



- In summary, Concept 2F performs fairly under the evaluation criteria related to the Purpose and Need Statement.

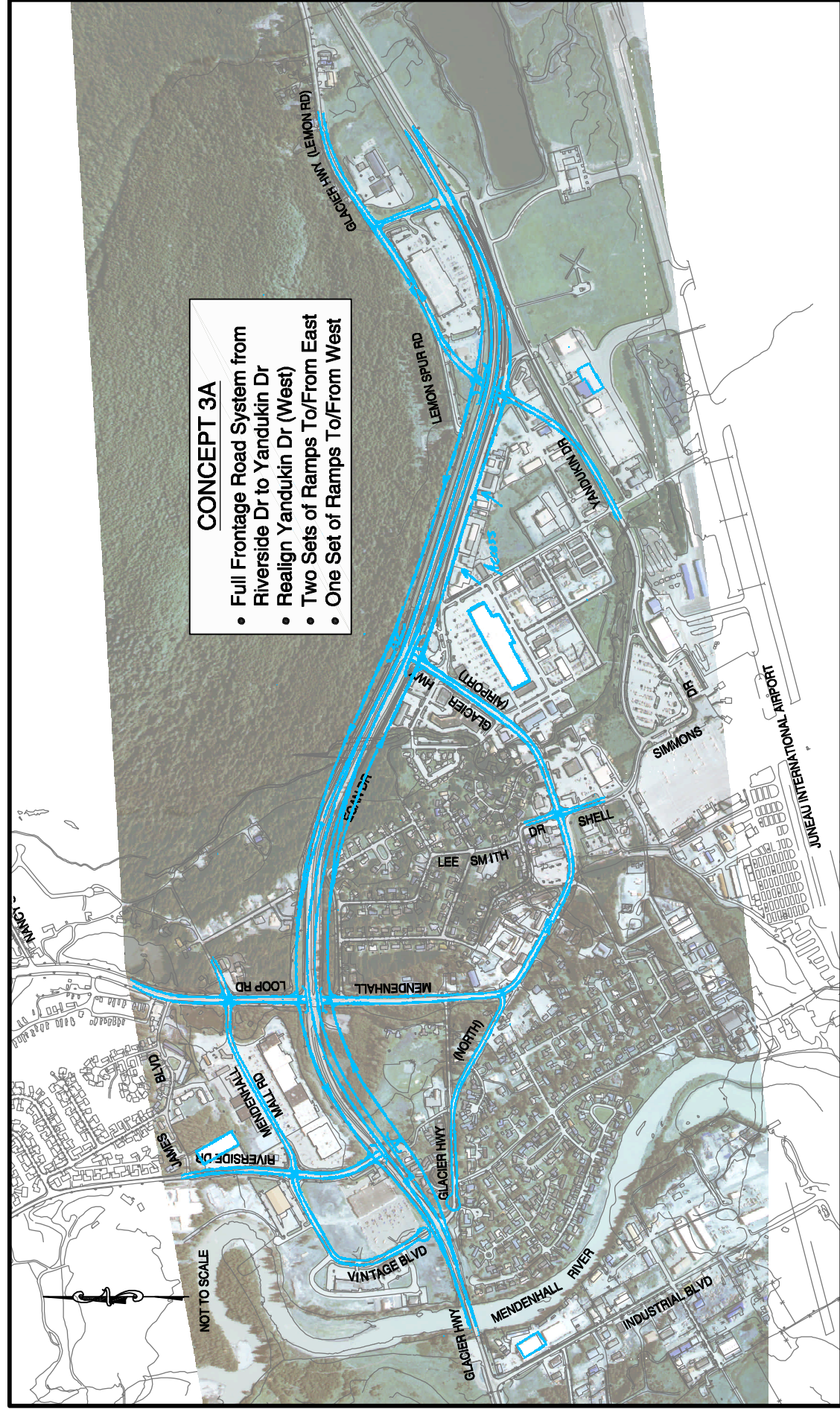
System #3: Interchanges and Frontage Roads Concepts

These concepts create an elevated Egan Drive with parallel frontage road system to increase capacity and maximize traffic exchange and circulation. Figure 5-3 shows a typical cross section of Egan Drive in the vicinity of Mendenhall Mall for the interchanges and frontage roads concepts.

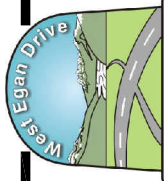
Concept 3A

Concept 3A, as shown in Figure 5-13, provides a full frontage road system parallel to Egan Drive from Riverside Drive to Yandukin Drive. Yandukin Drive is realigned to align with Lemon Spur Road. Ramps at Yandukin Drive and Mendenhall Loop Road provide access to/from the east (e.g. downtown), while ramps at Riverside Drive provides access to/from the west (e.g., out the road). Local access is maintained on the eastbound frontage road (currently Old Dairy Road) between Glacier Highway (Airport) and Yandukin Drive with u-turns underneath the bridge structure.

- Traffic Considerations
 - By creating the full frontage road system with a split diamond interchange between Mendenhall Loop Road and Riverside Drive, three-phase signalized ramp terminal intersections are introduced at Mendenhall Loop Road/Egan Drive and Egan Drive/Riverside Drive. However, all trips to and from Egan Drive occur at these ramps due to limited direct access to Egan Drive, and many will travel through the intersection of Mendenhall Loop Road/Egan Drive.
 - The full frontage road system provides access at all intersections along the corridor except at Vintage Boulevard. All access and turning movements will take place on frontage roads, which will improve mobility along Egan Drive.
 - The realigned Yandukin Drive/Lemon Spur Road connection provides an indirect link between Old Glacier Highway and the commercial areas along Glacier Highway (Airport).
 - Grade separations and interchanges will reduce conflicts and improve safety along the corridor.
- Non-Motorized Users and Public Transit
 - As stated before, grade-separated connections establish safe crossings for pedestrians and bicycles.
 - Emergency access is hampered by a one-way frontage system which has the potential to increase the response time of emergency vehicles.



- CONCEPT 3A**
- Full Frontside Road System from Riverside Dr to Yandukin Dr
 - Realign Yandukin Dr (West)
 - Two Sets of Ramps To/From East
 - One Set of Ramps To/From West



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**AREA #1: CONCEPTS FOR EAST OF MENDENHALL RIVER
 CONCEPT 3A**

West Egan Drive Corridor Study

DATE
 JULY 2003

FIGURE
 5-13

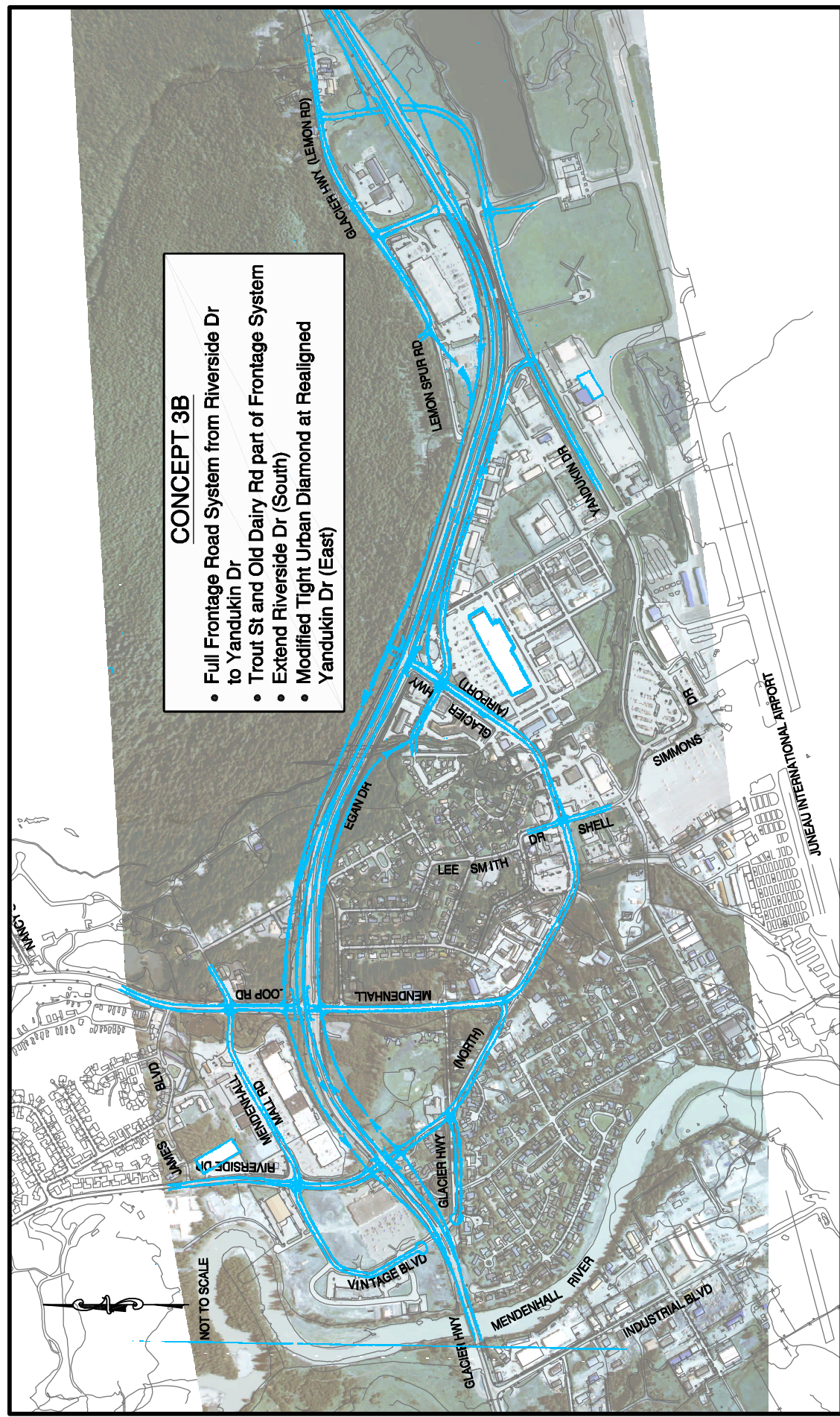


- Environmental and Planning
 - The frontage road system will impact the businesses along Trout Street and Old Dairy Road. Accesses to businesses off Old Dairy Road will be off an eastbound frontage road. U-turns under the structure at Glacier Highway (Airport) and Yandukin Drive provides indirect full access to these businesses.
 - As stated for Concept 2A, closing access to Vintage Boulevard from Egan Drive limits access to existing Vintage Park businesses and may be a barrier to new business development.
 - This concept is consistent with AWTP, Riverside Drive Corridor and Second Channel Crossing planning efforts, and has large environmental impacts.
- Practical Considerations
 - The construction costs for Concept 3A is approximately \$48 million. The full frontage roads from Riverside Drive to Yandukin Drive, along with structures and embankment to grade separate Egan Drive from Riverside Drive, Mendenhall Loop Road, Glacier Highway (Airport) and Yandukin Drive increase in maintenance in the study area substantially. The frontage roads can be utilized as detours during construction to partially address traffic impacts during construction. The right-of-way requirements would affect numerous properties.
- Conclusion
 - In summary, Concept 3A performs poor under the evaluation criteria related to the Purpose and Need Statement.

Concept 3B

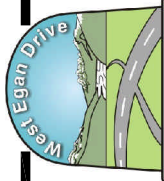
As shown in Figure 5-14, this concept also provides frontage roads along Egan Drive from Riverside Drive to Yandukin Drive and makes use of the existing Trout Street and Old Dairy Road (two-way connection). This concept changes the character of these streets by adding arterial traffic to local and collector streets. Access to/from the west is provided via ramps at Riverside Drive. The south extension of Riverside Drive increases local access. Access from the east is provided via on- and off-ramps at Mendenhall Loop Road, an on-ramp at Glacier Highway (Airport) and a new off-ramp located just south of Fred Meyer. The Lemon Spur Road is extended to the west to provide access onto a westbound frontage road. The arrangement of the unconventional frontage road system necessitates a modified tight urban diamond near Yandukin Drive, which is realigned to the east.

- Traffic Considerations
 - The Riverside Drive connection will provide more route choices for trips within the Mendenhall Valley and improve overall traffic operation in the system.
 - Grade separations and interchanges will reduce conflicts and improve safety along the corridor.
 - The use of Trout Street and Old Dairy Road as both frontage roads and access for residences and businesses creates potential conflicts.



CONCEPT 3B

- Full Frontage Road System from Riverside Dr to Yandukin Dr
- Trout St and Old Dairy Rd part of Frontage System
- Extend Riverside Dr (South)
- Modified Tight Urban Diamond at Realigned Yandukin Dr (East)



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AREA #1: CONCEPT FOR EAST OF MENDENHALL RIVER CONCEPT 3B

West Egan Drive Corridor Study

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FIGURE
 5-14



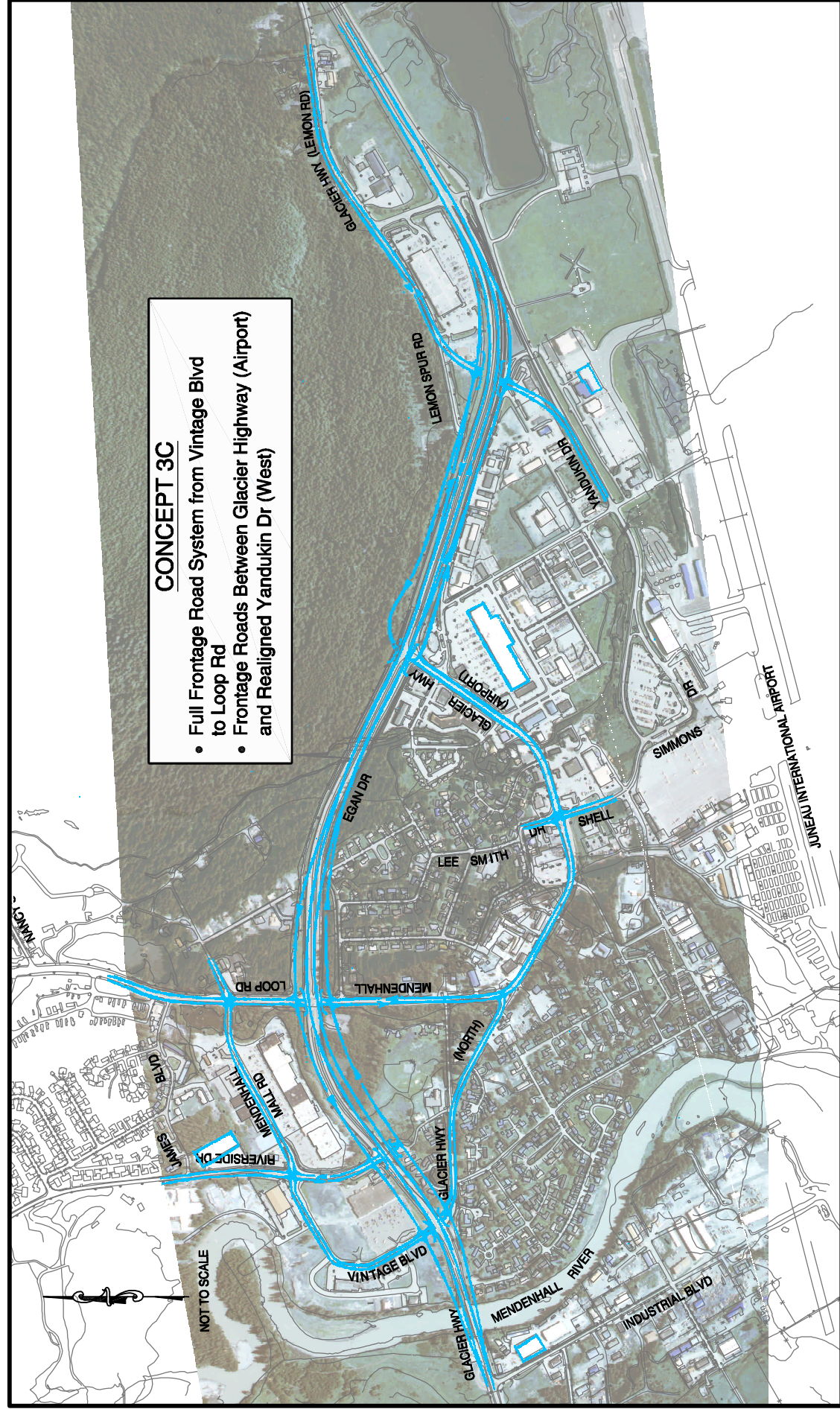
- Non-Motorized Users and Public Transit
 - As stated before, grade-separated connections establish safe crossings for pedestrians and bicycles.
- Environmental and Planning
 - This concept is compatible with the AWTP and the Second Channel Crossing planning efforts except at Riverside Drive, which introduces more traffic and may change long term planning assumptions.
 - Closing off access to Vintage Boulevard from Egan Drive limits access to existing Vintage Park businesses, and will be a barrier to new business development.
- Practical Considerations
 - Concept 3B is similar to Concept 3A but with somewhat less compatibility with the built environment due to the conversion of Trout Street and Old Dairy Road to frontage roads and slightly higher environmental impacts due to realignment at Yandukin Drive. At \$55 million (construction cost), this is one of the more expensive concepts.
- Conclusion
 - In summary, Concept 3B performs fairly under the evaluation criteria related to the Purpose and Need Statement.

Concept 3C

This option, shown in Figure 5-15, provides a full frontage road system between Vintage Boulevard, Riverside Drive and Mendenhall Loop Road. The ramps to and from the west cross

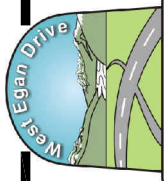
the Mendenhall River and require changes to the existing bridge and/or additional bridges. Frontage roads are also provided between Glacier Highway (Airport) and the realigned Yandukin Drive. The frontage roads in the vicinity of Old Dairy Road will impact businesses accessing Old Dairy Road. To minimize these impacts, either Egan Drive would have to be realigned to the north or a new access road would have to be provided to allow access from the back of businesses.

- Traffic Considerations
 - As compared to Concepts 3A and 3B, this concept decreases the number of route choices for motorists traveling from the southeast quadrant of the study area to the northwest quadrant of the study area.
 - The Vintage Boulevard/Glacier Highway (North) link provides an additional north-south connection.
 - Grade separations and interchanges will reduce conflicts and improve safety along the corridor.



CONCEPT 3C

- Full Frontage Road System from Vintage Blvd to Loop Rd
- Frontage Roads Between Glacier Highway (Airport) and Realigned Yandukin Dr (West)



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AREA #1: CONCEPTS FOR EAST OF MENDENHALL RIVER CONCEPT 3C

West Egan Drive Corridor Study

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 JULY 2003

FIGURE
 5-15



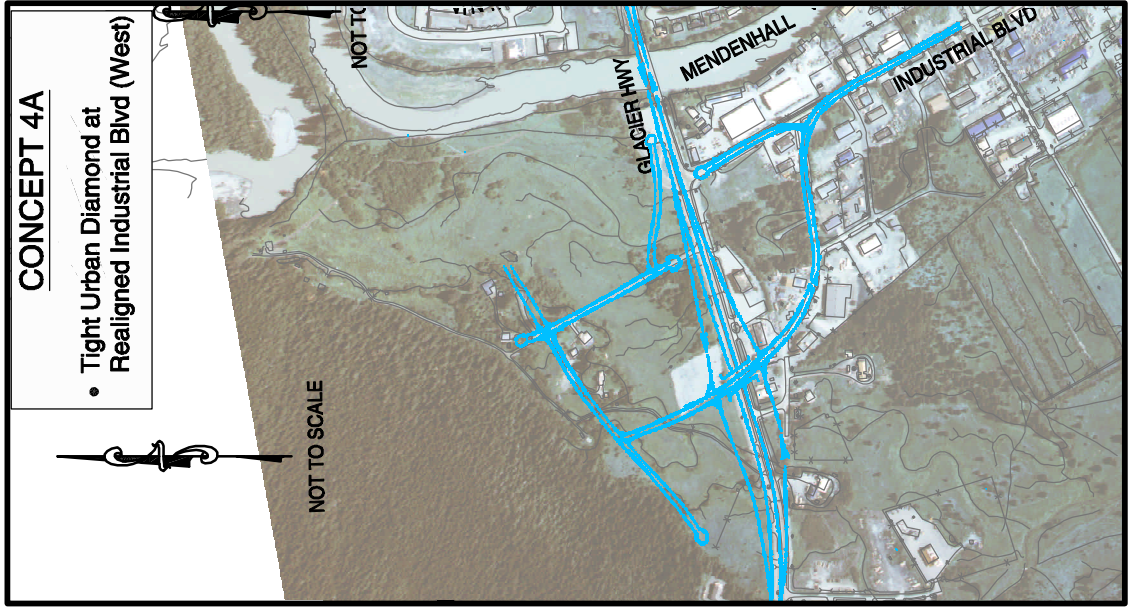
- Non-Motorized Users and Public Transit
 - As stated before, grade-separated connections establish safe crossings for pedestrians and bicycles.
- Environmental and Planning
 - This concept is consistent with AWTP, Riverside Drive and the Second Channel Crossing planning efforts, but will impact the businesses along Old Dairy Road. The environmental impacts are less due to limited involvement between Mendenhall Loop Road and Glacier Highway (Airport).
- Practical Considerations
 - Concept 3C has the highest construction cost (\$64 million) and is similar in maintenance costs and impacts to traffic during construction. Right-of-way needs may be slightly less than Concepts 3A and 3B.
 - The concept requires a wider structure across the Mendenhall River (Brotherhood Bridge) to accommodate the frontage road ramps.
- Conclusion
 - In summary, Concept 3C performs fairly under the evaluation criteria related to the Purpose and Need Statement.

AREA #2 – WEST OF MENDENHALL RIVER: GLACIER HIGHWAY/INDUSTRIAL BOULEVARD

The design concepts for Industrial Boulevard/Glacier Highway intersection are separate from the other concepts and can be added to other concepts to propose a combined alternative for the system in the study area with some exceptions. For example, concepts that have an interchange at Vintage Boulevard will influence the location for the Industrial Boulevard/ Glacier Highway intersection and/or the type of intersection (at-grade versus interchange). The intent of these concepts is to consolidate access points north and south of Glacier Highway and minimize the conflicts along Glacier Highway. Table 5-5 shows the ratings for each of these concepts.

Concepts 4A-4C

- Brief Descriptions
 - Concept 4A: This concept proposes a tight urban diamond interchange at the realigned Industrial Boulevard to the west, as shown in Figure 5-16. This realignment changes the industrial area circulation. The location of the ramps to/from the east will have no impact on the Brotherhood Bridge. However, if ramps are proposed on the west side of Vintage Boulevard, then this interchange needs to be revised to provide sufficient weaving sections along Glacier Highway.
 - Concept 4B: As shown in Figure 5-16, this concept realigns Industrial Boulevard to the west but uses an at-grade signalized intersection rather than an interchange. The realignment provides longer distance to accommodate westbound left turning



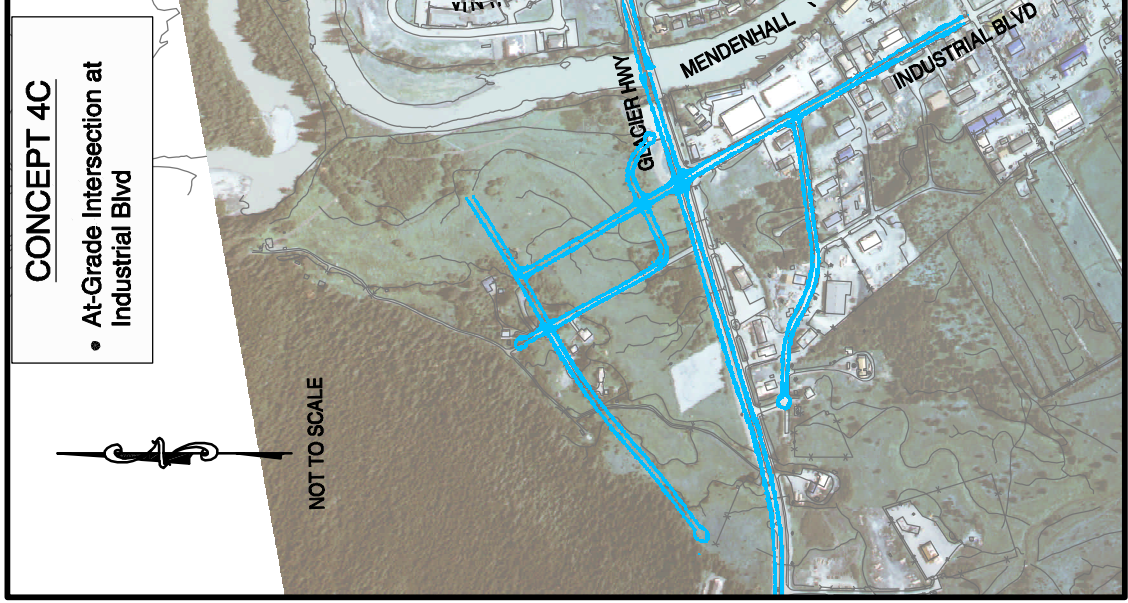
CONCEPT 4A

- Tight Urban Diamond at Realigned Industrial Blvd (West)



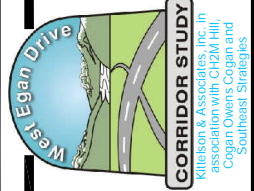
CONCEPT 4B

- At-Grade Intersection at Realigned Industrial Blvd (West)



CONCEPT 4C

- At-Grade Intersection at Industrial Blvd



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**AREA #2: CONCEPTS FOR GLACIER HWY AND INDUSTRIAL BLVD
 CONCEPTS 4A-4C**

West Egan Drive Corridor Study

DATE
 JULY 2003

FIGURE
 5-16

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4781DWG5TASK-8/FIG_5-17



lanes and prevents traffic spilling back to the Brotherhood Bridge. On the other hand, this will affect the industrial area circulation.

- Concept 4C: This concept keeps Industrial Boulevard at the current location with an at-grade signalized intersection, as shown in Figure 5-16. This location has the potential for westbound traffic spilling back onto the Brotherhood Bridge and may interfere with some of the concepts incorporating interchanges at Vintage Boulevard and/or Riverside Drive.
- Traffic Considerations
 - Each of these concepts will have acceptable traffic operations, although Concept 4A will have higher capacity for future traffic needs.
 - The distinctions between these concepts can be drawn in how well the concepts integrate with systems east of the Mendenhall River. The interchange in Concept 4A would yield efficient traffic operations, but it is not likely that the ramps to/from the east could be constructed to interact acceptably with any ramps to Vintage Boulevard to/from the west side of the Mendenhall River. If an interchange is built at Vintage Boulevard immediately east of the river, Concept 4B may work better than Concept 4C because of the better spacing along Egan Drive between intersections.
- Non-Motorized Users and Public Transit
 - Separating the through traffic (Concept 4A) will provide safe crossings for pedestrians and bicycles.
- Environmental and Planning
 - The Brotherhood Bridge parking area is a well-used trailhead, a viewpoint and a river rafting pickup for tour companies. Without direct access (Concepts 4A and 4B) to Glacier Highway, traffic (including tour busses) will have to travel through current and future neighborhoods north of Glacier Highway.



Table 5-5 Qualitative Evaluation of Alternatives (Concepts West of Mendenhall River)

Evaluation Criterion		West of Mendenhall River (Industrial Boulevard)			Second River Crossing	
		4A	4B	4C	4D	4E
Purpose and Need	Traffic Considerations					
	1. Safety	Good	Fair	Fair	Fair	Fair
	2. Emergency Vehicle Access and Circulation	Fair	Fair	Fair	Good	Good
	3. Traffic Operations	Good	Fair	Fair	Poor	Fair
	4. Airport Access	Fair	Fair	Fair	Fair	Fair
	5. Local Circulation	Fair	Fair	Fair	Good	Good
	Non-Motorized Users and Public Transit					
	6. Compatibility with Public Transportation	Fair	Fair	Fair	Good	Good
	7. Compatibility with Pedestrians	Good	Fair	Fair	Good	Good
	8. Compatibility with Bicyclists	Good	Fair	Fair	Good	Good
	Satisfies Purpose and Need?	YES	YES	YES	YES	YES
	Environmental and Planning					
9. Environmental Impacts	Poor	Fair	Poor	Poor	Poor	
10. Consistency with Other Planning Efforts	Fair	Fair	Poor	Fair	Fair	
11. Compatibility with Built Environment	Fair	Fair	Fair	Fair	Good	
Practical Considerations						
12. Constructability	Poor	Fair	Good	Fair	Poor	
13. Funding Feasibility	Poor	Fair	Fair	Fair	Fair	
14. Phased Implementation & Expandability	Good	Good	Good	Fair	Fair	
15. Construction Costs	Poor	Fair	Fair	Fair	Fair	
16. Maintenance Requirements	Poor	Fair	Fair	Fair	Fair	
17. Satisfies Design Requirements	Good	Fair	Fair	Fair	Fair	
18. Right-of-Way Requirements	Poor	Fair	Fair	Poor	Poor	

- The City and Borough of Juneau (CBJ) public works offices and shops are located in the vicinity of the Jensine Street/Glacier Highway intersection. Without direct access to Glacier Highway as in Concept 4C, CBJ maintenance vehicles will have to travel through the industrial area to access Glacier Highway.
- Concept 4A has large impacts in a high value wetland, and would have to meet the “only prudent and feasible” test in order to be permitted.
- Practical Considerations
 - Concept 4A is the most expensive concept proposed at Glacier Highway/Industrial Boulevard intersection at \$16 million (construction cost). This concept requires substantial right-of-way, and the new structure and ramps



will increase maintenance. The construction of this interchange will be disruptive to traffic during construction stage.

- Concept 4B is the least expensive at \$1.2 million. This concept requires limited maintenance and right-of-way, but still impacts wetlands (to a lesser degree).
- Concept 4C is relatively inexpensive at \$1.7 million. It is very similar in all respects to Concept 4B and environmental impacts.
- Conclusion
 - In summary, Concepts 4A through 4C perform fairly under the evaluation criteria related to the Purpose and Need Statement.

AREA #3 – SECOND MENDENHALL RIVER CROSSING

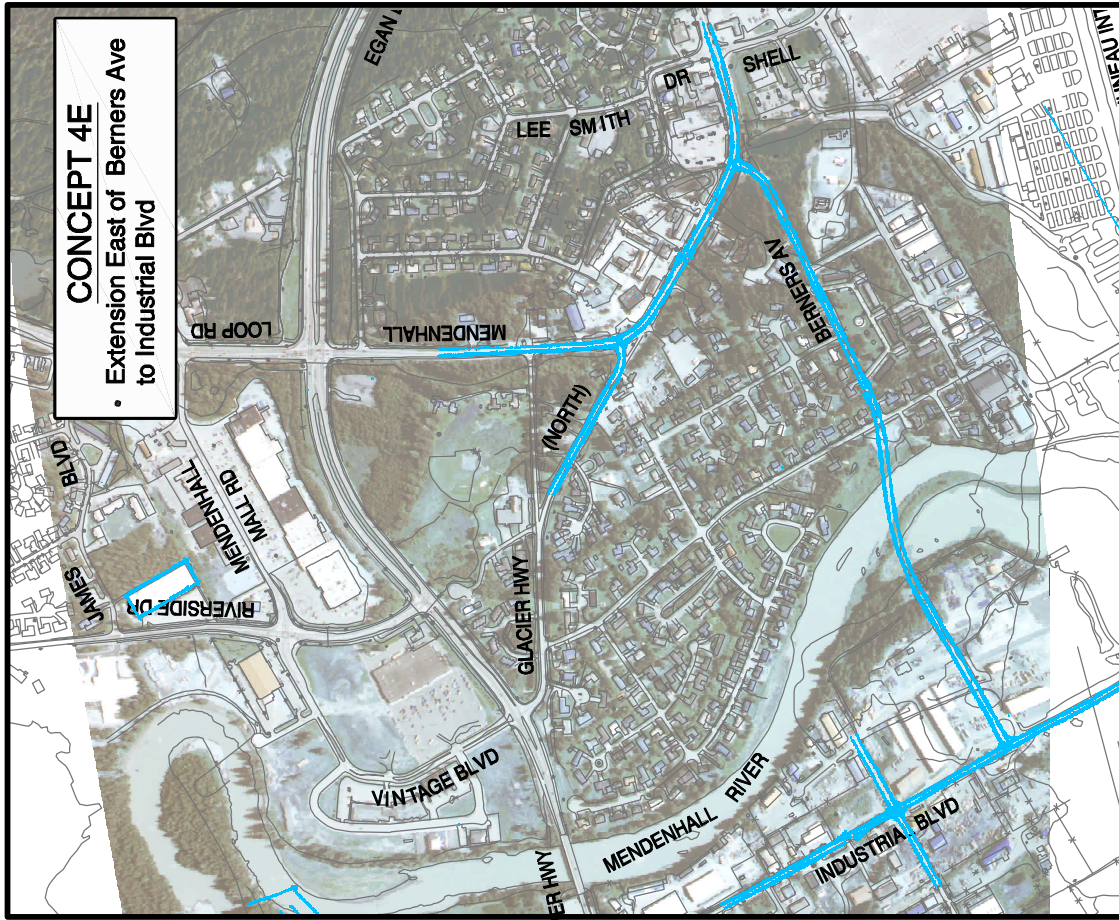
The design concepts for second Mendenhall River crossing have been separated because they can be integrated with any of the concepts presented for the rest of the study area. These concepts are shown in Figure 5-17.

Concepts 4D-4E

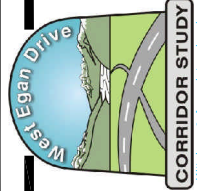
- Brief Descriptions
 - Concept 4D: This concept provides a second bridge crossing over Mendenhall River by connecting Crazy Horse Drive and Eagle Street located west and east of the river, respectively. Crazy Horse Drive currently provides access to industrial uses, while Eagle Street serves as a residential local street.
 - Concept 4E: This concept extends Berners Avenue to the west and across Mendenhall River, introduces a new road within the industrial area, which connects to Industrial Boulevard to the west. Berners Avenue serves both low- and high-density residential developments. Berners Avenue is also the primary access to a commercial light industrial area (along La Perouse), the wastewater treatment plant, and the heavily used trailhead for the dike trail.
- Traffic Considerations
 - In Concept 4D, a connection between Industrial Boulevard and Mendenhall Loop Road would be made via Crazy Horse Drive and Eagle Street. This will increase delay at the Mendenhall Loop Road/Glacier Highway (North) intersection due to the addition of a fourth leg and additional traffic.
- Non-Motorized Users and Public Transit
 - Either of the two concepts provides the opportunity for new pedestrian and bicycle crossings, new public transport routes, and an additional route for emergency access.
- Environmental and Planning
 - Concept 4D has large environmental impacts. The introduction of truck traffic through residential areas is expected to be a large issue with Concept 4D.



CONCEPT 4D
 • Connection at Crazy Horse Dr/
 Eagle St



CONCEPT 4E
 • Extension East of Berners Ave
 to Industrial Blvd



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**AREA #3: CONCEPTS FOR SECOND MENDENHALL RIVER CROSSING
 CONCEPTS 4D & 4E**

West Egan Drive Corridor Study

DATE
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FIGURE
 5-17

Alaska Department of Transportation & Public Facilities

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- Concept 4E may impact numerous properties along Berners Avenue. It could either impact Duck Creek or provide opportunity for improvement depending on the final alignment and construction methods.
- Practical Considerations
 - Concept 4D is estimated at \$9 million. It would require a relative high increase in maintenance activities, and has very high right-of-way requirements.
 - Concept 4E at around \$11 million, would require a large structure to cross the Mendenhall River at this location (tidal area).
- Conclusion
 - In summary, Concept 4E performs better than Concept 4D under the evaluation criteria related to the Purpose and Need Statement.

General Considerations

Comparing and contrasting the twelve concepts to the project evaluation criteria and other solution concepts yields several notable features and specific concerns. After additional review by the CAC and ADOT&PF, these features and concerns are summarized and listed below.

- A critical issue in this area is the weaving section that is occurring on Mendenhall Loop Road between Egan Drive and Mendenhall Mall Road. This weave can be minimized by:
 - Sufficiently decreasing the high volume right-turn so that this movement could be integrated into the traffic signal again. In order to achieve acceptable traffic operations at the intersection of Mendenhall Loop Road/Egan Drive, the high volume westbound right-turn requires a turn lane separate from the signal (a free right-turn). However, this free right turn contributes to the weaving problems on Mendenhall Loop Road between Egan Drive and Mendenhall Mall Road/Atlin Drive. One way to eliminate the weaving is to pass this right-turn movement through the signal at Egan Drive. To accomplish this and achieve acceptable traffic operations, approximately 80 percent of the right-turn volume needs to be shifted to another intersection.
 - Prohibit the left turns from northbound Mendenhall Loop Road to Mendenhall Mall Road and provide for this access elsewhere. In the concepts, two options are presented, both of which increase travel distance for this movement. The first option is shown in Concepts 2C and 2F, and involves construction of a new north-south link just west of Mendenhall Loop Road from between James Boulevard to Mendenhall Mall Road. The second directs these drivers to Riverside Drive with two right-turns required to reach Mendenhall Mall Road.
- Additional street connections within the study area were identified in several concepts and are briefly summarized below.
 - The Riverside Drive extension from Egan Drive to Glacier Highway (North) is a valuable element to the transportation system regardless of the options being considered. It provides more local connections for pedestrians, bicycles and motorists. For pedestrians and bicycles, crosswalks could be integrated into the intersection concepts to provide a specific indication to motorists that pedestrians



and bicycles are expected in the area. This crossing also provides motorists another route option within the study area, thereby decreasing the traffic volumes traveling through the intersection of Mendenhall Loop Road/Egan Drive.

- The Glacier Highway (Airport)/Lemon Spur Road connection provides for improved motorist route choice and pedestrian and bicycle accessibility.
- The James Boulevard/Glacier Highway (Airport)/Lemon Spur Road connection provides for greater pedestrian and bicycle accessibility and motorist route choice. The connection from James Boulevard to Glacier Highway (Airport)/Lemon Spur appears to provide more benefits in that there would then be complete connections between the Mendenhall Valley and the Fred Meyer area on both the north and south side of Egan Drive.
- The Egan Drive/Riverside Drive intersection is expected to continue having high southbound to westbound left-turns during the a.m. and westbound to northbound right-turns during the p.m. weekday peak hours, respectively. The need for more direct access between Egan Drive and Riverside Drive is anticipated.
- The loss of the Glacier Highway (Airport)/Egan Drive intersection as a place for traffic exchange is one of the most striking consequences of Concepts 2A through 3C. Traffic forecasts show relatively high volume turning movements to and from Egan Drive at Glacier Highway (Airport). Eliminating this access could over-emphasize other road sections and intersections within the study area.
- Most of the concepts continue to provide access to businesses along Old Dairy Road and Trout Street. In some cases there would likely be an increase in traffic along these roadways. This could be good for businesses along these streets; however, access, safety and operational issues need to be examined further. Some concepts require re-aligning Old Dairy Road, causing negative impacts to businesses on Old Dairy Road and Trout Street.
- Eliminating existing direct accesses to commercial areas, e.g. Vintage Park businesses, Safeway, Fred Meyer, etc. could have major impacts on their daily operations and performances.
- The existing Brotherhood Bridge parking area is a well-used trailhead, a viewpoint and a river rafting pickup for tour companies. Access to this facility is very important.
- Concepts 4D and 4E include a bridge across the Mendenhall River south of Egan Drive. Similar to the concepts that include a new street from Fred Meyer to James Boulevard, this new connection across the Mendenhall River provides pedestrian, bicycle, and vehicle access and mobility along Egan Drive. With more route choices, a more balanced transportation system can be achieved. However, these concepts will have major impacts on the neighborhood. As the location of such a bridge is outside the study area, it was decided that the feasibility of an additional river crossing would be investigated during a separate study, if required.