

## Most Viable Alternatives

This section describes and summarizes the decision making process and the results of the evaluation of the most viable alternatives. Again, the evaluation consists of a brief description of the alternative and the key findings under each of the broad categories of evaluation criteria.

As a result of the review comments received during both the CAC Meeting #3 and the subsequent ADOT&PF and CBJ meeting, four alternatives were identified and studied in more detail as described in the following Chapter. The process by which these four alternatives were identified is described as follows:

- The evaluation of the twelve concepts (plus an additional five concepts for the Industrial Boulevard area and second Mendenhall River crossing) resulted in a summary of findings.
- These findings were discussed at CAC Meeting #3. Comments from the CAC members resulted in some “mixing and matching” of features from different concepts. These comments also helped to narrow the number of concepts to be carried forward.
- Three conceptual alternatives resulted from the “mixing and matching” activities that came out of the CAC members’ comments. These alternatives were presented at the ADOT&PF and CBJ meeting. Additional revisions were made to the three conceptual alternatives, and an additional alternative was also developed. The final result was therefore the identification of four alternatives that will be carried forward for detailed evaluation.
- Not all the considerations (as discussed in the previous section) were addressed in each of the alternatives. For example, eliminating the Vintage Boulevard access to Egan Drive (as shown in Alternative #3) is intentionally to evaluate the impact of such a consideration.

Each alternative is a complete, stand-alone plan for the study area so that comparisons of transportation, environmental, and economic impacts can be undertaken. The final alternatives were subject to quantitative, rigorous analysis as described in Chapter 6.

Each of the four alternatives was subjected to the same qualitative evaluation as was applied to the original twelve concepts; the results of this additional evaluation are summarized below. As discussed previously, the evaluation process consisted of the following: scoring the nodal, area and system considerations according to the level of effect; averaging the evaluation criteria scores for each alternative; and then assigning a good, fair, or poor rating for each of the evaluation criteria to identify the better performers of the four alternatives.

For each evaluation criterion, Table 5-6 summarizes the good, fair or poor rating for each alternative. Brief evaluation notes explaining the reason for the scoring of each alternative are provided in Appendix F.

**Table 5-6 Qualitative Evaluation of Four Most Viable Alternatives**

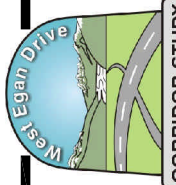
Evaluation Criterion		Alternatives			
		#1	#2	#3	#4
<b>Purpose and Need</b>	<b>Traffic Considerations</b>				
	1. Safety	Good	Fair	Fair	Poor
	2. Emergency Vehicle Access and Circulation	Good	Good	Fair	Fair
	3. Traffic Operations	Good	Fair	Fair	Poor
	4. Airport Access	Good	Good	Good	Fair
	5. Local Circulation	Good	Good	Fair	Fair
	<b>Non-Motorized Users and Public Transit</b>				
	6. Compatibility with Public Transportation	Good	Good	Good	Fair
	7. Compatibility with Pedestrians	Good	Fair	Good	Poor
	8. Compatibility with Bicyclists	Good	Fair	Fair	Poor
Satisfies Purpose and Need?	YES	YES	YES	YES*	
<b>Environmental and Planning</b>					
9. Environmental Impacts	Poor	Fair	Good	Fair	
10. Consistency with Other Planning Efforts	Fair	Good	Fair	Poor	
11. Compatibility with Built Environment	Good	Fair	Poor	Good	
<b>Practical Considerations</b>					
12. Constructability	Fair	Fair	Poor	Good	
13. Funding Feasibility	Poor	Poor	Fair	Good	
14. Phased Implementation & Expandability	Fair	Fair	Poor	Good	
15. Construction Costs	Poor	Poor	Fair	Good	
16. Maintenance Requirements	Fair	Fair	Poor	Good	
17. Satisfies Design Requirements	Good	Fair	Fair	Poor	
18. Right-of-Way Requirements	Fair	Fair	Poor	Good	

\* Alternative may not satisfy safety needs without further investigation of treatments.

**Alternative #1**

The unique feature of Alternative #1 is the connection between James Boulevard and Lemon Spur Road. Figure 5-18 shows a single-line scaled sketch as well as the key elements of this alternative, which is mainly based on Concept 2C with some revisions as suggested by the CAC members and project team.

- Traffic Considerations
  - Alternative #1 introduces the James Boulevard/Glacier Highway (Airport)/Lemon Spur Road connection providing off Egan Drive local connections. This system also includes adding a fourth leg to Riverside Drive, thus providing additional local access to Glacier Highway from the western portion of the Mendenhall Valley. The additional local connections will decrease the number of trips



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# MOST VIABLE ALTERNATIVES ALTERNATIVE #1

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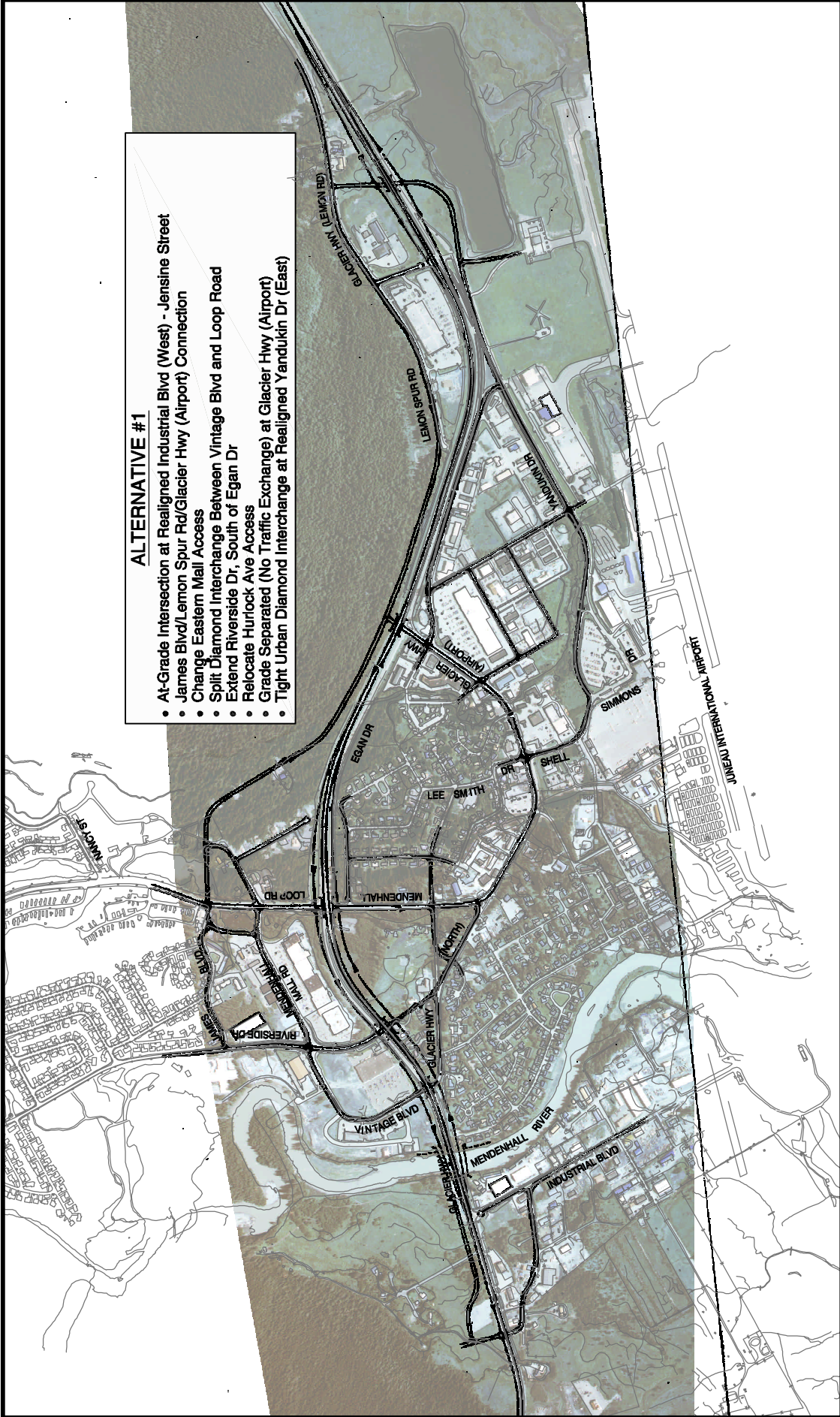
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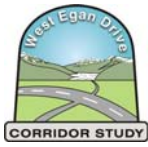
FIGURE  
 5-18

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## ALTERNATIVE #1

- At-Grade Intersection at Realigned Industrial Blvd (West) - Jensine Street
- James Blvd/Lemon Spur Rd/Glacier Hwy (Airport) Connection
- Change Eastern Mall Access
- Split Diamond Interchange Between Vintage Blvd and Loop Road
- Extend Riverside Dr, South of Egan Dr
- Relocate Hurlock Ave Access
- Grade Separated (No Traffic Exchange) at Glacier Hwy (Airport)
- Tight Urban Diamond Interchange at Realigned Yandukin Dr (East)





traveling through the intersection of Mendenhall Loop Road/Egan Drive, which will require fewer lanes at this intersection. The road network in the vicinity of Mendenhall Mall is also altered to improve operations along Mendenhall Loop Road.

- This alternative provides several new connections and improves emergency vehicle access and airport access within the study area.
- The McNugget Mall/Glacier Highway (Airport) area loses its direct connection with Egan Drive.
- Grade separations and interchanges will reduce conflicts and improve safety along the corridor.
- Non-Motorized Users and Public Transit
  - The James Boulevard/Glacier Highway (Airport)/Lemon Spur Road link completes multiple local connections. These grade separations and new connections (four across Egan Drive) establish safe crossings for pedestrians and bicycles and should pull more local traffic off Egan Drive.
  - This alternative accommodates and improves public transit routes within the study area.
- Environmental and Planning
  - Alternative #1 would affect sensitive habitat areas including edge habitat on the north side of Egan, Jordan Creek, and possible wetlands, as well as lower value wetlands near Yandukin.
  - The system is compatible with other planning efforts except at Riverside Drive, which introduces more traffic and may change long term planning assumptions.
  - Businesses in the vicinity of Industrial Boulevard could lose their direct accesses.
  - Access to Fred Meyer is indirect and could have an impact on the gas station operation, but full access through an interchange should be safer.
  - Loss of direct access off Egan Drive at Glacier Highway (Airport) could be a disadvantage to businesses visible from Egan Drive.
  - In general, the improved commute efficiency and improved non-Egan access to many businesses outweighs possible loss of more direct access to a few businesses.
- Practical Considerations
  - The construction of the James Boulevard/Lemon Spur Road connector road would not impact traffic, but may act as a detour, thereby facilitating other construction.
  - The alternative requires a wider structure across the Mendenhall River (Brotherhood Bridge) to accommodate the ramps serving Vintage Boulevard.
  - The preliminary construction cost of Alternative #1 is approximately \$67 million.

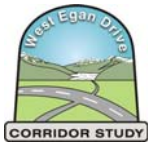


- The James Boulevard/Lemon Spur Road connection will require fairly substantial right-of-way take and an increase in maintenance.
- Conclusion
  - Alternative #1 continues to rank the same or even higher than the original Concept 2C upon which it is based. The Purpose and Need Statement (first eight evaluation criteria) is better addressed, while the construction cost, right-of-way take and maintenance increase only slightly due to additional roadways.

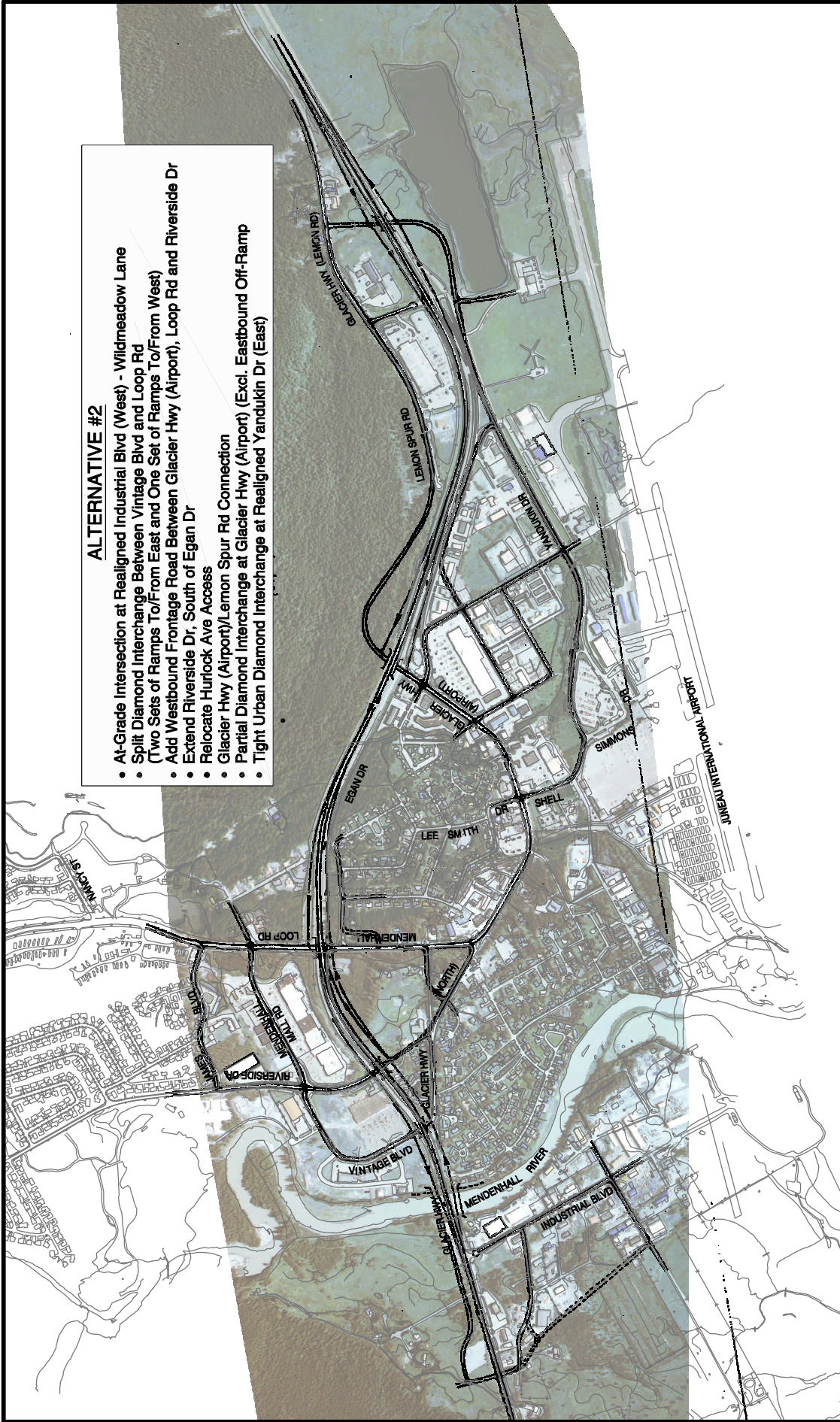
## **Alternative #2**

The unique feature of Alternative #2 is the connection between Glacier Highway (Airport) and Lemon Spur Road. Figure 5-19 shows a single-line scaled sketch as well as the key elements of this alternative, which is mainly based on Concept 2E with some revisions as suggested by the CAC members and project team.

- Traffic Considerations
  - The split diamond interchange between Vintage Boulevard/Riverside Drive/Mendenhall Loop Road has two sets of ramps to/from the east and one set of ramps to/from the west, which would yield adequate traffic operations at Mendenhall Loop Road/Egan Drive intersection.
  - The Riverside Drive extension provides an additional north-south connection and should relieve traffic congestion at the Egan Drive/Mendenhall Loop Road intersection.
  - The Glacier Highway (Airport)/Lemon Spur Road link completes another local connection. The proposed ramps to and from the east provide direct access from Egan Drive to the commercial areas along Glacier Highway (Airport).
  - This alternative provides several new connections and improves emergency vehicle access and airport access within the study area.
  - Grade separations and interchanges will reduce conflicts and improve safety along the corridor.
- Non-Motorized Users and Public Transit
  - Alternative #2 with its grade-separated connections establish safe crossings (four across Egan Drive) for pedestrians and bicycles.
  - This alternative accommodates and improves public transit routes within the study area.
- Environmental and Planning
  - This concept is compatible with other planning efforts (AWTP) except at Riverside Drive, which introduces more traffic and may change long term planning assumptions.
  - Businesses in the vicinity of Industrial Boulevard could lose their direct accesses.



- Access to Fred Meyer is indirect and could have an impact on the gas station operation, but full access through an interchange should be safer.



- ALTERNATIVE #2**
- At-Grade Intersection at Realigned Industrial Blvd (West) - Wildmeadow Lane
  - Split Diamond Interchange Between Vintage Blvd and Loop Rd (Two Sets of Ramps To/From East and One Set of Ramps To/From West)
  - Add Westbound Frontage Road Between Glacier Hwy (Airport), Loop Rd and Riverside Dr
  - Extend Riverside Dr, South of Egan Dr
  - Relocate Hurlock Ave Access
  - Glacier Hwy (Airport)/Lemon Spur Rd Connection
  - Partial Diamond Interchange at Glacier Hwy (Airport) (Excl. Eastbound Off-Ramp)
  - Tight Urban Diamond Interchange at Realigned Yandukin Dr (East)



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**ALTERNATIVE #2**  
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 FIGURE 5-19



- In general, improved commute efficiency, and improved access to most businesses.
- Alternate #2 is similar to Alternate #1 environmentally, but with a slightly better score due to less impact north of Egan Drive in the vicinity of Glacier Highway (Airport). The provision of the half diamond interchange at Glacier Highway (Airport) and the alignment of the new Glacier Highway (Airport)/Lemon Spur Road link have several impacts.
- Practical Considerations
  - The construction cost of Alternative #2 is approximately \$73 million (highest).
  - The alternative requires a wider structure across the Mendenhall River (Brotherhood Bridge) to accommodate the ramps serving Vintage Boulevard.
- Conclusion
  - Alternative #2 continues to rank the same or even higher than the original Concept 2E upon which it is based. The Purpose and Need Statement (first eight evaluation criteria) is better addressed, while the construction cost, right-of-way take and maintenance increase only slightly due to additional roadways.

### **Alternative #3**

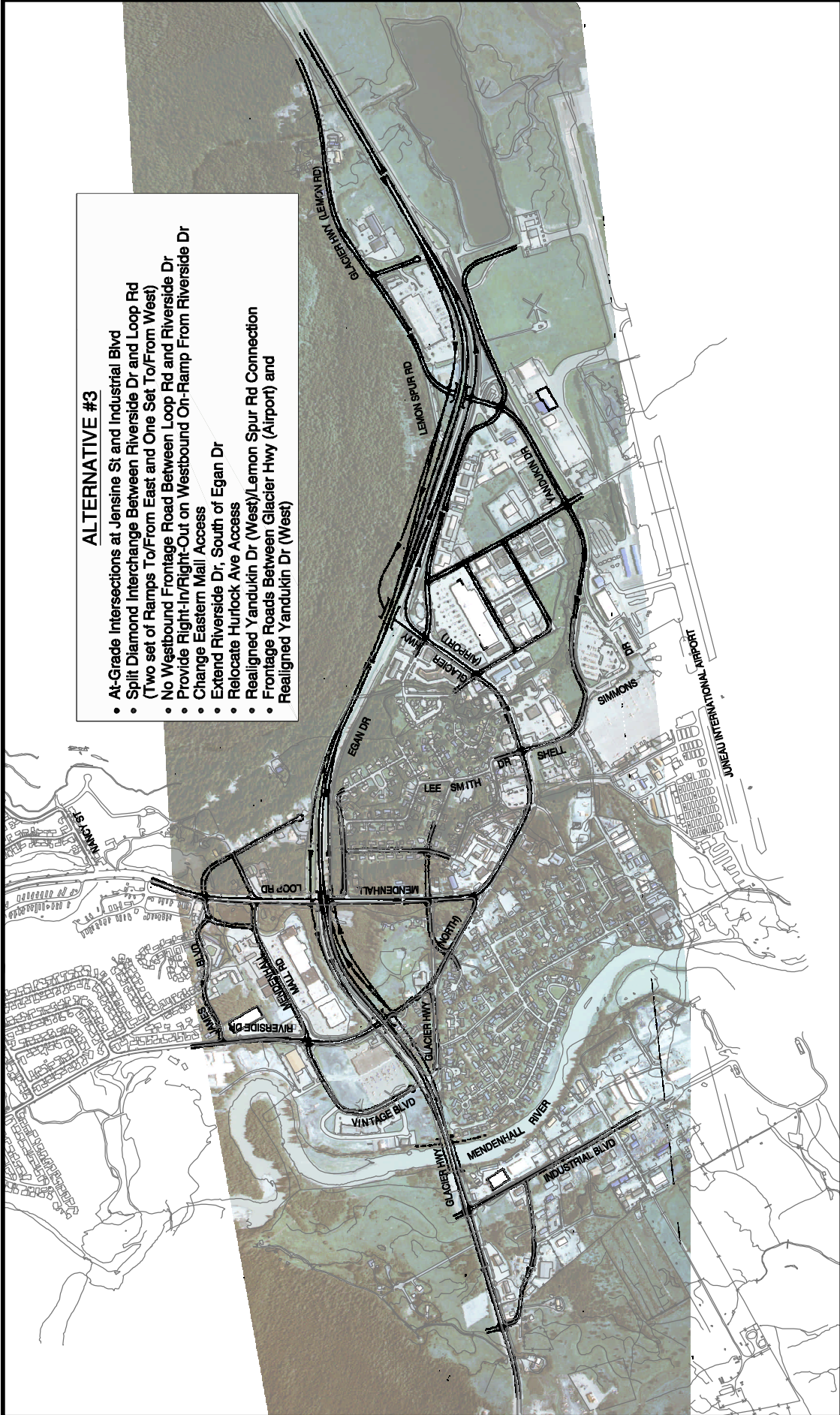
The unique feature of Alternative #3 is the connection between Yandukin Drive and Lemon Spur Road. Figure 5-20 shows a single-line scaled sketch as well as the key elements of this alternative, which is mainly based on Concept 3C with some revisions as suggested by the CAC members and project team.

- Traffic Considerations
  - The split diamond interchange between Riverside Drive/Mendenhall Loop Road has two sets of ramps to/from the east and one set of ramps to/from the west, which would yield adequate traffic operations at Mendenhall Loop Road/Egan Drive intersection.
  - The Riverside south extension provides an additional north-south connection.
  - The Yandukin Drive/Lemon Spur Road connection completes another local connection. The proposed ramps to and from the east provide direct access from Egan Drive to the commercial areas along Glacier Highway (Airport).
  - This alternative provides several new connections and improves emergency vehicle access and airport access within the study area.
  - Grade separations and interchanges will reduce conflicts and improve safety along the corridor.



### ALTERNATIVE #3

- At-Grade Intersections at Jensine St and Industrial Blvd
- Split Diamond Interchange Between Riverside Dr and Loop Rd (Two set of Ramps To/From East and One Set To/From West)
- No Westbound Frontage Road Between Loop Rd and Riverside Dr
- Provide Right-In/Right-Out on Westbound On-Ramp From Riverside Dr
- Change Eastern Mail Access
- Extend Riverside Dr, South of Egan Dr
- Relocate Hurlock Ave Access
- Realigned Yandukin Dr (West)/Lemon Spur Rd Connection
- Frontage Roads Between Glacier Hwy (Airport) and Realigned Yandukin Dr (West)



## MOST VIABLE ALTERNATIVES ALTERNATIVE #3

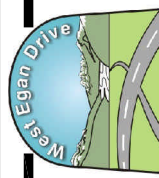
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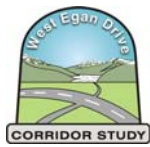
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FIGURE  
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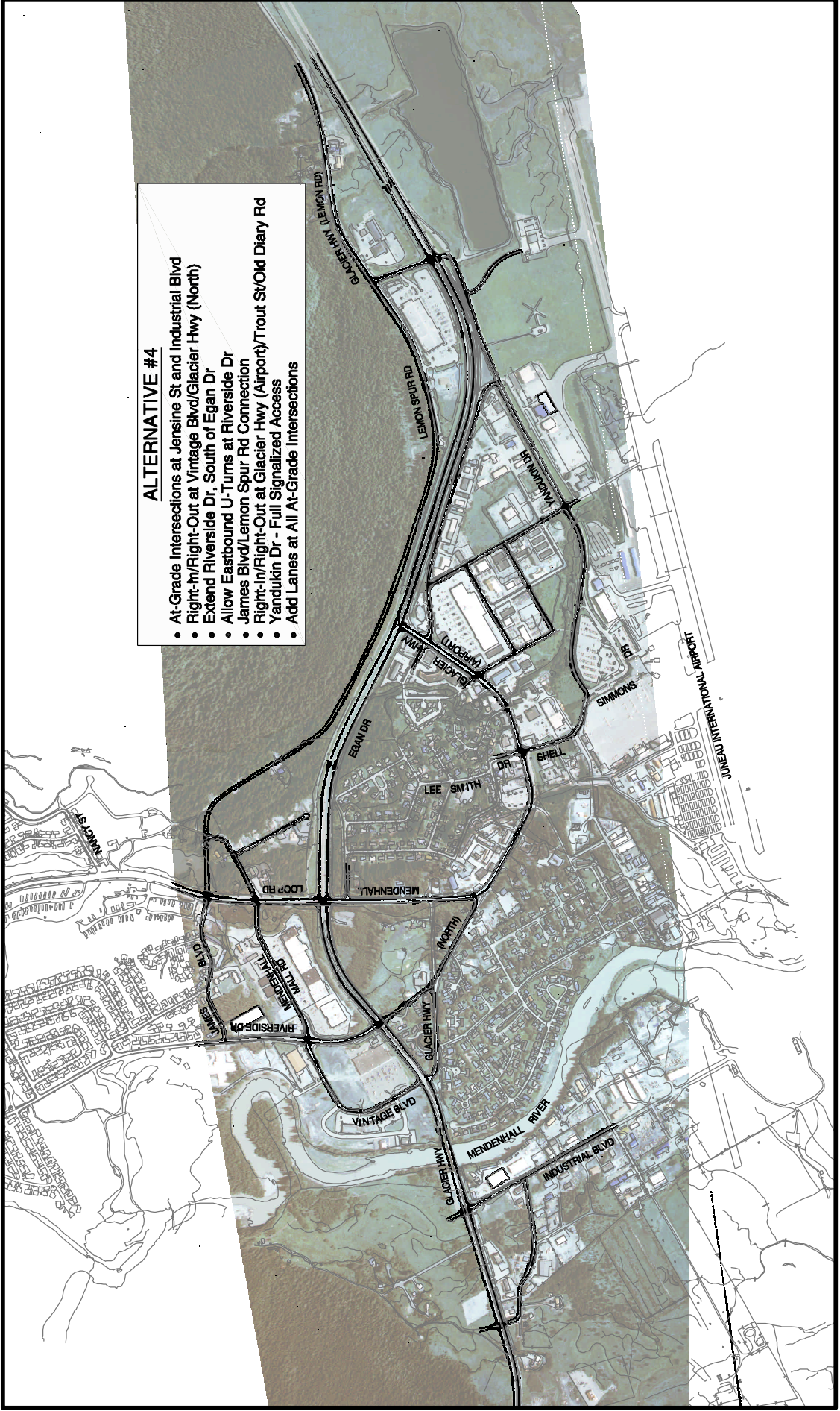
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- Non-Motorized Users and Public Transit
  - As stated before, grade-separated connections (three across Egan Drive) establish safe crossings for pedestrians and bicycles.
  - This alternative accommodates and improves public transit routes within the study area.
- Environmental and Planning
  - Closing access to Vintage Boulevard from Egan Drive reduces access to existing Vintage Park businesses, and will be a barrier to new business development.
  - Access to Fred Meyer is indirect and could have an impact on the gas station operation, but full access through an interchange should be safer.
  - In general, improved commute efficiency, and improved access to most businesses, but it has the most complex interchanges.
  - It is fairly consistent with other planning efforts, although it emphasizes Riverside Drive for traffic, which could change long range planning assumptions.
  - The environmental impacts are less due to limited involvement between Mendenhall Loop Road and Glacier Highway (Airport) and it most effectively utilizes previously disturbed areas, but the realignment of Egan Drive to eliminate impact on businesses along Old Dairy Road will impact the environmental areas north of Egan Drive.
- Practical Considerations
  - The construction cost of Alternative #3 is approximately \$53 million.
  - Due to the complexity of ramps, the property acquisition could be higher due to either having to use vertical structures to fit within the existing right-of-way, or obtaining more right-of-way.
- Conclusion
  - Alternative #3 continues to rank the same or even higher than the original Concept 3C upon which it is based. The Purpose and Need Statement (first eight evaluation criteria) is better addressed, while the construction cost, right-of-way take and maintenance increase slightly due to additional roadways.

#### **Alternative #4**

Unique features of Alternative #4 are the connection between James Boulevard and Lemon Spur Road, and Riverside Drive extension south of Egan Drive. Figure 5-21 shows a single-line scaled sketch as well as the key elements of this alternative, and is based on the discussions with the CAC members and project team.

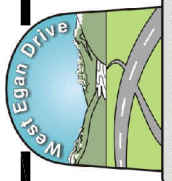


- ALTERNATIVE #4**
- At-Grade Intersections at Jenseine St and Industrial Blvd
  - Right-In/Right-Out at Vintage Blvd/Glacier Hwy (North)
  - Extend Riverside Dr. South of Egan Dr
  - Allow Eastbound U-Turns at Riverside Dr
  - James Blvd/Lemon Spur Rd Connection
  - Right-In/Right-Out at Glacier Hwy (Airport)/Trout St/Old Dairy Rd
  - Yandukin Dr. - Full Signalized Access
  - Add Lanes at All At-Grade Intersections

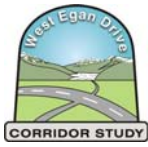
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**MOST VIABLE ALTERNATIVES**  
**ALTERNATIVE #4**  
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- Traffic Considerations
  - The Riverside connection between Egan Drive and Glacier Highway (North) and the James Boulevard/Glacier Highway (Airport)/Lemon Spur Road connection will reduce traffic volumes at the intersection of Mendenhall Loop Road/Egan Drive. However, because the a.m. peak hour southbound left-turning traffic from Mendenhall Loop Road to Egan Drive has the largest influence on the intersection traffic operations and therefore lane configurations, this intersection would require an additional southbound through lane and the westbound to northbound free right-turn lane. The latter continues to create the critical weaving section between Mendenhall Loop Road/Egan Drive and Mendenhall Loop Road/Mall Road.
  - The additional leg at the Riverside Drive/Egan Drive intersection will require an additional phase at this signal, resulting in longer delays.
  - Providing full access at the Egan Drive/Yandukin Drive intersection provides an indirect link between Old Glacier Highway and the commercial areas north of the airport.
  - This concept adds more signals to Egan Drive, which will increase delay and potentially increases rear-end accidents. However, angle accidents at the existing unsignalized of Egan Drive/Vintage Boulevard/Glacier Highway (North) should decrease with the restriction to right-in/right-out.
  - Under this alternative, the existing signalized intersections of Egan Drive/Mendenhall Loop Road and Egan Drive/Glacier Highway (McNugget) may decrease in safety due to an increase in traffic volumes without a corresponding reduction in potential conflicts. This would directly and adversely affect the ability of this alternative to meet the Purpose and Need elements of the project. It is therefore recommended that additional investigation should be conducted during the next task to identify opportunities to address the existing safety concerns.
- Non-Motorized Users and Public Transit
  - Large high-volume, at-grade intersections can be unfriendly to pedestrians and bicycles.
- Environmental and Planning
  - The Riverside Drive extension is not part of the AWTP or the Riverside Drive corridor plan and may change long-term planning assumptions.
  - Right In/Right Out at Trout and Old Dairy will be a deterrent to business in that area.
  - In general, improved access to most businesses. Commuting is hindered by more signals, but helped by Riverside connection and taking traffic off of Egan by connecting James Boulevard to Lemon Spur Road.



- Alternate #4 has some negative environmental impacts at widened intersections, and the relatively large impacts north of Egan associated with the James Boulevard/Lemon Spur Road connection.
  
- Practical Considerations
  - The construction costs of Alternative #4 is approximately \$13 million and requires right of way (especially along the new James Boulevard/Lemon Spur Road connection), along with an increase in maintenance due to more new road. Construction would pose only limited impacts to traffic.
  - Roadway widening along Egan Drive will be to the outside to preserve the median for future transportation needs.
  
- Conclusion
  - Alternative #4 ranks higher than the at-grade intersection concepts that were originally evaluated. The Purpose and Need Statement (first eight evaluation criteria) is better addressed, but addressing the safety issues requires special attention.