



Grand Rapids Airport Access Study

Technical Memorandum: Conceptual Alternatives and
Preliminary Findings

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Purpose

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.

The Study involves development and consideration of enhancements to airport access, and GVMC is considering a two-step evaluation process that consists of an initial evaluation of conformity with Purpose and Need and a second round of detailed analysis and evaluation to identify recommended alternative(s). This Technical Memo introduces the Conceptual Alternatives, presents the initial evaluation process and concludes with the selected alternatives for the next step of evaluation.

Evaluation Criteria

The initial evaluation criteria for Conceptual Alternatives are Support for Purpose and Need Statement, Potential Right-of-Way and Environmental Impacts, and Project Complexity. Based on the evaluation results, the most suitable alternatives will be selected as Practical Alternatives for further analysis. Suitability is determined based on projects that score highly on meeting the purpose and need without likely significant impacts and complexity; or projects that may be limited in their benefits but are easier to implement.

Support for Purpose and Need

The Purpose of the airport access is to expand multi-modal access options for GRR and improve the connectivity of the surrounding local road and freeway network, in order to facilitate future airport expansion and accommodate regional growth and development in southeastern Kent County. The Needs specifically addresses major issues and opportunities to improve airport access due to limited access points to the airport's central core; indirect circulation; airport expansion plans; surrounding development and growth; and currently limited access options

The initial alternatives are evaluated based on the number of needs that are addressed. An alternative that addresses 2 or fewer needs will be given a rating of "Low"; an alternative that addresses 3 needs will be given a rating of "Medium"; an alternative that addresses 4 or more needs will be given a rating of "High". The more needs are addressed, the better support the alternative provides in terms of the project purpose and need.

Potential Right-of-Way and Environmental Impacts

Right-of-way and environmental impacts of the alternatives involves potential for a project to impact surrounding community properties, landscapes and natural environment. Each alternative's right-of-way impacts are assessed based on potential area of properties required for construction, and environmental impacts are assessed based on potential area of waterway and floodplain impacted by construction. The impact is rated on a "Low", "Medium", and "High" scale. The overall rating is assigned based on the highest impact scale of the alternative. Lower

impact of an alternative on existing right-of-way and environmentally sensitive areas is preferred.

Complexity

Complexity refers to the difficulties implementing an alternative. The likely cost of operation and construction, as well as process of design and construction are both considered. Complexity is rated on a “Low”, “Medium”, and “High” scale. The overall rating is assigned based on the highest complexity of the alternative. Lower complexity is more expected from an alternative.

Conceptual Alternatives

Airport Roadway Access

Overview

Current airport roadway access for passengers is limited to the Patterson Avenue and 44th Street intersection and the Patterson Avenue and Van Laar Drive intersection. Alternatives for airport roadway access include access points, roadway connections, freeway interchange and intersection safety enhancements.

Figure 1: Airport Roadway Access Alternatives



Alternative 1: I-96/36th Street Access

1a – Direct 36th Street Access

This alternative extends the I-96/36th Street interchange south of 36th Street to create a direct roadway connection to the airport. It includes a tunnel below the current and future expanded runway and avoids parking expansion zone on north side of terminal. This access would relieve traffic entering the airport from Patterson Avenue and adds redundancy to the current airport access network.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	√	√	√	√		High
	New access points from I-96/36th St to the north of the terminal	Creates a direct route off I-96	Considers airport parking expansion and expanded runway	Accommodates growing traffic from the north and east side of the airport	Does not significantly support other access options	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Medium		Medium		Medium	
	May require additional ROW on airport property		Could impact wetlands and waterway northeast of the airport			
Complexity	Cost		Design/Construction		Overall Rating	
	High		High		High	
	High cost for tunnel construction		Significant construction of tunnel to avoid current (and potentially future) runway			

Alternative 1: I-96/36th Street Access

1b – Indirect 36th Street Access

This alternative extends the I-96/36th Street interchange south of 36th Street and creates an indirect connection around the end of ultimate runway footprint to the 44th Street segment east of Patterson Avenue. Compared to the existing primary access, this alternative does not have a significantly more direct path, but it adds redundancy and avoids the 44th Street/Patterson Avenue intersection. At the end of the runway, the roadway stays below grade to avoid interference with the runway protection zone. In the long run, a tunnel may be needed for the expanded future runway.



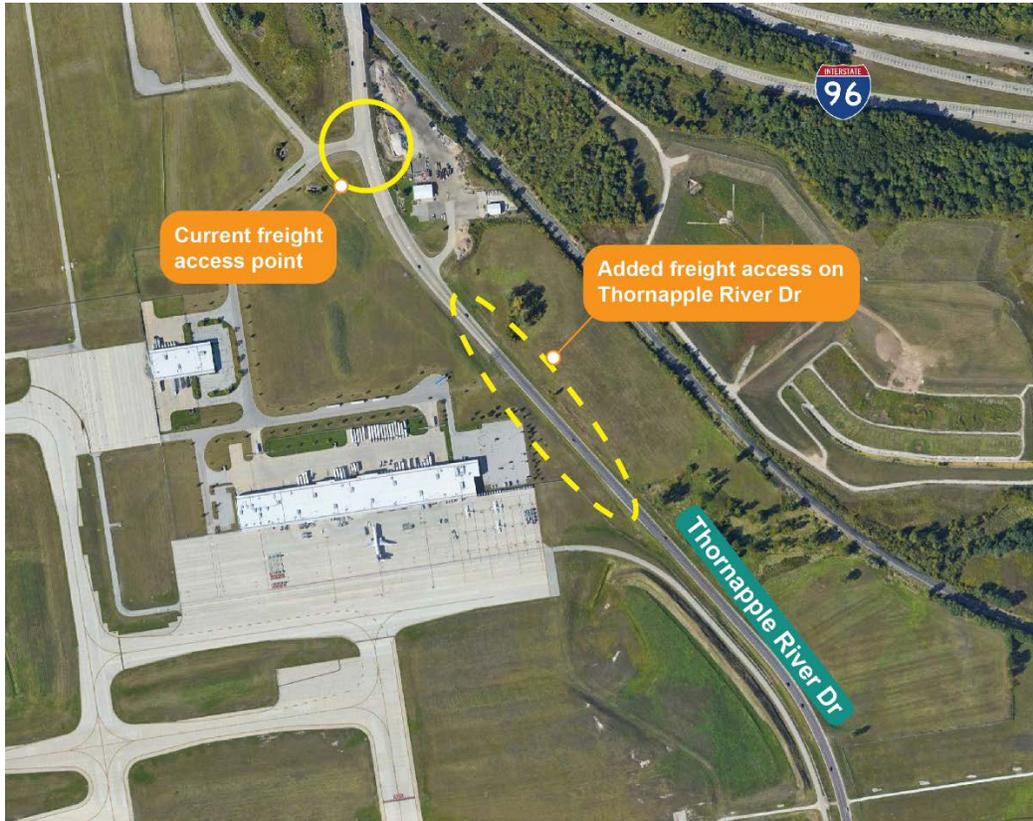
Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	√ New access points from I-96/36th St	Does not have more direct path than 36th to Patterson	√ Considers expanding runway footprint and avoids runway protection zone	√ Accommodates growing traffic from the north and east side of the airport	Does not significantly support other access options	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact Medium		Impact on Wetlands/Waterway Medium		Overall Rating	
	May require additional ROW on airport property and northeast of the airport near I-96/36th		Could impact wetlands and waterway northeast of the airport near I-96/36th		Medium	
Complexity	Cost Medium		Design/Construction Medium		Overall Rating	
	Less cost compared to Alternative 1a		Required to avoid and stay below runway protection zones		Medium	

Alternative 2: Thornapple River Drive Access

2a – Secondary Freight Access

This alternative adds a new access point on Thornapple River Drive near the current freight access point next to FedEx Ship Center, which supports the growing cargo operations hub. This access enhancement is a portion of the Airport’s recent Master Plan.



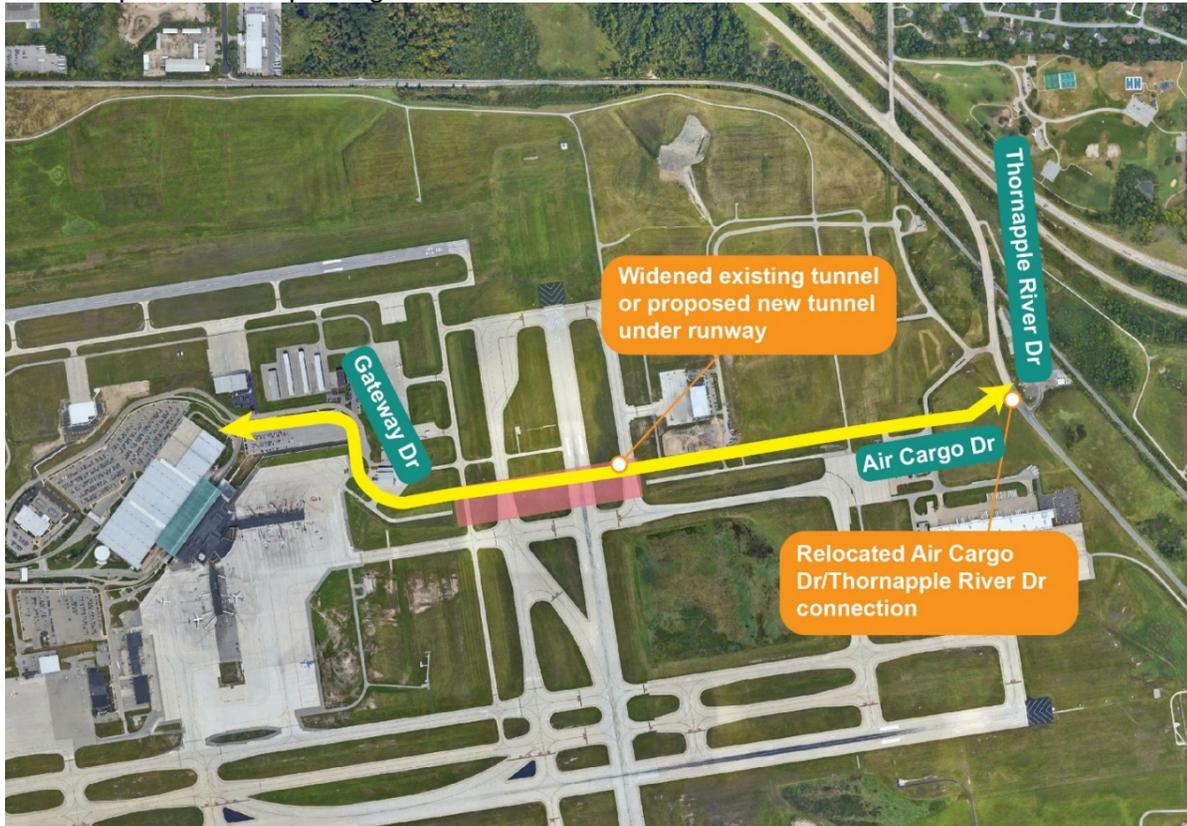
Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	√		√			Low
	Creates redundancy in freight access	Limited benefits for better circulation	Part of the Plan	Does not significantly improve economic development	Does not significantly support other access options	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Low		Low		Low	
	Creates connection primarily on existing airport property		Minimal impact on wetland/waterway			
Complexity	Cost		Design/Construction		Overall Rating	
	Low		Low		Low	
	Small-scale investment		Minor design/construction to open access on existing airport properties			

Alternative 2: Thornapple River Drive Access

2b – Air Cargo Drive Access

This alternative adds a new roadway access from Thornapple River Drive. It relocates the connection of Air Cargo Drive and Thornapple River Drive, and provides a direct connection to the airport terminal and parking lots. The roadway goes under the runway as a widened tunnel. There is possible impact on the existing building 205 (ARFF station) and/or future parking ramp of the airport terminal parking lots.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	✓	✓	✓	✓		High
	New access point from Thornapple River Drive	Creates more direct circulation accessing the airport from east	Relocation of Air Cargo Drive is mentioned in the Plan	Accommodates growing traffic accessing the airport from east	Does not significantly support other access options	
	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
Potential Right-of-Way and Environmental Impacts	Medium		Low		Low	
	Requires additional right-of-way on airport property		Minimal impact on wetland/waterway			
	Cost		Design/Construction		Overall Rating	
Complexity	High		High		High	
	High cost for tunnel widening or new tunnel construction		Significant tunnel construction			

Alternative 3: M-6 Interchange

3a – 60th Street Interchange

This alternative adds a full M-6 interchange at the existing 60th Street bridge. This provides new access point for the developing industrial area at south end of the airport; and could help separate freight traffic from passenger traffic. An optional ring road could be extended from 60th Street on the south end of the airport along M-6 and connect the interchange to Thornapple River Drive. This could be implemented as adjacent land uses develop, as a way to remove business travel from residential areas and support campus development activity in Caledonia.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	✓	✓		✓		Medium
	Improves access at the south the airport	Adds direct route the airport from M-6	Does not address airport Plans	Supports adjacent land uses and campus development	Does not significantly support other access options	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Medium		Medium		Medium	
	Largely fits within the existing MDOT/Airport right-of-way		Could impact wetlands and waterway near Thornapple River Dr			
Complexity	Cost		Design/Construction		Overall Rating	
	Medium		Medium		Medium	
	Relatively medium cost for 60 th St repurposing		Repurposes existing structure over M-6			

Alternative 3: M-6 Interchange

3b – Egan Avenue Interchange

This alternative removes and relocates the existing 60th Street segment and bridge between Kraft Avenue and Egan Avenue and extends it as a ring road along M-6 connecting to Thornapple River Drive. Egan Avenue is extended to the north and connects to the 60th Street ring road, allowing the addition of a full M-6 interchange with ramp access on the extended segment. This alternative also removes the segment of Thornapple River Drive between the extended 60th Street and Kilmer Drive intersections.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	✓	✓	Does not address airport Plans	Supports adjacent land uses and campus development	Does not significantly support other access options	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	High Requires additional Egan Ave right-of-way connection and acquisition		Medium Could impact wetlands and waterway near Thornapple River Dr		High	
Complexity	Cost		Design/Construction		Overall Rating	
	High High cost for roadway reconfigurations		High Removes current structure and reconfigure area connectivity		High	

Alternative 3: M-6 Interchange

3c – Thornapple River Drive and 48th Street Split Interchange

This alternative adds a split M-6 interchange on Thornapple River Drive with northbound entrance and southbound exit, and on 48th Street with northbound exit and southbound entrance, which are connected by weave-merge lanes on M-6. The option could be combined with a ring road that is extended from 60th Street on the south end of the airport along M-6 and connects it to Thornapple River Drive.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	✓	✓		✓		Medium
	Improves access to southeast of the airport	Adds a route to the airport from M-6 and I-96	Does not address airport Plans	Supports adjacent land uses and campus development	Does not significantly support other access options	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Medium		Medium		Medium	
	Could fit in existing right-of-way, may impact adjacent residential development		Could impact wetlands and waterway near Thornapple River Dr			
Complexity	Cost		Design/Construction		Overall Rating	
	Medium		Medium		Medium	
	Relatively medium cost for road repurposing		Repurposes existing M-6 crossings, adds significant new weave-merge lanes on M-6			

Alternative 3: M-6 Interchange

3d – 48th Street Full Interchange

This alternative adds a full M-6 interchange on 48th Street. This could be combined with an optional ring road that is extended from 60th Street on the south end of the airport along M-6, connecting it to Thornapple River Drive.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	√	√	√	√		High
	Improves access to southwest of the airport	Adds a route to the airport from M-6 and I-96	Conforms with local planning	Supports adjacent land uses and campus development	Does not significantly support other access options	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Medium		Medium		Medium	
	Fits within existing MDOT right-of-way, may impact nearby residential development		Could impact wetlands and waterway near Thornapple River Dr			
Complexity	Cost		Design/Construction		Overall Rating	
	Medium		Medium		Medium	
	Relatively medium cost for roadway reconfigurations right-of-way purchase		Makes use of existing 48 th St crossing and previously purchased right-of-way			

Alternative 4: Patterson Avenue /44th Street Intersection Enhancements

This alternative focuses on the current and future airport gateway at the Patterson/44th intersection, improving safety and traffic operations. Currently, this intersection is a significantly high crash activity spot with an incomplete pedestrian network. Planned enhancements include a new roadway connection to the surface parking areas, the removal of right turn drives, and a protected southbound to eastbound left turn to reduce angle accidents.



Evaluation Results:

Support for Purpose and Need	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
	√		√	√	√	High
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Low		Low		Low	
Complexity	Cost		Design/Construction		Overall Rating	
	Low		Low		Low	
	Potential new roadway connection to surface parking		Does not significantly improve circulation		Surface parking connection is part of the Plan	
	Addresses safety and growing traffic		Improves pedestrian network			
	Potential enhancements within existing right-of-way or on airport property		Minimal impact on wetland/waterway			
	Small-scale investment		Safety enhancements on existing roadways			

Alternative 5: M-37/Patterson Avenue /60th Street Intersection Enhancements

This alternative focuses on safety enhancements at the M-37/Patterson Avenue/60th Street intersections, which serve as the primary pathway to the airport from south and M-6. Currently, these intersections have the highest crash activity within the study area. There is curve warning and signal ahead signages on Patterson Avenue near M-37. Potential enhancements include EB to SB right turn lane marking extension to reduce side swipe accidents on 60th Street, added signs and arrow markings on SB 60th Street, added lane use signs and arrow markings on SB M-37 and WB 60th Street to reduce sideswipe and angle accidents, and a planned widening (adding lanes) along M-37 by MDOT.



Evaluation Results:

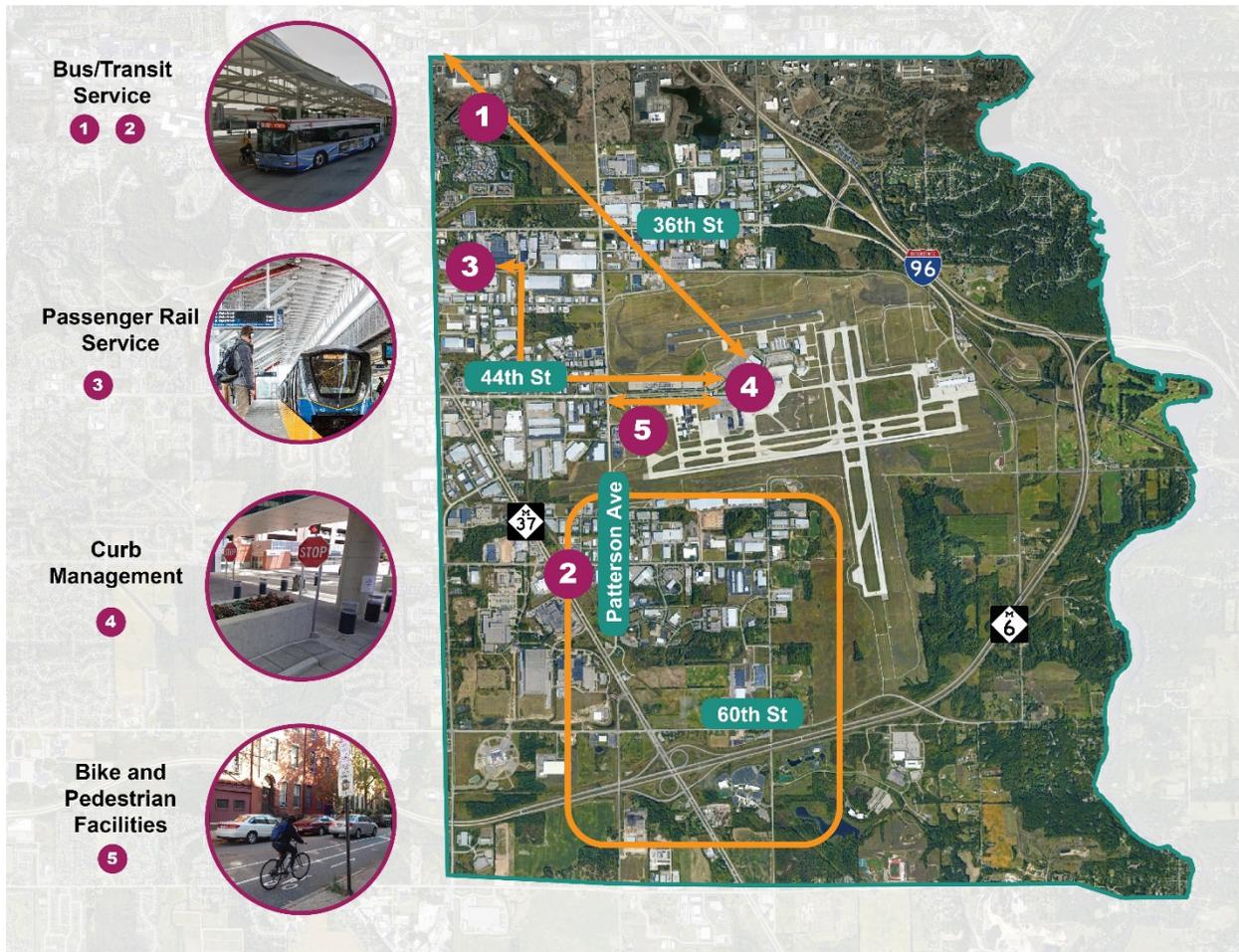
Support for Purpose and Need	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
	Does not add new access point	Does not significantly improve circulation	Enhances primary access to the airport	Considers new development and enhances safety	Improves pedestrian network	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Low Potential enhancements within existing right-of-way or on airport property		Low Minimal impact on wetland/waterway		Low	
Complexity	Cost		Design/Construction		Overall Rating	
	Low Small-scale investment		Low Safety enhancements on existing roadways		Low	

Multi-Modal Access Features

Overview

Multi-modal access alternatives include transit, rail, bike and pedestrian features, which could provide opportunities to expand access options and improve airport access.

Figure 2: Multi-modal Access Features



Alternative 1: Downtown Express Bus/Shuttle

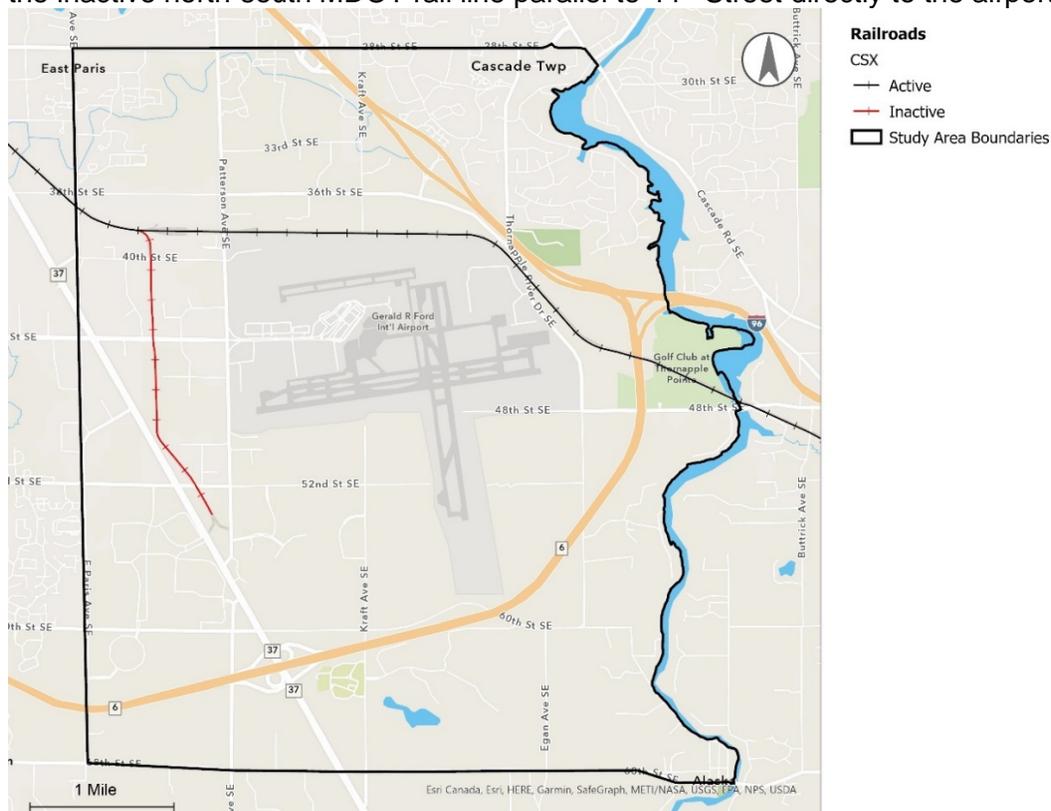
In 2006, The Rapid launched Air Porter, a shuttle service between Downtown Grand Rapids and the airport. The shuttle service was downsized and later closed in 2008 due to lack of consistent ridership. In 2021, *The Rapid Comprehensive Operational Analysis Preferred Alternative* recommended relaunching a similar express bus/shuttle service from Downtown Grand Rapids to the airport

Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	Does not add new access points	Provides direct route from downtown Grand Rapids	Addressed the Plan by expanding transportation services	Does not significantly support development and growth	Provides shuttle services	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Low		Low		Low	
	No right-of-way impact		No wetland/waterway impact			
Complexity	Cost		Design/Construction		Overall Rating	
	Medium		Low		Medium	
	Requires additional service funding for the Rapid or other providers		No significant construction needs			

Alternative 3: Passenger Rail Service

Currently, there are two CSX rail lines in the study area, including 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. 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.



Evaluation Results:

Support for Purpose and Need	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
	Does not add new access points	Does not significantly improve circulation	Addressed the Plan by expanding transportation services	Bring potentials economic development opportunities	Adds significant new airport travel option	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	High Requires new agreement to utilize private railroad for public transit service		Medium Potential construction of extended railroad could impact wetland/waterway.		High	
Complexity	Cost		Design/Construction		Overall Rating	
	High Requires additional operation cost and construction cost for extended railroad		Medium Upgrades and maintenance on existing and extended railroad for passenger service		High	

Alternative 4: Expanded Curb Access/Management

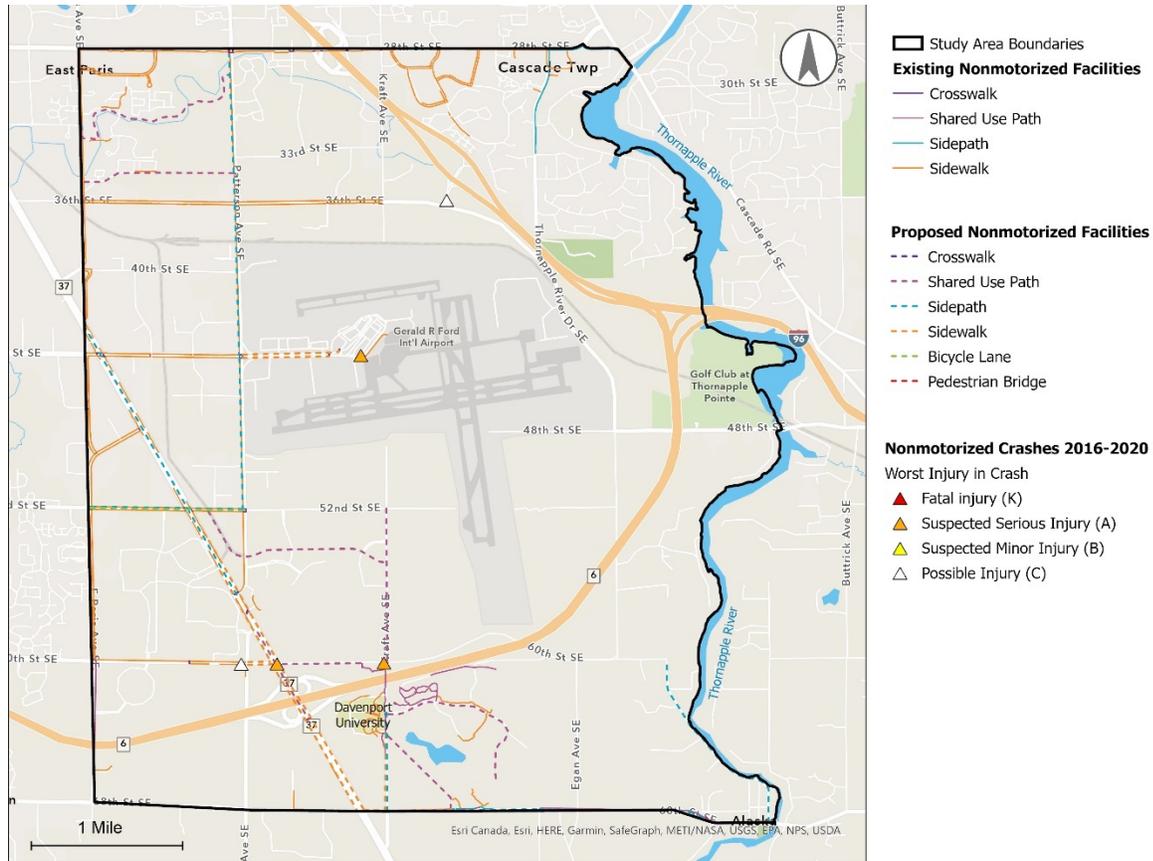
Currently, the terminal building and the curb are on a single level. The *GRR Airport Master Plan Update* considers terminal extension to two full levels, with the upper level for departures and an at-grade lower level for arrivals. This feature would allow more efficient traffic circulation and improve capacity at the terminal.

Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need		√	√		√	Medium
	Does not add new access points	Separates arrival and departure traffic to avoid conflicts and improve efficient circulation	Improves terminal capacity and efficiency	Does not significantly support development and growth	Adds space for rideshare services	
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact		Impact on Wetlands/Waterway		Overall Rating	
	Low		Low		Low	
	No right-of-way impact		No wetland/waterway impact			
Complexity	Cost		Design/Construction		Overall Rating	
	Medium		Medium		Medium	
	May need new investment to separate traffic at terminal		Requires design/construction on expanded curbs at terminal			

Alternative 5: Pedestrian/Bike Connectivity Enhancements

The 2019 *Airport Master Plan Update* included plans for sidewalks along 44th Street/Oostema Boulevard from Patterson Avenue to West Michigan Aviation Academy. 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.



Evaluation Results:

	Limited Access Points to the Airport	Indirect Circulation	Airport Expansion Plans	Surrounding Development and Growth	Expanding Access Options	Overall Rating
Support for Purpose and Need	✓ Creates more access opportunities from the east	Does not significantly improve circulation	Does not address the Plan	✓ Supports planned sidewalk and non-motorized features	✓ Provides pedestrian and bike access	Medium
Potential Right-of-Way and Environmental Impacts	Right-of-Way Impact Low No right-of-way impact		Impact on Wetlands/Waterway Low No wetland/waterway impact		Overall Rating Low	
Complexity	Cost Low Small-scale investment		Design/Construction Low Could be constructed within or adjacent to current interchanges		Overall Rating Low	

Evaluation Summary

Airport Roadway Access

For the Support for Purpose and Need criterion, *Direct I-96/36th Street Access* from *Alternative 1*, *Air Cargo Drive Access* from *Alternative 2* and *Alternative 4* indicate the highest support. For the Potential Right-of-Way/Environmental Impact criterion, *Alternative 2*, *Alternative 4* and *Alternative 5* come with the lowest impact. For the Complexity criterion, *Secondary Freight Access* of *Alternative 2*, *Alternative 4* and *Alternative 5* has the least project complexity.

Table 1: Evaluation Results of Airport Roadway Access Alternatives

#	Alternative	Variations	Support For Purpose and Need	Potential ROW/Environment Impact	Complexity
1	I-96/36th Street Access	Direct I-96/36th Street Access	High	Medium	High
		Indirect I-96/36th Street Access	Medium	Medium	Medium
2	Thornapple River Drive Access	Secondary Freight Access	Low	Low	Low
		Air Cargo Drive Access	High	Low	High
3	M-6 Interchange	60th Street Interchange	Medium	Medium	Medium
		Egan Avenue Interchange	Medium	High	High
		Thornapple River Drive and 48th Street Partial Interchanges	Medium	Medium	Medium
		48th Street Full Interchange	High	High	High
4	Patterson Avenue /44th Street Safety Enhancements		High	Low	Low
5	M-37/Patterson Avenue/60th Street Intersection Enhancements		Medium	Low	Low

Future phases of the study will further develop and evaluate each of these roadway access alternatives. Alternative 3 M-6 Interchange will also be assessed except the Egan Avenue Interchange variation, which has the least preferred overall ratings of the evaluation criteria.

Multi-Modal Access Features

For the Support for Purpose and Need criterion, most of the alternatives have a medium level of support while *Alternative 2* has lower support. For the Potential Right-of-Way/Environmental Impact criterion, *Alternative 3* has the highest impact with larger scale constructions, among the other alternatives with low impact. For the Complexity criterion, *Alternative 3* also has the highest project complexity due to its potential large scale railway upgrades. *Alternative 5* is the least complex with its non-motorized enhancements on existing roadways.

Table 2: Evaluation Results of Multi-modal Access Features Alternatives

#	Alternative	Support For Purpose and Need	Potential ROW/Environment Impact	Complexity
1	Downtown Express Bus/Shuttle	Medium	Low	Medium
2	Expanded Transit Service	Low	Low	Medium
3	Passenger Rail Service	Medium	High	High
4	Expanded Curb Access/Management	Medium	Low	Medium
5	Pedestrian/Bike Connectivity Enhancements	Medium	Low	Low

Further phases of the Study will further develop and evaluate each of these multi-modal access alternatives, other than Alternative 3 Passenger Rail Service, which would have benefits but could be seen as a longer term access option to consider.