sufficiently south of the intersection of Air Cargo Road with Thornapple River Drive to permit safer turns onto the roadway, especially for large trucks). This solution is included in the GRR Airport Master Plan Update (2019).

The MTP also identified the following emerging issues related to airport access:

- Consideration of additional modes of transportation, and
- Consideration of conserving the CSX southeast rail spur for future use and productivity.

GVMC Nonmotorized Transportation Plan (2019)

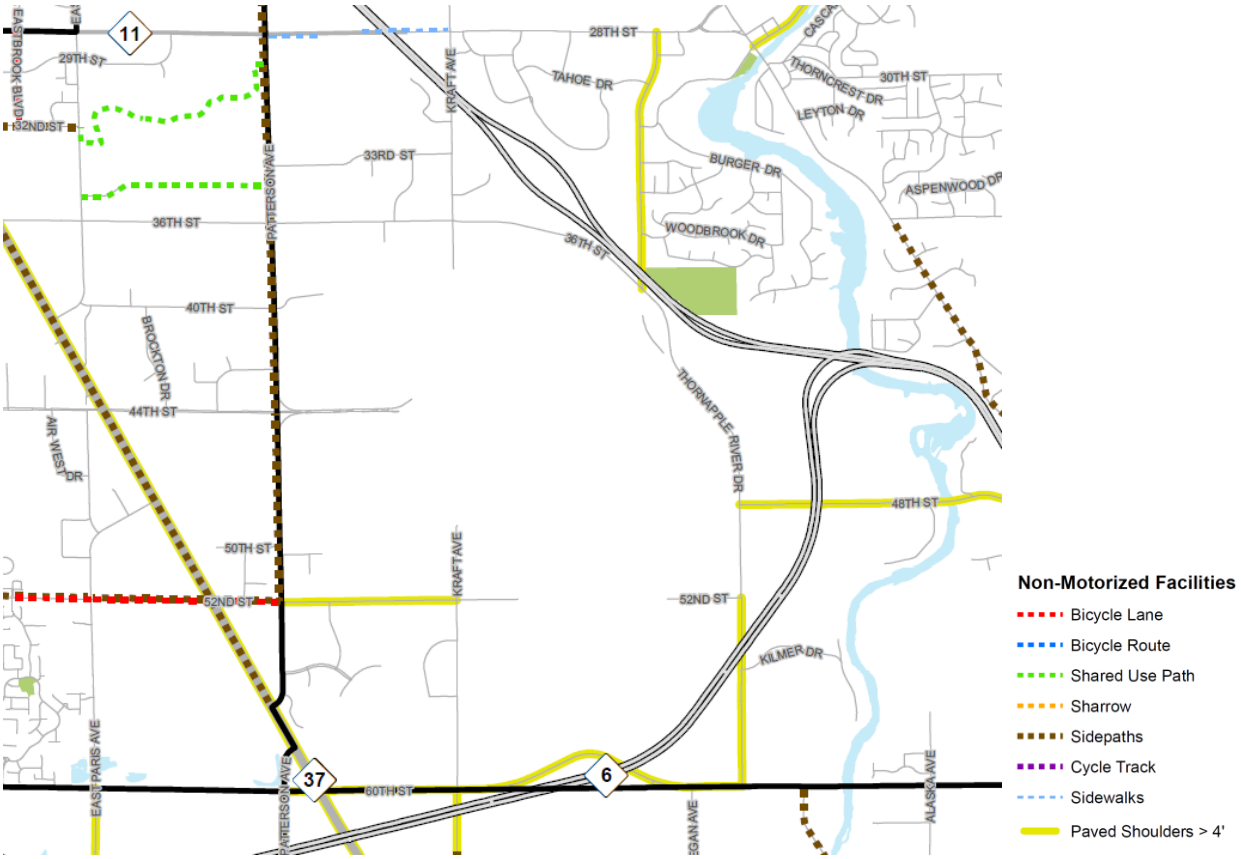
The Plan (see Figure 45) identified an existing shared use path on Kraft Avenue south of 60th Street and the following funded projects:

- Paved shoulders on 52nd Street from Patterson Avenue to Kraft Avenue,
- Paved shoulders on Thornapple River Drive north of 36th Street and south of 52nd Street,
- Paved shoulders on 48th Street east of Thornapple River Drive, and
- Paved shoulders on 60th Street between Patterson Avenue and Thornapple River Drive.

It also identified the following proposed facilities:

- A shared use path along Forest Creek Drive between East Paris Avenue and Patterson Avenue and north of 36th Street,
- Side paths on Patterson Avenue and Broadmoor Avenue (M-37), and
- A bicycle lane on 52nd Street west of Patterson Avenue.

Figure 45: GVMC Nonmotorized Transportation Plan



Source: GVMC Nonmototrized Finder

Grand Region Regional Nonmotorized Plan (2017)

The Plan identified the following potential connections:

- The Paul Henry Thornapple Trail with a considered connection to the Interurban/River to River Trail,
- The Fred Meijer M-6 Trail,
- Patterson Avenue, and
- One or more east-west routes between Grand Rapids and Lowell to be determined by the various stakeholders and agencies.

The Plan also identified the following strategies for all non-freeway state trunklines:

- Shoulders at least four feet wide, and

- Appropriate road crossing treatments where planned or significant nonmotorized facilities cross non-freeway state trunklines which may include existing bridge modifications, at grade highway crossings, and/or grade separated nonmotorized facilities such as bridges or tunnels. These modifications will require funding commitments and partnerships, and usually permits from State and Federal agencies.

Kent County Road Commission 2022-2026 Improvement Plan and Long Range Plan (2018)

Actions identified by KCRC's plans that may impact airport access include:

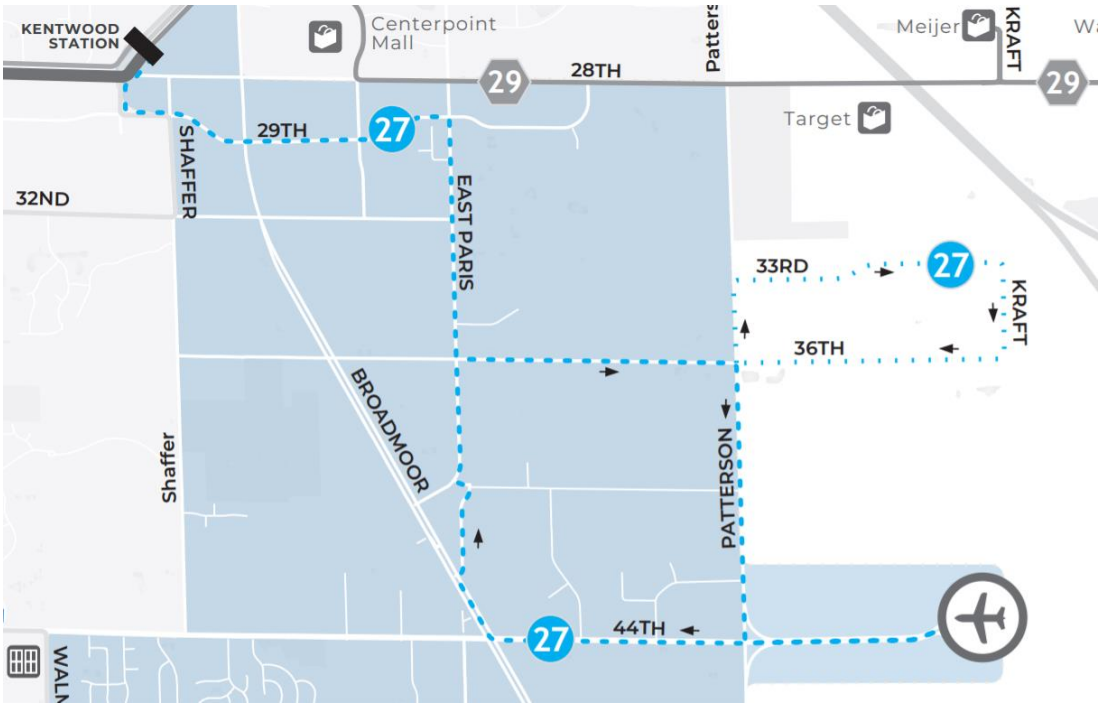
- Full depth pavement reconstruction of Patterson Avenue from M-37 to Burton St in 2025,
- Patterson Avenue & 44th Street intersection improvement, and
- Large culvert replacement on Thornapple River Drive just south of M-6.

The Rapid Comprehensive Operational Analysis Preferred Alternative (2021)

The Plan identified the following service changes for implementation in August 2021:

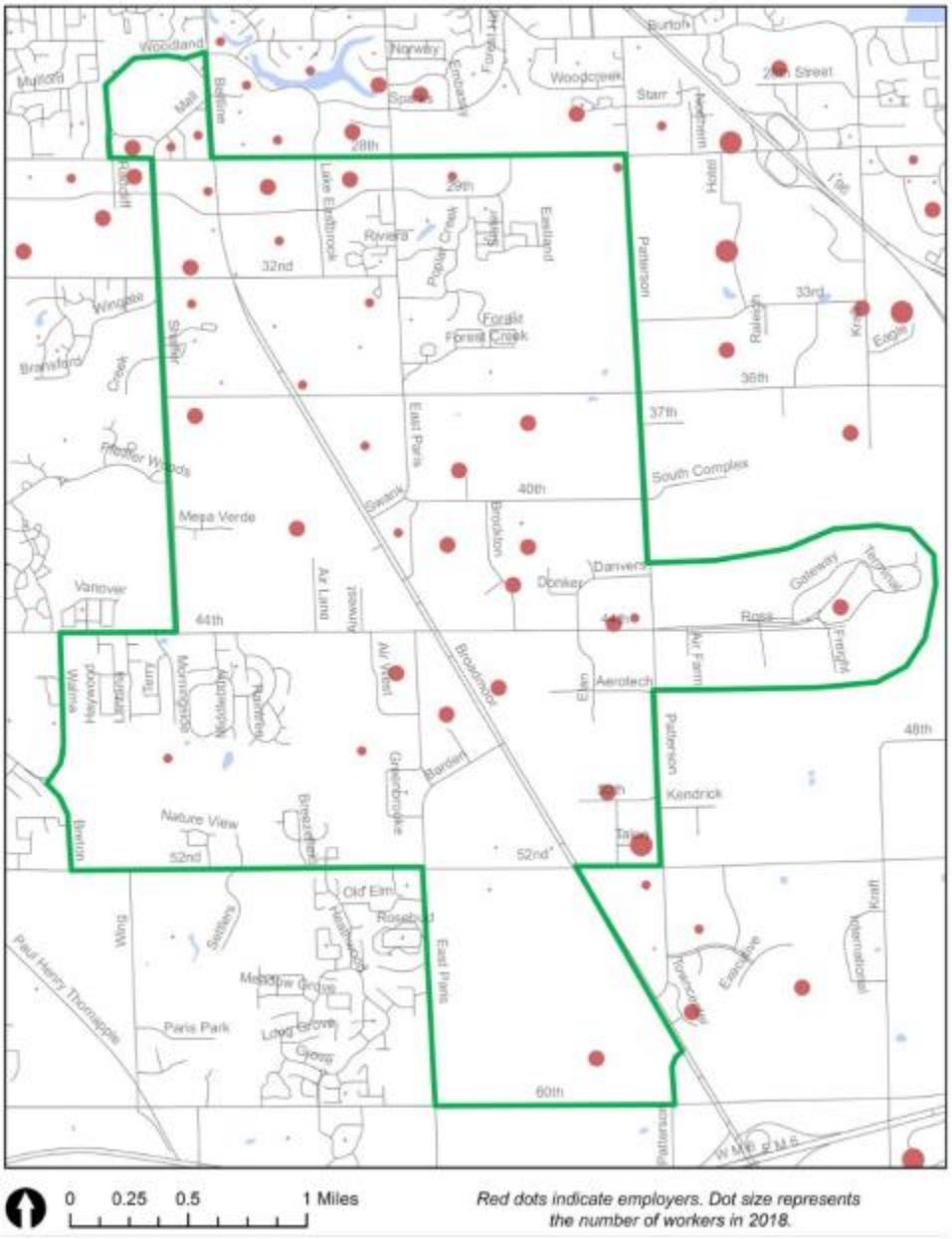
- Merging Route 17 with the Route 5 peak extension to form a single circular route (Route 27, see Figure 46) that operates every 30 minutes in the morning and afternoon peaks on weekdays, and
- Rapid Connect service: an on-demand zone (see Figure 47) bound by 28th Street, Patterson Avenue, 52nd Street, and Broadmoor Avenue, 60th Street, East Paris Avenue, 52nd Street, Breton Road, Walma Avenue, 44th Street, and Shaffer Avenue with service to Woodland Mall, the airport, and Kentwood City Hall. This zone would operate with one vehicle 5am to 10pm on weekdays and 7am to 7pm on weekends.

Figure 46: Route 27 Alignment



Source: The Rapid

Figure 47: Planned Rapid Connect Zone



Source: The Rapid Comprehensive Operational Analysis Final Report page 7-7

The Plan also recommended an express bus from Downtown Grand Rapids to the airport. A description of transit services currently operating in the study area is in section *3.1 Current Study Area Access* of this memo under *Transit*.

4.0 Summary of Previous Planning

Previous airport access, airport, local community, and regional transportation plans will inform the development of potential direct, complementary, and alternative access improvements to the airport and within the study area. Table 7 and Figure 48 summarize the key recommendations from previous planning. Separate maps of recommended nonmotorized facilities and transit services are included in section *3.1 Current Study Area Access* of this memo.

Table 7: Recommendations Identified by Previous Plans and Studies

Number	Recommendation	Plan/Study
Planned (blue)		
1	Air Traffic Control Tower Relocation	GRR Airport Master Plan Update
2	36th St Gateway Feature	Cascade Township Master Plan
3	New M-6/48th St Interchange	Cascade Township Master Plan, GVMC MTP
4	New I-96/36th St Park and Ride	Cascade Township Master Plan
5	Rail Station	GRR Airport Master Plan Update, Cascade Township Master Plan, GVMC MTP
6	60th St Gateway Feature	Cascade Township Master Plan
7	Transit Connection to M-37 & 60th St Park and Ride	Four Corners Transportation Plan
8	Additional Truck Parking	GVMC MTP
9	Patterson Ave & 44th St Intersection Improvement	KCRC
10	Large Culvert Replacement	KCRC
11	New Terminal Access Point	GRR Airport Master Plan Update, GVMC MTP
12	44th St Merge Lane Extension	GRR Airport Master Plan Update
13	Oostema Blvd Sweep Elimination	GRR Airport Master Plan Update
14	44th St Sweep Elimination	GRR Airport Master Plan Update
15	Terminal East Curb Extension	GRR Airport Master Plan Update
16	New Roadway to East Cargo Area	GRR Airport Master Plan Update, GVMC MTP
17	Ultimate Runway	GRR Airport Master Plan Update
18	New 33rd St Roadway Connection	Kentwood Master Plan
19	Egan Ave Major Widening	Caledonia Township Master Plan
20	68th St Improvement	Caledonia Township Master Plan
21	Bus Service Expansion	Four Corners Transportation Plan
22	Peak Use Lanes and/or Active Traffic Management (ATM)	GVMC MTP
23	Patterson Ave Full Depth Pavement Reconstruction	KCRC
24	Add Turn Lane on East Paris Ave	STIP
25	Extend Third Lane on M-37	STIP

Number	Recommendation	Plan/Study
26	Light Rail Development	GRR Airport Master Plan Update, GVMC MTP

Previously Considered But Ruled Out (yellow)

1	I-96/28th St Interchange Improvement	I-96/36th Street EIS
2	New I-96/Patterson Ave Interchange	I-96/36th Street EIS
3	Tunnel from 36th St	I-96/36th Street EIS

Figure 48: Recommendations Identified by Previous Plans and Studies