

Section 9 Final Report Chapter 6 Appendix

Appendix B: Constructability, Construction Costs, Maintenance Costs,
Right-of-Way Requirements, and Environmental Impacts Alternatives

1-4



Quantity Calculation and Evaluation Methodology:

Construction quantities were calculated for selected major items as shown in Cost Opinion Summaries 1-4. The method involved using the cad layouts and applying design profiles for all elevated roadways following AASHTO and DOT&PF design criteria. Quantities were “lumped” together where possible to simplify calculations. For instance Item 2 NEW PAVEMENT STRUCTURE consists of a typical section of pavement (4” mainline and 2” side roads), 6” crushed base, and 32”/34” select, respectively. The quantity is then measured from the cad layouts, converted to square yards, and a composite unit price applied to calculate the total. In this fashion all linear and area quantities were taken off the cad plan view layouts.

Earthwork quantities were calculated using InRoads design software, and applying plan, profile, template and slope information to the model.

Bridge structures dimensions were developed from the plan and profile data and measured on a plan view area basis. Typical unit prices were then applied for 3 categories of superstructure, depending on span length.

Unit prices were obtained from a variety of sources, including historical information from CH2MHILL files, historical data bases, comparable projects, local DOT&PF knowledge and assumptions, and engineering judgement. Lump sum prices were similarly estimated using historic and comparable data, and consultation with DOT&PF. Comparable projects included recently completed diamond interchange projects on the Parks Highway near Wasilla. General prices of signalization was a result of consultation with DOT&PF.

Finally, **Construction costs** were obtained using the Cost Opinion Spreadsheets that calculated totals for roadways, structures and other items, utilities, right-of-way, and engineering.

Right-Of Way quantities were derived by comparing construction footprint areas (slope limits, pavement edges or back of sidewalk) in Autocad to CBJ parcel information. A spreadsheet was created and parcel data obtained from CBJ was entered. A percent “take” was then estimated for each affected parcel and entered into the spreadsheet. The present value of land and buildings (if any) as well as the total value was obtained from the online CBJ tax assessment database and entered into the spreadsheet. Finally, formula were applied that calculated costs of estimated takes for each alternative. Judgements were made as to whether a given take could be made by purchasing just land, or requiring the purchase of land and buildings, or if the entire property would have to be purchased.

Wetland impact areas were calculated using Autocad by comparing the construction footprint to the wetlands previously documented.

Evaluation Criteria 12 Constructability

Constructability as defined in this study is a measure of impact on traffic flow. In practice the impact is at least somewhat mitigated by traffic control measures, including temporary detours, signing, signals and other devices. The cost for these measures is then an indicator

of the level of constructability, and is based on comparable projects, experience and consultation. For the evaluation worksheets, the Nodes/ Areas/System values remain intuitive and have not been changed. The System Totals are based of values quantified in the Cost Opinion Spreadsheets.

Evaluation Criteria 15 Construction Costs

For the evaluation worksheets, the Nodes/ Areas/System values remain intuitive and have not been changed. Construction costs have been quantified for each alternative, and System Totals updated.

Evaluation Criteria 16 Maintenance Requirements.

Maintenance requirements have not been quantified, as the reconnaissance level of study does not lend itself to this analysis without further work, and because doing so would not material add to the decision process. In general, Alternatives 1, 2 and 3 are very similar from a maintenance standpoint, and quite different than Alternative 4.

Evaluation Criteria 18 Right-of-Way Requirements

Right-of-Way Requirements have been calculated and itemized for each parcel impacted. The evaluation spreadsheets have been updated for ROW cost estimates and System Totals only. For the evaluation worksheets, the Nodes/ Areas/System values remain intuitive and have not been changed.

Cost Opinion Summaries 1-4, Right-of-Way Impact Drawings for Alternative 1-4, and the Wetland impact area summary follows.

WEDCOR-Task 6

Cost Opinion Summary, Alternative 1

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY COSTS					
1	EARTHWORK Embankment	CU YD	607,421	\$7.00	\$ 4,252,000
2	NEW PAVEMENT STRUCTURE	SQ YD	435,327	\$18.00	\$ 7,836,000
3	PAVEMENT REMOVAL	SQ YD	435,327	\$2.00	\$ 871,000
4	CONCRETE MEDIAN BARRIER	L.F.	14,392	\$75.00	\$ 1,079,000
5	GUARDRAIL	L.F.	16,600	\$30.00	\$ 498,000
6	DRAINAGE, Cross Culverts	L.S.	2 % of Items 1-5	N/A	\$ 291,000
	DRAINAGE, Storm Drain System	L.S.	1	\$900,000.00	\$ 900,000
7	CURB & GUTTER	L.F.	58658	\$20.00	\$ 1,173,000
8	SIDEWALK	SQ YD	52140	\$45.00	\$ 2,346,000
9	LIGHTING SYSTEM	L.S.	1	\$800,000.00	\$ 800,000
	SIGNALIZATION	L.S.	1	\$5,200,000.00	\$ 5,200,000
10	SIGNING/PVM'T MARKINGS	L.S.	5 % of Items 1-5	N/A	\$ 727,000
11	FIELD OFFICE AND LABORATORY	EA	1	\$25,000	\$ 25,000
12	INCIDENTALS Clearing, Fencing, Landscaping, Surveying, Slope Treatment, etc.	L.S.	20 % of Items 1-5	N/A	\$ 2,907,000
Subtotal Roadway Costs (Items 1-12)					\$ 28,905,000
STRUCTURE COSTS					
13	NEW BRIDGES				
	Deck Bulb Tee (140' max.)	SQ FT	28,572	\$200.00	\$ 5,714,000
	Steel Girder or Concrete Supergirders (200' max.)	SQ FT	58,401	\$250.00	\$ 14,600,000
	Steel Girder or Balanced Cantilever Segmental	SQ FT	52,264	\$320.00	\$ 16,724,000
14	RETAINING WALLS				
	Height >15'	SQ FT	38,750	\$40.00	\$ 1,550,000
15	BRIDGE REMOVALS	SQ FT	13,330	\$10.00	\$ 133,000
Subtotal Structure Costs (Items 13-15)					\$ 38,721,000
Total Roadway and Structure Costs (Items 1-15)					\$ 67,626,000
16	MAINTENANCE OF TRAFFIC	L.S.	5 % of Items 1-13	N/A	\$ 3,381,000
17	MOBILIZATION	L.S.	5 % of Items 1-13	N/A	\$ 3,381,000
18	MITIGATION Wetland, Noise, Detention, etc.				
19	ROADWAY AND BRIDGE CONTINGENCY	L.S.	10 % of items 1-13	N/A	\$ 6,763,000
Total Construction Costs (Items 1-19)					\$ 81,151,000
20	TYPICAL UTILITIES	L.S.	2 % of Items 1-13		\$ 1,353,000
21	RIGHT-OF-WAY	L.S.			\$ 12,068,000
22	RELOCATIONS & COMPENSATION	VARIABLE			\$ -
Program Costs (Items 1-22)					\$ 94,572,000
23	PHASE 2 ENGINEERING	L.S.	7 % of Items 1-20	N/A	\$ 5,775,000
24	PHASE 4 ENGINEERING (with ICAP)	L.S.	15 % of Items 1-20	N/A	\$ 12,376,000
Engineering Costs (Items 23-24)					\$ 18,151,000
TOTAL PROJECT COST					say \$ 112,723,000

WEDCOR-Task 6

Cost Opinion Summary, Alternative 2

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY COSTS					
1	EARTHWORK Embankment	CU YD	547,861	\$7.00	\$ 3,835,000
2	NEW PAVEMENT STRUCTURE	SQ YD	426,184	\$18.00	\$ 7,671,000
3	PAVEMENT REMOVAL	SQ YD	426,184	\$2.00	\$ 852,000
4	CONCRETE MEDIAN BARRIER	L.F.	13,491	\$75.00	\$ 1,012,000
5	GUARDRAIL	L.F.	18,800	\$30.00	\$ 564,000
6	DRAINAGE, Cross Culverts	L.S.	2 % of Items 1-5	N/A	\$ 279,000
	DRAINAGE, Storm Drain System	L.S.	1	\$900,000.00	\$ 900,000
7	CURB & GUTTER	L.F.	51428	\$20.00	\$ 1,029,000
8	SIDEWALK	SQ YD	45714	\$45.00	\$ 2,057,000
9	LIGHTING SYSTEM	L.S.	1	\$800,000.00	\$ 800,000
	SIGNALIZATION	L.S.	1	\$4,600,000.00	\$ 4,600,000
10	SIGNING/PVM'T MARKINGS	L.S.	5 % of Items 1-5	N/A	\$ 697,000
11	FIELD OFFICE AND LABORATORY	EA	1	\$25,000	\$ 25,000
12	INCIDENTALS Clearing, Fencing, Landscaping, Surveying, Slope Treatment, etc.	L.S.	20 % of Items 1-5	N/A	\$ 2,787,000
Subtotal Roadway Costs (Items 1-12)					\$ 27,108,000
STRUCTURE COSTS					
13	NEW BRIDGES				
	Deck Bulb Tee (140' max.)	SQ FT	60,201	\$200.00	\$ 12,040,000
	Steel Girder or Concrete Supergirders (200' max.)	SQ FT	29,110	\$250.00	\$ 7,278,000
	Steel Girder or Balanced Cantilever Segmental	SQ FT	52,264	\$320.00	\$ 16,724,000
14	RETAINING WALLS				
	Height >15'	SQ FT	18,500	\$40.00	\$ 740,000
15	BRIDGE REMOVALS	SQ FT	13,330	\$10.00	\$ 133,000
Subtotal Structure Costs (Items 13-15)					\$ 36,915,000
Total Roadway and Structure Costs (Items 1-15)					\$ 64,023,000
16	MAINTENANCE OF TRAFFIC	L.S.	5 % of Items 1-13	N/A	\$ 3,201,000
17	MOBILIZATION	L.S.	5 % of Items 1-13	N/A	\$ 3,201,000
18	MITIGATION Wetland, Noise, Detention, etc.				
19	ROADWAY AND BRIDGE CONTINGENCY	L.S.	10 % of items 1-13	N/A	\$ 6,402,000
Total Construction Costs (Items 1-19)					\$ 76,827,000
20	TYPICAL UTILITIES	L.S.	2 % of Items 1-13		\$ 1,280,000
21	RIGHT-OF-WAY	L.S.			\$ 14,351,000
22	RELOCATIONS & COMPENSATION	VARIABLE			\$ -
Program Costs (Items 1-22)					\$ 92,458,000
23	PHASE 2 ENGINEERING	L.S.	7 % of Items 1-20	N/A	\$ 5,467,000
24	PHASE 4 ENGINEERING (with ICAP)	L.S.	15 % of Items 1-20	N/A	\$ 11,716,000
Engineering Costs (Items 23-24)					\$ 17,183,000
TOTAL PROJECT COST					say \$ 109,641,000

WEDCOR-Task 6

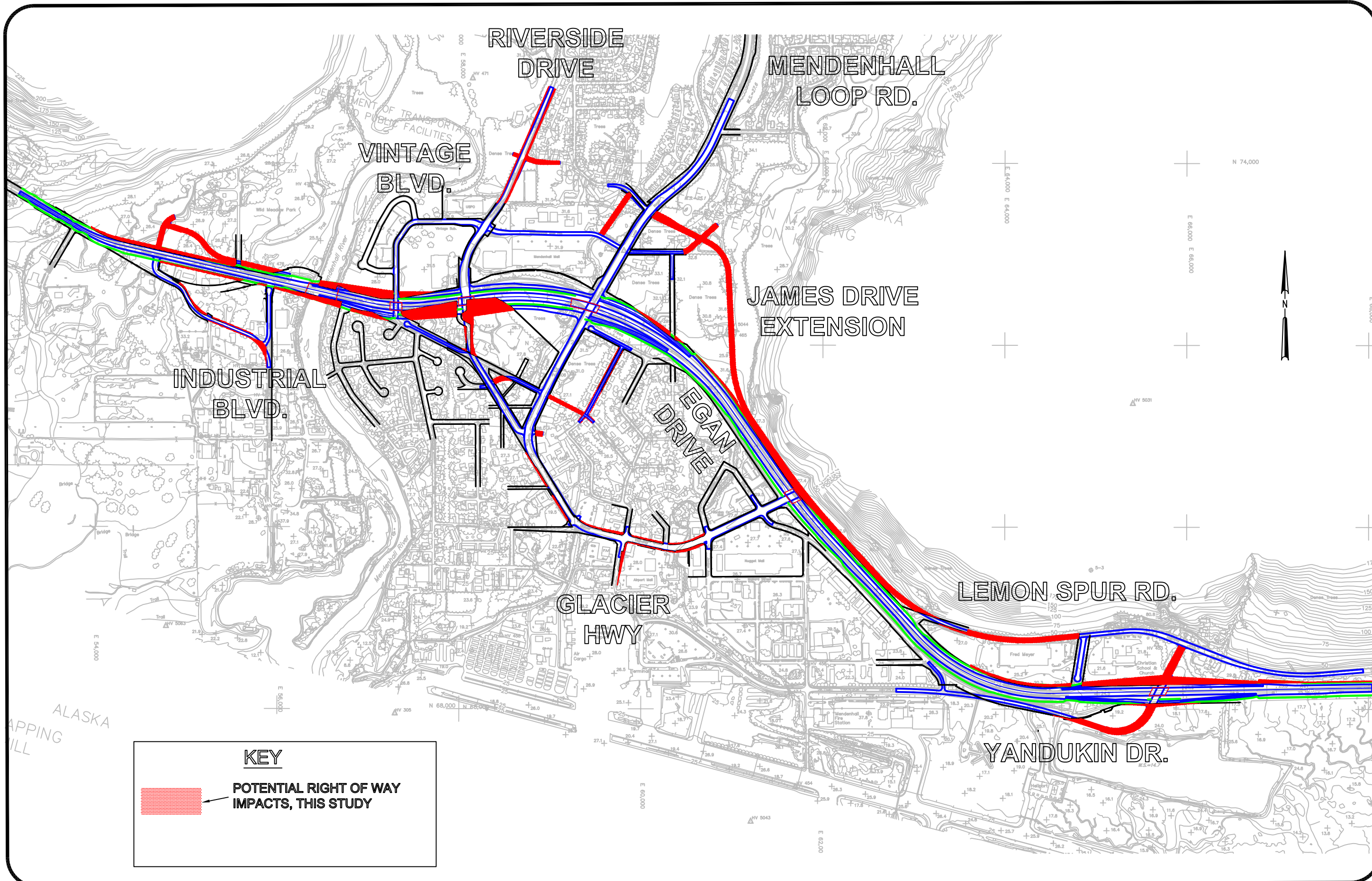
Cost Opinion Summary, Alternative 3

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY COSTS					
1	EARTHWORK Embankment	CU YD	664,030	\$7.00	\$ 4,648,000
2	NEW PAVEMENT STRUCTURE	SQ YD	402,780	\$18.00	\$ 7,250,000
3	PAVEMENT REMOVAL	SQ YD	402,780	\$2.00	\$ 806,000
4	CONCRETE MEDIAN BARRIER	L.F.	13,411	\$75.00	\$ 1,006,000
5	GUARDRAIL	L.F.	19,200	\$30.00	\$ 576,000
6	DRAINAGE, Cross Culverts	L.S.	2 % of Items 1-5	N/A	\$ 286,000
	DRAINAGE, Storm Drain System	L.S.	1	\$900,000.00	\$ 900,000
7	CURB & GUTTER	L.F.	44786	\$20.00	\$ 896,000
8	SIDEWALK	SQ YD	39810	\$45.00	\$ 1,791,000
9	LIGHTING SYSTEM	L.S.	1	\$800,000.00	\$ 800,000
	SIGNALIZATION	L.S.	1	\$4,000,000.00	\$ 4,000,000
10	SIGNING/PVM'T MARKINGS	L.S.	5 % of Items 1-5	N/A	\$ 714,000
11	FIELD OFFICE AND LABORATORY	EA	1	\$25,000	\$ 25,000
12	INCIDENTALS Clearing, Fencing, Landscaping, Surveying, Slope Treatment, etc.	L.S.	20 % of Items 1-5	N/A	\$ 2,857,000
Subtotal Roadway Costs (Items 1-12)					\$ 26,555,000
STRUCTURE COSTS					
13	NEW BRIDGES				
	Deck Bulb Tee (140' max.)	SQ FT	0	\$200.00	\$ -
	Steel Girder or Concrete Supergirders (200' max.)	SQ FT	71,916	\$250.00	\$ 17,979,000
	Steel Girder or Balanced Cantilever Segmental	SQ FT	34,717	\$320.00	\$ 11,109,000
14	RETAINING WALLS				
	Height >15'	SQ FT	8,450	\$40.00	\$ 338,000
15	BRIDGE REMOVALS	SQ FT	13,330	\$10.00	\$ 133,000
Subtotal Structure Costs (Items 13-15)					\$ 29,559,000
Total Roadway and Structure Costs (Items 1-15)					\$ 56,114,000
16	MAINTENANCE OF TRAFFIC	L.S.	5 % of Items 1-13	N/A	\$ 2,806,000
17	MOBILIZATION	L.S.	5 % of Items 1-13	N/A	\$ 2,806,000
18	MITIGATION Wetland, Noise, Detention, etc.				
19	ROADWAY AND BRIDGE CONTINGENCY	L.S.	10 % of items 1-13	N/A	\$ 5,611,000
Total Construction Costs (Items 1-19)					\$ 67,337,000
20	TYPICAL UTILITIES	L.S.	2 % of Items 1-13		\$ 1,122,000
21	RIGHT-OF-WAY	L.S.			\$ 12,183,000
22	RELOCATIONS & COMPENSATION	VARIABLE			\$ -
Program Costs (Items 1-22)					\$ 80,642,000
23	PHASE 2 ENGINEERING	L.S.	7 % of Items 1-20	N/A	\$ 4,792,000
24	PHASE 4 ENGINEERING (with ICAP)	L.S.	15 % of Items 1-20	N/A	\$ 10,269,000
Engineering Costs (Items 23-24)					\$ 15,061,000
TOTAL PROJECT COST				say	\$ 95,703,000


WEDCOR-Task 6

Cost Opinion Summary, Alternative 4

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	TOTAL
ROADWAY COSTS					
1	EARTHWORK Embankment	CU YD	0	\$7.00	\$ -
2	NEW PAVEMENT STRUCTURE	SQ YD	377,810	\$18.00	\$ 6,801,000
3	PAVEMENT REMOVAL	SQ YD	377,810	\$2.00	\$ 756,000
4	CONCRETE MEDIAN BARRIER	L.F.	0	\$75.00	\$ -
5	GUARDRAIL	L.F.	800	\$30.00	\$ 24,000
6	DRAINAGE, Cross Culverts	L.S.	2 % of Items 1-5	N/A	\$ 152,000
	DRAINAGE, Storm Drain System	L.S.	1	\$900,000.00	\$ 900,000
7	CURB & GUTTER	L.F.	47068	\$20.00	\$ 941,000
8	SIDEWALK	SQ YD	41838	\$45.00	\$ 1,883,000
9	LIGHTING SYSTEM	L.S.	1	\$800,000.00	\$ 800,000
	SIGNALIZATION	L.S.	1	\$3,800,000.00	\$ 3,800,000
10	SIGNING/PVM'T MARKINGS	L.S.	5 % of Items 1-5	N/A	\$ 379,000
11	FIELD OFFICE AND LABORATORY	EA	1	\$25,000	\$ 25,000
12	INCIDENTALS Clearing, Fencing, Landscaping, Surveying, Slope Treatment, etc.	L.S.	20 % of Items 1-5	N/A	\$ 1,516,000
Subtotal Roadway Costs (Items 1-12)					\$ 17,977,000
STRUCTURE COSTS					
13	NEW BRIDGES				
	Deck Bulb Tee (140' max.)	SQ FT	0	\$200.00	\$ -
	Steel Girder or Concrete Supergirders (200' max.)	SQ FT	0	\$250.00	\$ -
	Steel Girder or Balanced Cantilever Segmental	SQ FT	29,920	\$320.00	\$ 9,574,000
14	RETAINING WALLS				
	Height >15'	SQ FT	0	\$40.00	\$ -
15	BRIDGE REMOVALS	SQ FT	13,330	\$10.00	\$ 133,000
Subtotal Structure Costs (Items 13-15)					\$ 9,707,000
Total Roadway and Structure Costs (Items 1-15)					\$ 27,684,000
16	MAINTENANCE OF TRAFFIC	L.S.	5 % of Items 1-13	N/A	\$ 1,384,000
17	MOBILIZATION	L.S.	5 % of Items 1-13	N/A	\$ 1,384,000
18	MITIGATION Wetland, Noise, Detention, etc.				
19	ROADWAY AND BRIDGE CONTINGENCY	L.S.	10 % of items 1-13	N/A	\$ 2,768,000
Total Construction Costs (Items 1-19)					\$ 33,220,000
20	TYPICAL UTILITIES	L.S.	2 % of Items 1-13		\$ 554,000
21	RIGHT-OF-WAY	L.S.			\$ 4,977,000
22	RELOCATIONS & COMPENSATION	VARIABLE			\$ -
Program Costs (Items 1-22)					\$ 38,751,000
23	PHASE 2 ENGINEERING	L.S.	7 % of Items 1-20	N/A	\$ 2,364,000
24	PHASE 4 ENGINEERING (with ICAP)	L.S.	15 % of Items 1-20	N/A	\$ 5,066,000
Engineering Costs (Items 23-24)					\$ 7,430,000
TOTAL PROJECT COST				say	\$ 46,181,000

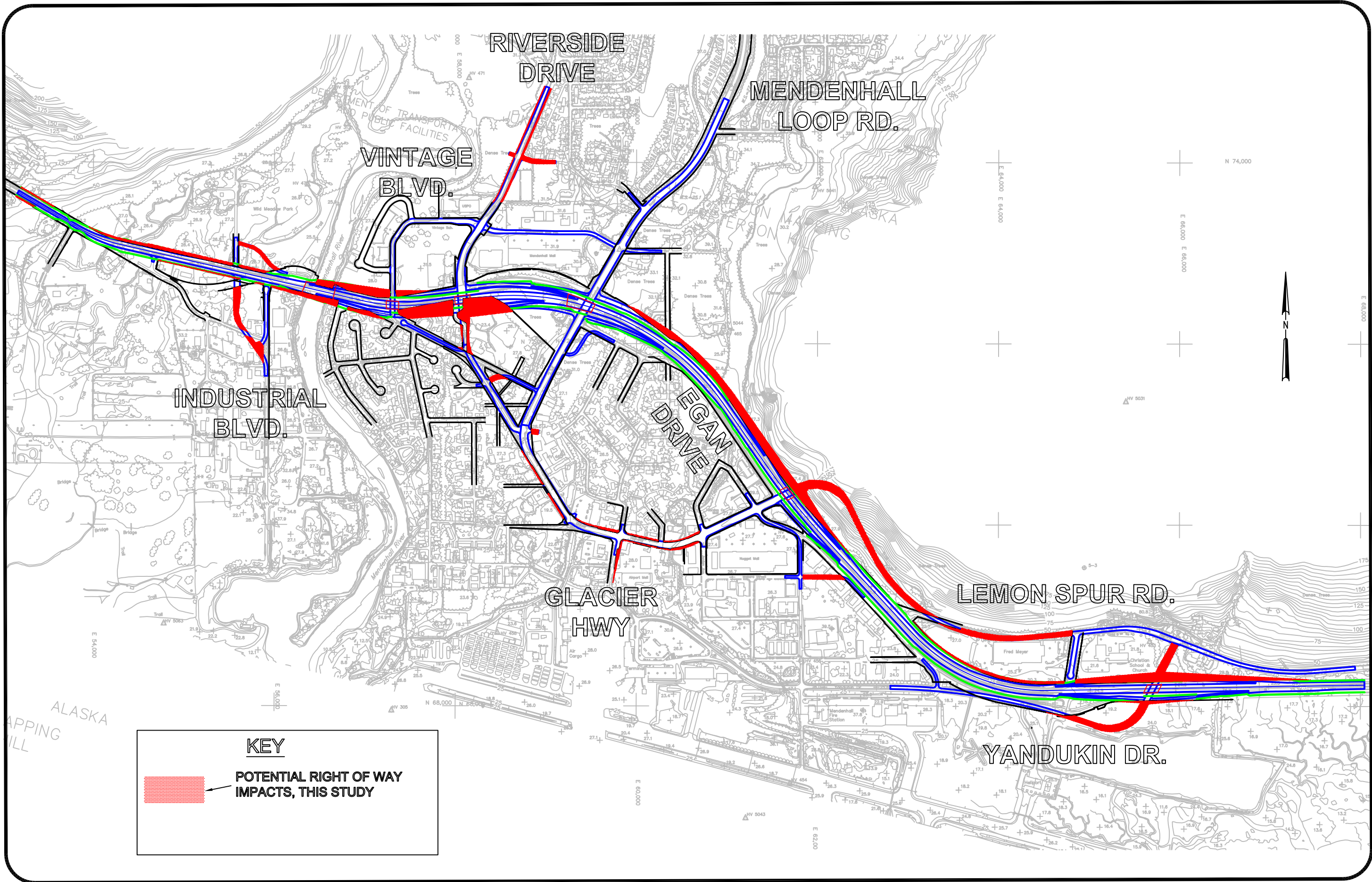


KEY


 POTENTIAL RIGHT OF WAY IMPACTS, THIS STUDY

No Scale

ROW IMPACTS ALTERNATIVE #1		APPENDIX B	
West Egan Drive Corridor Study		DATE FEB 2003	SHEET 1 of 4
Alaska Department of Transportation & Public Facilities			

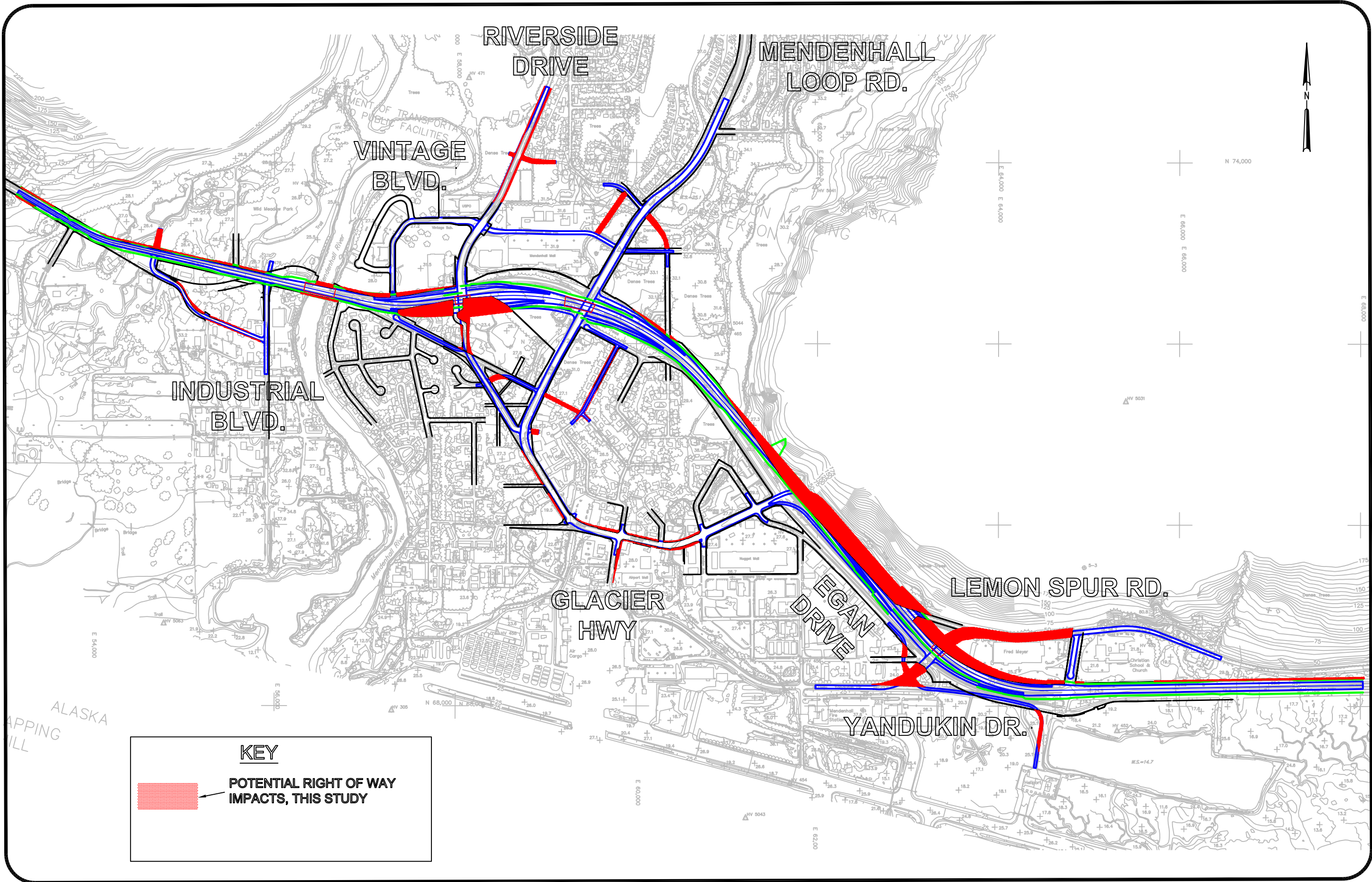


KEY


 POTENTIAL RIGHT OF WAY IMPACTS, THIS STUDY

No Scale

ROW IMPACTS ALTERNATIVE #2		APPENDIX B	
West Egan Drive Corridor Study		DATE FEB 2003	SHEET 2 of 4
Alaska Department of Transportation & Public Facilities			

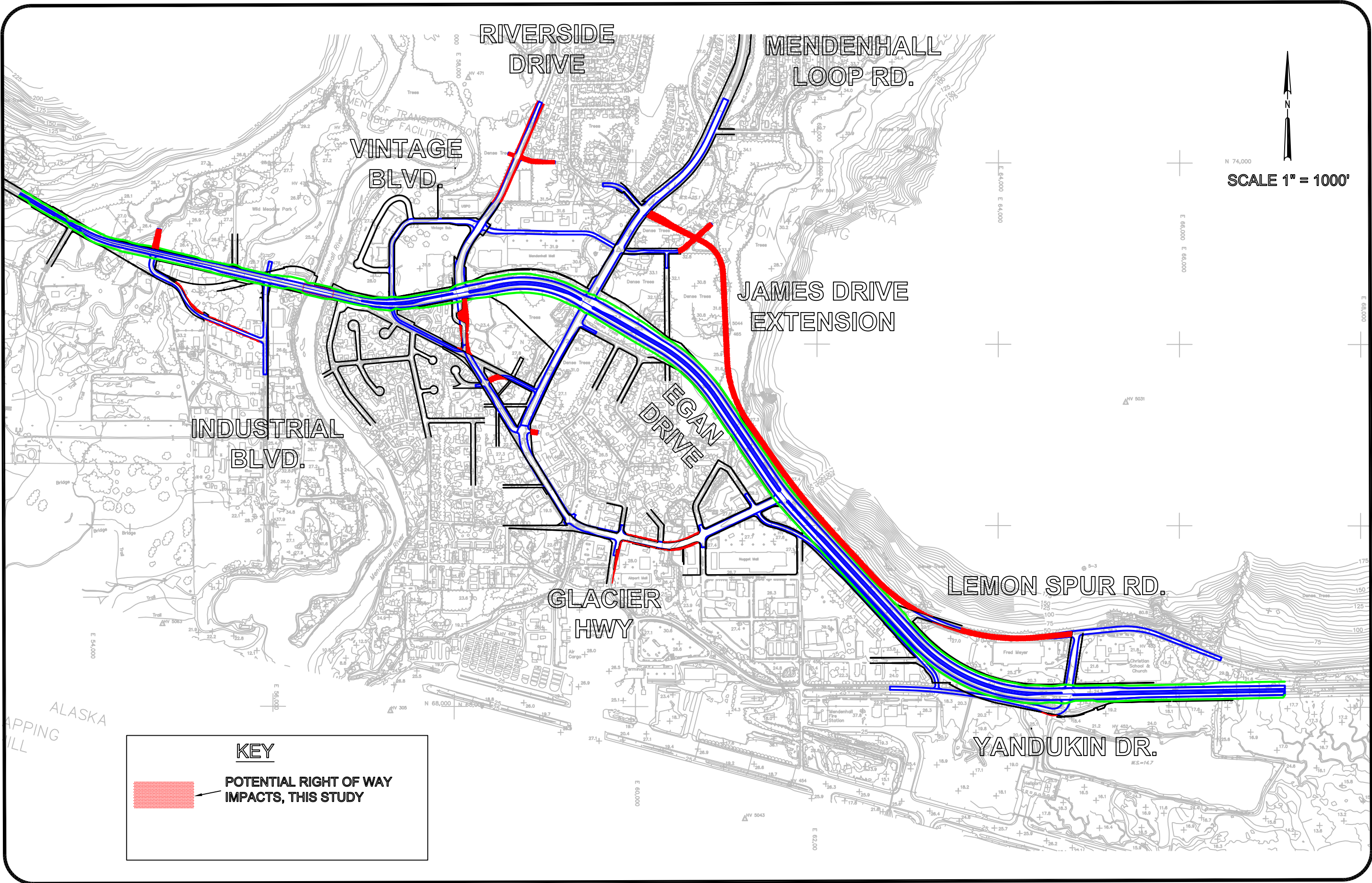


KEY

 POTENTIAL RIGHT OF WAY IMPACTS, THIS STUDY


No Scale

ROW IMPACTS ALTERNATIVE #3		APPENDIX B	
West Egan Drive Corridor Study		DATE FEB 2003	SHEET 3 of 4
Alaska Department of Transportation & Public Facilities			



N
 N 74,000
 SCALE 1" = 1000'

KEY

 POTENTIAL RIGHT OF WAY IMPACTS, THIS STUDY

ROW IMPACTS ALTERNATIVE #4		APPENDIX B	
West Egan Drive Corridor Study		DATE FEB 2003	SHEET 4 of 4
Alaska Department of Transportation & Public Facilities			

Environmental Evaluation of Four Viable Alternatives:

Criteria 9 (Environmental Issues), 10 (consistence with other plans), and 11 (compatibility with the built environment)

This appendix summarizes the methods used to evaluate the four alternatives considered most viable. The environmental criteria evaluated in the main report include;

Criteria 9. Environmental

Criteria 10. Consistency with other plans, and

Criteria 11. Built Environment.

The criteria were broken into sub criteria where necessary in order to consider potential impacts to the affected environment.¹

The main criteria and sub criteria are listed in Table 1.

TABLE 1
Evaluation Criteria Considered

Criteria	Sub Criteria
9. Environmental issues	9A. Wetlands, creeks, streams, ponds--flood storage and water quality
	9B. Wetlands, creeks, streams, ponds--fish habitat
	9C. Uplands (trees and wildlife habitat)
10. Consistency with other plans	
11. Consistency with the Built Environment	11A. Residential Use (social, land use/zoning, economic impacts, noise, light emissions, aesthetics)
	11B. Commercial (land use/zoning, economics)
	11C. Churches
	11D. Recreation (aesthetics, use, noise, 4(f))
	11F. Environmental Justice
	11G. Environmental health (air quality, water quality, waste)

In general, where there were quantitative data (acreage of wetlands), the comparison was quantitative. For most other criteria, only qualitative evaluations were possible.

¹ Per FHWA Technical Advisory T 6640.8A

Construction impacts were studied, however, they will depend upon what type of phasing is possible for each alternative, and therefore construction impacts have not been included in this assessment. Following is a brief summary of each evaluation criteria and the method used in determining each alternative's potential for impact.

Methodology Used

Environmental Impacts

Within the WEDCOR area, natural habitat is limited. With the exception of the Mendenhall River, the aquatic habitats are small. Duck Creek and Jordan Creek are highly urbanized streams that have undergone much channelization and rerouting to allow for the urban and commercial activities now present. There are multiple small wetlands that are primarily remnant wetlands associated with the vast Mendenhall Glacier Wetlands upon which now much of the Mendenhall valley is built. Additionally is the forested slope of Thunder Mountain that rises north of the project area from Lemon Spur Road to Teslin.

In evaluating what environmental impacts could result from the four project alternatives, three aspects of the environment were considered the most definable:

- Wetlands – their ability to store and manage water levels, their impact on hydraulics of streams and creeks, and water quality.
- Wetlands, streams, creeks, and ponds – Fish habitat
- Uplands – Important tree stands and habitat for wildlife.

These components of the environment have been identified as Criteria 9A, 9B, and 9C, respectively.

The methodology used in evaluating the alternatives against these criteria included:

- Quantitatively determining the acreage of wetlands affected by each alternative (GIS layers of higher and lower valued wetlands supplied by CBJ were used in this assessment).
- Qualitatively evaluating the value of each area as fish habitat or as flood control capability by conferring with members of the Mendenhall Watershed Partnership and the Duck Creek Advisory Group and reviewing available resource descriptions as were used in the prior assessments.
- Identifying the important tree stands and wildlife habitat using aerial photography and discussions with resource agency staff, the members of the Mendenhall Watershed Partnership, and members of the Duck Creek advisory group.

Consistency with other plans

There have been and continue to be plans developed within the WEDCOR project area and vicinity that, if implemented, could increase or change traffic patterns. The following references and plans were included in evaluating the four viable project alternatives' consistency with other plans.

- CBJ Area Wide Transportation Plan

-
- CBJ Community Planning Division
 - Riverside Drive Corridor Study
 - Juneau Non-Motorized Transportation Plan
 - Juneau's Wetland Management Plan
 - Under Thunder Pathway Proposal.
 - CBJ Property Assessment/Zoning/Land Use plans
 - CJB Comprehensive Plan
 - DOT's evaluation of Glacier Highway from Engineer's Cutoff/Fritz Cove to the Auke Bay Ferry Terminal
 - DOT Planning Group
 - Pederson Hill Development Plan
 - Lena Point Development Plan
 - Lena Point NOAA facility
 - University of Southeast Alaska Master Plan

Documents were reviewed when available. Additionally, individuals with DOT and CBJ were interviewed to discuss aspects of the plans that are not yet finalized. While the potential for "Juneau Access" and a "Second Crossing of Gastineau Channel" are unknown at this time, these possibilities were also considered in the evaluation of the alternative's long-term consistency with long-range plans.

Consistency with the Built Environment

As shown in Table 1, the built environment was broken down in to six sub-criteria as follows;

Residential Use

The residential environment was evaluated against the aspects of social environment, loss of residential dwellings, neighborhood and access changes, light, noise, and views.

Commercial Use

The commercial aspects of the WEDCOR area that were considered were access to businesses and loss of business property either built or parking.

Churches

This is a simple criterion determining if the project alternative would take any church property.

Recreational Use

The WEDCOR area has only one defined and established park, the Skate Park off Mendenhall Loop Road. However throughout the corridor area trails used for biking, jogging and walking. One of the important goals and intents of any of the project alternatives is to maintain or improve non-motorized access throughout the corridor. Therefore, while all alternative affect the existing trails in one way or another, the assumption is that in the design phase, trails would be provided that will replace in kind or better the existing system.

Environmental Justice

The properties affected by the proposed alternative were evaluated for possible environmental justice issues. The area is primarily a right-of-way and equally affects buildings, residences, and commercial properties. While churches have been avoided as much as possible, there are no other entities that has been avoided or targeted for impacts.

Environmental Health

The aspects of environmental health that pertinent to this proposed project are air quality, storm water quantity and quality, and snow management/street treatment. Again, this has been evaluated qualitatively.

Evaluation Results

Environmental Impacts

Following is a discussion of each criterion assessed under the environmental impact categories. A general discussion of the importance of the criterion to the project vicinity in concert with the relative severity of impacts related to implementation of each alternative is summarized.

Criterion 9A—Wetlands: flood control, hydraulics, and water quality

The range of estimated acreage affected by each alternative is from about 8.5 acres for Alternative #1 to 3.4 acres for Alternative #4. The wetlands within the project area are, as discussed above, primarily remnant wetlands along the edge of existing roadways. As wetlands are filled, flood control capacity is lost and stream hydrology changes because of lost of water storage capacity. All three alternatives with a grade separated Egan Drive can result in filled wetlands and changes in flood control and stream hydrology. For that reason, all three grade-separated alternatives are rated poor or fair. Of the three grade-separated concepts, Alternative #3 would affect the least amount of wetlands. Alternative #4 affects less wetland habitat but, the road way connecting Lemon Spur Road with Mendenhall Loop Road would result in impacts to the flood control and hydraulics of wetland systems in the important remnant wetland north of Egan Drive.

Alternative # 3 would have the least impact on the flood control, hydraulics, and water quality aspects of wetlands in the project vicinity.

Criterion 9B—Wetlands, streams, creeks, and ponds; fish habitat

Fish habitat within the project vicinity is present within the Mendenhall River, Duck Creek, and Jordan Creek. Because all alternatives include a new or expanded bridge over the Mendenhall River, fish habitat within that system will be similarly affected. Environmental constraints dictated through the NEPA and permitting process will guide bridge replacement to avoid, minimize, and mitigate significant fish habitat impacts.

Duck Creek and Jordan Creek, including the Duck Creek ponds along Mendenhall Loop road are the areas focused on in the assessment of potential fish habitat impacts from WEDCOR project alternatives. The location of Duck Creek along Mendenhall Loop Road is within all of the construction zones of all Alternatives although there are efforts to avoid wherever possible. In general, raised roadbeds under Alternatives 1 through 3, will encroach into the creeks and their buffers more than would occur under Alternative #4. The

proposed road linking Lemon Spur road with James Blvd is part of both Alternatives 1 and 4. This project component will result in a new crossing of Jordan Creek and has the potential to impact the important Duck Creek fish rearing ponds.

Because the creeks and ponds in this urbanized setting are marginal habitat, many efforts are underway to improve that habitat. The Mendenhall Watershed Partnership and Duck Creek Advisory Group have been working for years to develop mitigation projects that would improve these fish streams. Changes to Duck Creek are being considered as mitigation for some identified Juneau International Airport development impacts. All of the WEDCOR alternatives under consideration would result in new roadways within wetlands and Duck Creek and Jordan Creek areas that have been examined for possible mitigation concepts. The mitigation and habitat improvement options will be limited or changed under all alternatives being considered.

Criterion 9C—Uplands

There is limited upland habitat that is sensitive or valued habitat. The only area identified is along the proposed roadway that would link Lemon Spur Road with James Blvd. There is also a large stand of old growth trees that would be taken out with the construction with the small spur road between James and Teslin. Only Alternative #3 avoids this upland area.

Criterion 10—Consistency with Other Planning Efforts

In general, all alternatives are consistent with the AWTP with the exception of Alternative 4 that does not include the recommended raised intersections within the project corridor. Because the AWTP was not specific regarding which intersections should be raised, however, Alternative 4 is not considered to be inconsistent with that overall plan.

All alternatives would also complete Riverside Drive through to Glacier Highway (north). This will improve access and mobility in the Riverside Drive Corridor, including neighborhood access both north and south of Egan. Further pressure on that northern section of road will continue the discussions of whether to directly link Riverside Drive to Back Loop or to build a new crossing over the Mendenhall River. These issues are not inconsistent with other plans including the Dimond Complex.

The current level of concept design does not identify trail replacements. We have assumed that all the trails will be replaced and improved, where possible, in keeping with Juneau's Non-motorized Transportation Plan. Provisions will be made that would allow the Under Thunder trail to proceed.

The one aspect of the WEDCOR alternatives under consideration that is inconsistent with other plans is the continued connection of Del Rae to Mendenhall Loop Road. Under the current DOT plans for Duck Creek mitigation is to culdesac that street and remove the existing failing culvert to daylight that section of Duck Creek.

11A—Residential Use

This discussion is specific to the quality of life in residential areas with the implementation of alternatives. It does not address the traffic issues. The aspects evaluated include the taking of residential property (economic and land use issues), the social environment, noise, light, and aesthetics.

In general, all elevated Egan Drive alternatives take residential property, will increase the noise and light levels in neighboring areas, and will slightly affect the view from homes located on Glacier Highway east of Lemon Spur Road. All alternatives will affect the neighborhood south of Egan with the completion of Riverside Drive.

11B—Commercial Use

The primary issues related to commercial use are the ease of access to businesses following alternative implementation and the take of commercial property. The assessment of business access is somewhat qualitative when there are slight changes. How individuals view small access changes will determine whether or not a business will lose or gain customers. The changes at Industrial Blvd are an example. While a customer may have to travel slightly longer to access their destination, improved crossing of Egan can be viewed as a positive change and will draw individuals who were concerned over safety of that area.

All alternatives have attempted to address the difficulty in linking two of the major shopping areas in the corridor, the Nugget Mall and Fred Meyer. Safety in Mendenhall Mall parking area is of concern however, will not be addressed because it is private property. There are some changes to Mendenhall Mall access from Mendenhall Loop Road however, the access from Riverside Drive does not change and that route is equally available to shoppers from Egan and the Valley.

The Vintage office park and Safeway area have improved access under alternatives 1 and 2. All of the businesses along Glacier Highway (Airport) will have more defined access and safer traffic however some property may be taken as a result. This property is not developed but required parking may be affected.

11C—Churches

There are several churches within the project corridor. Church property and structures have been avoided when ever possible. The greatest impact is from the completion of Riverside Drive between Egan and Old Glacier Highway. The Faith Lutheran Church on the corner of Sunset Drive and Old Glacier Highway would have some of its property taken from implementation of any alternative. Up to 35 percent of its property, including structure, would be taken under the raised Egan Drive alternatives.

Additional church property would be taken by the other alternatives, however only land would be affected, not structures.

11D—Recreational Facilities

As discussed above, the assumption is that all recreational/non-motorized trails would be returned to existing or enhanced conditions from implementation of any alternative. Only one alternative is found to take park property, that is Alternative #2 which would take 10 percent of the land allotted to the Skate Park off Mendenhall Loop. The road improvement would not take the structure but would affect access and parking.

The proposed Under Thunder trail could be affected by implementation of either Alternative 1 or 4 due to the road connecting Lemon Spur Road with James Blvd. Again, the assumption has been made that the trail would still be possible, not precluded from development. Alternative 1 would also alter the access to Brotherhood Bridge parking lot and Mendenhall River Trailhead.

11F—Environmental Health

There are two components of issue under this criterion, air quality and water quality. Air quality typically is affected when traffic is signalized. Idling cars produce higher amount of CO and can cause localized affects. Alternative 4 would result in higher air quality impacts because of the increase in signals along the main road where there is the highest volume of cars. The other alternatives would also add signals, however, these would be located in lower traffic volume areas.

Alternatives 1, 2 and 3, would significantly increase the amount of road pavement within the study area resulting in an increase in impervious surfaces and an increase in area requiring snow removal and street treatment in the winter. As discussed under criterion 9A, portions of the remnant wetlands along Egan Drive would be filled by these alternatives further reducing the capacity for flood control and water treatment. Designing for stormwater runoff will be important in maintaining water quality in the small creeks. Collection of stormwater will be required with the urban section. This will constitute a point source of runoff that will require treatment, most likely in the form of detention basins, vegetated swales, depressed medians, and other areas that can receive and treat runoff. These features all require footprint area that will have associated further potential impact of right-of-way, wetlands and costs, and will have to be optimized in more detailed analysis subsequent to this study.

The Evaluation of Sub Criteria Sheets follow.

Major Criteria:	SubCriteria	sub-sub criteria	to be carried forward to alternatives evaluation:
9. Environmental			
	Wetlands	flood storage	<u>9A Wetlands, creeks, streams--flood storage & water quality</u>
	Creeks and pond	water quality	<u>9B Wetlands, creeks, streams, ponds--fish habitat</u>
	Uplands	fish spawning habitat	<u>9C Uplands (trees and other wildlife habitat)</u>
	T&E	fish rearing habitat	
	Potential for mitigation	waterfowl habitat	Potential for mitigation will be in comments below each section
	Trees	other habitat	At this time there are no T&E species. Fish habitat includes the potential for impacts to essential fish habitat because streams support coho salmon
		Jordan Creek	Waterfowl is not currently an issue based on agency feedback, only fish
		Duck Creek	
10. Consistency with other plans			<u>10--Consistency with other plans</u>
			One alternatives criteria sheet that will include the following. Comments/notes will elaborate on plans and consistency issues
	DOT		Glacier Highway-Auke Bay ferry terminal; SATP; AMHS plans; Other items are really part of the CBJ AWTP.
	CBJ	Trans plan	Approved Area-wide transportation plan
		non-motorized plan	
		wetlands	
		development	Pedersen Hill; Mendenhall Peninsula Development; Lena Point; commercial land off industrial
	ACOE		Duck Creek Plan--in draft, conceptual form at this time.
	MWP		To be included as issues raised regarding fish habitat
	DCAG		To be included as issues raised regarding fish habitat
	Airport		Assumed consistency based on interactions with wetland review board, DCGA, and CAC.
			Other plans such as 2nd crossing and Juneau Access are qualitatively presented to judge or alter alternatives based on these ideas.
11. Built Environment	residential	noise	<u>11A Residential Use (social, land use/zoning, economic impacts, noise, light emissions, aesthetics, air quality, construction impacts)</u>
	churches	aesthetics	<u>11B Commercial (land use/zoning, economics, construction impacts)</u>
	commercial	access (4(f))	<u>11C Churches</u>
			<u>11D Recreation (aesthetics, noise, 4(f), construction impacts)[this is a discussion of recreation other than the non-motorized paths that will be incorporated into the overall plan]</u>
	recreational	compatible land use	<u>11E Cultural/historic</u>
	cultural/historic	social	<u>11F Environmental Justice</u>
		induced socioeconomic impacts	<u>11G Environmental health (air quality, water quality, solid and haz waste)</u>
		Air quality	
		environmental justice	
		energy supply	
		light emissions	
		solid waste	
		Haz waste	
		construction impacts	
			Removed--not able to address this at this time

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion				
Evaluation Criterion: 9 A Wetlands--flood control, hydraulics, and water quality				
Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard	0	0	0	0
Riverside Drive	-1	-1	-1	-1
Mendenhall Loop Road	-1	-1	-1	-1
Glacier Highway (Airport)	0	0	0	-1
Yandukin Drive	-1	-1	0	0
Area off Egan: North of Egan & West of Jordan Creek	-1	-1	-1	-1
Area off Egan: South of Egan & West of Jordan Creek	-1	-1	-1	-1
Area off Egan: North of Egan & East of Jordan Creek	-2	-1	-1	-2
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.8	-0.7	-0.6	-0.8
Total acreage wetlands	8.46	7.67	4.13	3.4
Ranking	poor	poor	fair	fair

Description of Evaluation Assignment	
+2	Large positive impact
+1	Small positive impact
0	No change
-1	Small negative impact
-2	Large negative impact

Evaluation Notes		
Alternative #1:	Industrial Boulevard	- May have some minor impact to high value wetland on north side of Glacier Highway
	Vintage Boulevard	- No significant impact
	Riverside Drive	- Would impact low value wetland
	Mendenhall Loop Road	- Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	
	Yandukin Drive	- Realignment influences category C wetland south of Egan but also could affect hydrology in area.
	Areas off Egan Drive	- large impact on wetlands along north side of Egan and could also affect pond in the vicinity of Egan/Loop. - Could impact high value wetlands along connecting road with Lemon Spur Rd
System Holistic Perspective	- overall loss of 8.46 acres of wetlands (5.36 high value wetlands, 2.58 acres of lower value wetlands, and 0.51 acres of enhancement potential wetlands)	
Alternative #2:	Industrial Boulevard	- No significant impact
	Vintage Boulevard	- No significant impact
	Riverside Drive	- Would impact low value wetland
	Mendenhall Loop Road	- Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	
	Yandukin Drive	- Realignment influences category C wetland south of Egan but also could affect hydrology in area.
	Areas off Egan Drive	- Less impact to remnant wetland north of Fred Meyer. Still impact to wetland between church/school and humane society.
System Holistic Perspective	- overall loss of 7.67 acres of wetlands (5.31 high value wetlands, 2.36 acres of lower value wetlands)	
Alternative #3:	Industrial Boulevard	- Slight impact to wetlands north of Glacier Hwy
	Vintage Boulevard	- none
	Riverside Drive	- Would impact low value wetland
	Mendenhall Loop Road	- Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	
	Yandukin Drive	- none
	Areas off Egan Drive	- Could impact high value wetlands along connecting road with Lemon Spur Rd
System Holistic Perspective	- overall loss of habitat but less than with Alternatives #1 & #2. Because Spur road and offramp are directly adjacent to Egan, wetlands would be filled.	
Alternative #4:	Industrial Boulevard	- Widening with no significant change
	Vintage Boulevard	- Existing road straightened through low value wetland, minimal impact
	Riverside Drive	- Existing road straightened through low value wetland, minimal impact
	Mendenhall Loop Road	- Substantial widening is required, which will have a small environmental impact on the surroundings (Duck Creek)
	Glacier Highway (Airport)	- Widening with no significant change
	Yandukin Drive	- none
	Areas off Egan Drive	- large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop. - Could impact high value wetlands along connecting road with Lemon Spur Rd. Again suggest linking Lemon Spur with Glacier Airport and not road through to James.
System Holistic Perspective	- overall loss of habitat	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 9B Wetlands, creek, streams--fish habitat

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	0	0	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	0	0	0	0
Mendenhall Loop Road	-1	-2	-2	-1
Glacier Highway (Airport)	0	0	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-1	0	-1	-2
Area off Egan: South of Egan & West of Jordan Creek	0	0	0	-1
Area off Egan: North of Egan & East of Jordan Creek	-2	-1	-1	-2
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.4	-0.3	-0.4	-0.6

Note: all activities along the north side of Egan will limit options than are available for improving Duck Creek and Jordan Creek. Several alternatives along the south side of Egan will also affect these options. No specific plan is yet developed for these creeks.

Description of Evaluation Assignment	
+2	Large positive impact
+1	Small positive impact
0	No change
-1	Small negative impact
-2	Large negative impact

Ranking	poor	fair	poor	poor
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard	-	No fish habitat
	Vintage Boulevard	-	No fish habitat
	Riverside Drive	-	No fish habitat
	Mendenhall Loop Road	-	Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	-	No fish habitat
	Yandukin Drive	-	No fish habitat
	Areas off Egan Drive	-	large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and crosses Jordan Creek and near the important Duck Creek ponds at Mendenhall Loop road.
	System Holistic Perspective	-	
Alternative #2:	Industrial Boulevard	-	No fish habitat
	Vintage Boulevard	-	No fish habitat
	Riverside Drive	-	No fish habitat
	Mendenhall Loop Road	-	Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	-	No fish habitat
	Yandukin Drive	-	No fish habitat
	Areas off Egan Drive	-	some impact on sensitive areas where fish rearing habitat occurs
	System Holistic Perspective	-	overall loss of habitat but less than with Alternative #1
Alternative #3:	Industrial Boulevard	-	No fish habitat
	Vintage Boulevard	-	No fish habitat
	Riverside Drive	-	No fish habitat
	Mendenhall Loop Road	-	Would impact streamside areas of Duck Creek and could affect water quality. Also, this alt is contrary to plan to remove culvert at DelRae to improve DC habitat.
	Glacier Highway (Airport)	-	No fish habitat
	Yandukin Drive	-	No fish habitat
	Areas off Egan Drive	-	Could impact fish rearing habitat
	System Holistic Perspective	-	
Alternative #4:	Industrial Boulevard	-	No fish habitat
	Vintage Boulevard	-	No fish habitat
	Riverside Drive	-	No fish habitat
	Mendenhall Loop Road	-	Widening will result in small environmental impact on the surroundings (Duck Creek)
	Glacier Highway (Airport)	-	No fish habitat
	Yandukin Drive	-	No fish habitat
	Areas off Egan Drive	-	large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and crosses Jordan Creek and near the important Duck Creek ponds at Mendenhall Loop road.
	System Holistic Perspective	-	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion				
Evaluation Criterion:		9 C Uplands		
Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	0	0	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	0	0	0	0
Mendenhall Loop Road	-1	-1	-1	-1
Glacier Highway (Airport)	0	0	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-2	-1	-1	-2
Area off Egan: South of Egan & West of Jordan Creek	-1	-1	-1	0
Area off Egan: North of Egan & East of Jordan Creek	-1	-1	-2	-2
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.5	-0.4	-0.5	-0.5

Description of Evaluation Assignment	
+2	Large positive impact
+1	Small positive impact
0	No change
-1	Small negative impact
-2	Large negative impact

Ranking	poor	fair	poor	poor
---------	------	------	------	------

Evaluation Notes		
Alternative #1:	Industrial Boulevard	- No upland habitat impact
	Vintage Boulevard	- No upland habitat impact
	Riverside Drive	- No upland habitat impact
	Mendenhall Loop Road	- Some upland habitat could be affected
	Glacier Highway (Airport)	- No upland habitat impact
	Yandukin Drive	- No upland habitat impact
	Areas off Egan Drive	- large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop.
	System Holistic Perspective	-
Alternative #2:	Industrial Boulevard	- No upland habitat impact
	Vintage Boulevard	- No upland habitat impact
	Riverside Drive	- No upland habitat impact
	Mendenhall Loop Road	- Some upland habitat could be affected
	Glacier Highway (Airport)	- No upland habitat impact
	Yandukin Drive	- No upland habitat impact
	Areas off Egan Drive	- some impact on upland areas primarily along north side of Egan with off ramp to Glacier Hwy.
	System Holistic Perspective	-
Alternative #3:	Industrial Boulevard	- No upland habitat impact
	Vintage Boulevard	- No upland habitat impact
	Riverside Drive	- No upland habitat impact
	Mendenhall Loop Road	- Some upland habitat could be affected
	Glacier Highway (Airport)	- No upland habitat impact
	Yandukin Drive	- No upland habitat impact
	Areas off Egan Drive	- Could impact uplands along connecting road to Lemon Spur Rd
	System Holistic Perspective	-
Alternative #4:	Industrial Boulevard	- No upland habitat impact
	Vintage Boulevard	- No upland habitat impact
	Riverside Drive	- No upland habitat impact
	Mendenhall Loop Road	- Some upland habitat could be affected
	Glacier Highway (Airport)	- No upland habitat impact
	Yandukin Drive	- No upland habitat impact
	Areas off Egan Drive	- large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop.
	System Holistic Perspective	-

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 A Residential Use (social, land use/zoning, economic, noise, light, aesthetics, construction impacts)

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	1	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	-1	-1	-1	-1
Mendenhall Loop Road	0	-1	-1	-1
Glacier Highway (Airport)	0	1	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-1	-1	-1	0
Area off Egan: South of Egan & West of Jordan Creek	-2	-2	-2	0
Area off Egan: North of Egan & East of Jordan Creek	-1	-1	-1	0
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.6	-0.4	-0.6	-0.2

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	poor	poor	poor	fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Changes access north of Glacier Highway
	Vintage Boulevard -	no residential use
	Riverside Drive -	Connecting Riverside to Old Glacier will remove several houses and change the residential neighborhood.
	Mendenhall Loop Road -	residential use not affected
	Glacier Highway (Airport) -	residential use will have both positive and negative impacts. Difficult to determine if there is a net one way or the other.
	Yandukin Drive -	residential use not affected
	Areas off Egan Drive -	Change in access from Teslin, loss of homes between Vintage and Riverside Drive.
	System Holistic Perspective -	Overall increase in noise and light at all homes within a 2 block distance of the elevated roadway
Alternative #2:	Industrial Boulevard -	better residential access
	Vintage Boulevard -	no residential use
	Riverside Drive -	Connecting Riverside to Old Glacier will remove several houses and change the residential neighborhood.
	Mendenhall Loop Road -	changes at Skate Park with access to residential neighborhood. Some residential land takes
	Glacier Highway (Airport) -	residential use will have both positive and negative impacts. Difficult to determine if there is a net one way or the other.
	Yandukin Drive -	no residential use
	Areas off Egan Drive -	Loss of homes between Vintage and Riverside Drive.
	System Holistic Perspective -	Overall increase in noise and light at all homes within a 2 block distance of the elevated roadway
Alternative #3:	Industrial Boulevard -	residential use not affected
	Vintage Boulevard -	no residential use
	Riverside Drive -	Connecting Riverside to Old Glacier will remove several houses and change the residential neighborhood.
	Mendenhall Loop Road -	some changes in access will affect residences
	Glacier Highway (Airport) -	residential use will have both positive and negative impacts. Difficult to determine if there is a net one way or the other.
	Yandukin Drive -	no residential use
	Areas off Egan Drive -	Loss of homes between Vintage and Riverside Drive.
	System Holistic Perspective -	Overall increase in noise and light at all homes within a 2 block distance of the elevated roadway
Alternative #4:	Industrial Boulevard -	residential use not affected
	Vintage Boulevard -	no residential use
	Riverside Drive -	Connecting Riverside to Old Glacier will remove several houses and change the residential neighborhood.
	Mendenhall Loop Road -	some changes in access will affect residences
	Glacier Highway (Airport) -	residential use not affected
	Yandukin Drive -	residential use not affected
	Areas off Egan Drive -	residential use not affected
	System Holistic Perspective -	no overall increase in light or noise.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 B Commercial Use (land use/zoning, economics, construction impacts)

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	1	1	1
Vintage Boulevard	2	2	0	0
Riverside Drive	1	1	1	1
Mendenhall Loop Road	-1	0	-1	0
Glacier Highway (Airport)	1	1	-1	-1
Yandukin Drive	0	0	-1	0
Area off Egan: North of Egan & West of Jordan Creek	-1	0	0	1
Area off Egan: South of Egan & West of Jordan Creek	0	0	0	0
Area off Egan: North of Egan & East of Jordan Creek	2	1	1	2
Area off Egan: South of Egan & East of Jordan Creek	-1	1	1	0
System Holistic Perspective				
System Average	0.2	0.7	0.1	0.4

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	fair	good	fair	fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Some minor commercial impacts
	Vintage Boulevard -	much better access
	Riverside Drive -	much better access
	Mendenhall Loop Road -	Mall road slightly harder access
	Glacier Highway (Airport) -	Some property take but access will improve
	Yandukin Drive -	no commercial effects
	Areas off Egan Drive -	changes to Nugget Mall access, better access to Fred Meyer.
	System Holistic Perspective -	
Alternative #2:	Industrial Boulevard -	some minor commercial impacts, but overall better truck access
	Vintage Boulevard -	better access
	Riverside Drive -	better access
	Mendenhall Loop Road -	no commercial effects
	Glacier Highway (Airport) -	improved access
	Yandukin Drive -	no commercial effects
	Areas off Egan Drive -	some improved access to commercial areas
	System Holistic Perspective -	
Alternative #3:	Industrial Boulevard -	better access
	Vintage Boulevard -	no change
	Riverside Drive -	better access
	Mendenhall Loop Road -	harder to access the mendenhall mall
	Glacier Highway (Airport) -	some land take
	Yandukin Drive -	loss of car wash
	Areas off Egan Drive -	some improved access to commercial areas
	System Holistic Perspective -	
Alternative #4:	Industrial Boulevard -	improved access
	Vintage Boulevard -	no change
	Riverside Drive -	better access
	Mendenhall Loop Road -	no change
	Glacier Highway (Airport) -	some land take
	Yandukin Drive -	no change
	Areas off Egan Drive -	better access
	System Holistic Perspective -	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 C Churches

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	0	0	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	-2	-2	-2	-1
Mendenhall Loop Road	0	0	0	0
Glacier Highway (Airport)	0	0	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-1	-1	-1	0
Area off Egan: South of Egan & West of Jordan Creek	-1	-1	-1	0
Area off Egan: North of Egan & East of Jordan Creek	-1	-1	1	0
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.5	-0.5	-0.3	-0.1

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	poor	poor	fair	fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	35% of church land take at intersection of Del Ray and Sunset when Riverside Drive is completed past Egan
	Mendenhall Loop Road -	5 % of church land take at intersection of Mendenhall Loop and Egan
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	20% take of church land across from Fred Meyer, 20 % church land taken on Teslin
	System Holistic Perspective -	
Alternative #2:	Industrial Boulevard -	Vacant church land north of Glacier Highway, west of Brotherhood Bridge parking lot (2% land take)
	Vintage Boulevard -	
	Riverside Drive -	35% of church land take at intersection of Del Ray and Sunset when Riverside Drive is completed past Egan
	Mendenhall Loop Road -	5 % of church land take at intersection of Mendenhall Loop and Egan
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	20% take of church land across from Fred Meyer, 20 % church land taken on Teslin
	System Holistic Perspective -	
Alternative #3:	Industrial Boulevard -	Vacant church land north of Glacier Highway, west of Brotherhood Bridge parking lot (2% land take)
	Vintage Boulevard -	
	Riverside Drive -	35% of church land take at intersection of Del Ray and Sunset when Riverside Drive is completed past Egan
	Mendenhall Loop Road -	5 % of church land take at intersection of Mendenhall Loop and Egan
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	5% take of church land across from Fred Meyer (but increased safety), 20 % church land taken on Teslin
	System Holistic Perspective -	
Alternative #4:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	10% of church land take at intersection of Del Ray and Sunset when Riverside Drive is completed past Egan
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 D Recreational (aesthetics, noise, 4 (f), construction impacts)

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	1	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	0	1	0	0
Mendenhall Loop Road	0	-2	0	0
Glacier Highway (Airport)	0	0	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-1	0	0	-1
Area off Egan: South of Egan & West of Jordan Creek	0	0	0	0
Area off Egan: North of Egan & East of Jordan Creek	-1	0	0	-1
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective				
System Average	-0.3	0	0	-0.2

The goals of the overall project is to maintain and improve non-motorized access and trails. We must assume that, though the plans only identify road changes, the trails will be returned to this area and will function as well or better than they do now.

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	poor	poor	fair	poor
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	small change in Brotherhood Bridge Park access
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	Plan for Under Thunder trail along Jordan Creek could be affected.
	System Holistic Perspective -	
Alternative #2:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	CBJ Skateboard Park--10% land take
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	
Alternative #3:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	
Alternative #4:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	Plan for Under Thunder trail along Jordan Creek could be affected.
	System Holistic Perspective -	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **11 F Environmental Health (air quality, water quality, solid wastes, hazardous wastes)**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	0	0	0	0
Vintage Boulevard	0	0	0	0
Riverside Drive	0	0	0	0
Mendenhall Loop Road	0	0	0	0
Glacier Highway (Airport)	0	0	0	0
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	0	0	0	0
Area off Egan: South of Egan & West of Jordan Creek	0	0	0	0
Area off Egan: North of Egan & East of Jordan Creek	0	0	0	0
Area off Egan: South of Egan & East of Jordan Creek	0	0	0	0
System Holistic Perspective	-2	-2	-2	-2
System Average	-0.2	-0.2	-0.2	-0.2

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	fair	fair	fair	fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Snow removal and maintenance will change with the elevated alternatives, more surface to treat.
Alternative #2:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Snow removal and maintenance will change with the elevated alternatives, more surface to treat.
Alternative #3:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Snow removal and maintenance will change with the elevated alternatives, more surface to treat.
Alternative #4:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Air Quality may degrade with increase in signals along Egan in alternative #4

Wetlands Summary

WEDCOR

Alternative	Wetlands ID	Wetlands Type	Higher Value Impact Footprint (Acres)	Lower Value Impact Footprint (Acres)	Enhancement Potential Impact Footprint (Acres)
Alt 1	M26	Higher	4.8		
	M3	Higher	2.5		
	M14	Higher	3.0		
	J6	Higher	0.3		
	J7	Higher	1.9		
	D6	Enhance. Potent.			0.5
	D7	Higher	0.1		
	M18	Lower		0.8	
	M17	Lower		1.1	
	MW21	Lower		2.6	
	MW6	Higher	0.3		
Total:		17.90	12.9	4.5	0.5
Alt 2	M26	Higher	4.6		
	M3	Higher	2.2		
	M14	Higher	1.3		
	J6	Higher	0.3		
	J7	Higher	2.4		
	D7	Higher	0.2		
	M18	Lower		0.8	
	M17	Lower		1.2	
	MW21	Lower		1.8	
	MW6	Higher	0.5		
	MW60	Lower		0.5	
Total:		15.80	11.5	4.3	0.0
Alt 3	M26	Higher	3.0		
	M14	Higher	3.1		
	J7	Higher	2.0		
	D6	Enhance. Potent.			0.2
	D7	Higher	0.2		
	M18	Lower		0.8	
	M17	Lower		1.1	
	MW21	Lower		1.3	
	MW6	Higher	0.2		
Total:		11.90	8.5	3.2	0.2
Alt 4	M3	Higher	0.2		
	M14	Higher	1.1		
	J6	Higher	0.2		
	J7	Higher	0.1		
	D6	Enhance. Potent.			0.4
	D7	Higher	0.2		
	M17	Lower		0.1	
	MW21	Lower		0.6	
	MW6	Higher	0.1		
Total:		3.00	1.9	0.7	0.4

Source "eop.dwg" with Juneau Management Plan digitized wetlands

Section 9 Final Report Chapter 6 Appendix

Appendix C: Compatibility With the Built Environment Alternatives 1-4





Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Socioeconomic analysis

Methods of Analysis

Short Term (construction) Impacts

Construction cost estimates were developed by the project team. These costs were then entered into the IMPLAN econometric input/output model (IMPLAN Pro 2000, Minnesota IMPLAN Group) with Juneau-specific employment and expenditure data. This model is accepted as an industry standard, and is frequently used to analyze local and regional economies in Alaska.

Total project costs were reduced by an amount that will be spent on such things as steel fabrication for signal poles, bridge girders, and other items not available in the local economy. Project costs were input into the industry sector for construction of new highways and streets. Output from the model includes direct impacts (resulting from direct project spending), indirect impacts (resulting from additional business spending as a result of direct project spending), and induced impacts (household spending as a result of direct and indirect business spending). Impacts for each alternative are reported in terms of employment created, payroll, and business spending (output). All dollar amounts are adjusted for inflation to 2002 dollars using the Anchorage Consumer Price Index for Urban Consumers (CPI-U). Number of jobs created from construction are reported in full-time equivalents (FTEs), and assumes that the construction job will be completed within one year, and jobs created are full time for one year. While we know that these jobs will be spread out over several years time, and some may be of less than one year's duration, we are reporting employment in FTEs for simplicity, and because we cannot predict the actual duration of jobs with the available information.

City and Borough sales tax revenues produced as a result of this construction activity are also estimated. Because these projects are contracted by government (DOT&PF) local sales tax revenues would be limited to indirect and induced spending.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Long-term Impacts

Economic Impacts to Businesses

Businesses may be impacted from changes in public access to their locations. If a business is a “destination” business, meaning people make the decision to travel to visit that business, changes in access don’t have a significant impact on revenues. However, if a business gets a large percentage of its customers from people who are passing by on the way to other destinations, then changes in access can significantly impact revenues. Every business receives some percentage of both “destination” and “drive-by” business. Those with a higher percentage of drive-by business will realize greater impacts from changes in access. Often, businesses dependant on drive-by traffic will locate next to destination businesses in order to take advantage of the destination traffic.

Traffic volumes passing business areas for each component of each alternative were compared to the No-build Alternative components to determine potential changes in access to area businesses. Professional and personal knowledge of businesses impacted, such as nature of the business, how much of its business depends on drive-by traffic, and other factors, will be considered in this analysis. Impacts are often expressed in qualitative terms, and percentage changes expressed are rough estimates of magnitude.

Social Impacts

Social impacts, such as changes in local traffic patterns and volumes or noise levels, as well as changes in access to area neighborhoods, were considered. Impacts were estimated by looking at changes in traffic volume where that data was available. In cases where that data was not available, professional knowledge and judgment was used to determine potential impacts. These impacts are stated in qualitative terms.

Short-term (Construction) Impacts

The following table presents short-term economic impacts to the Juneau Borough from the construction of West Egan Drive Corridor alternatives in terms of direct, indirect and induced business income, jobs and payroll.

Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Table 1

Economic Impacts of Construction for West Egan Drive Corridor Alternatives, in 2003 Dollars

Alternative	Direct Business Income (Project Cost)*	Indirect & Induced Bus. Income	Total Business Income	Direct FTE Jobs	Indirect & Induced FTE Jobs	Total FTE Jobs	Direct Payroll	Indirect & Induced Payroll	Total Payroll
Alternative 1	\$ 84,000,000	\$ 26,378,407	\$ 110,378,407	664	354	1,018	\$ 31,387,162	\$ 9,566,948	\$ 40,954,110
Alternative 2	\$ 77,000,000	\$ 24,180,205	\$ 101,180,205	609	325	934	\$ 28,771,566	\$ 8,769,703	\$ 37,541,269
Alternative 3	\$ 69,000,000	\$ 21,667,976	\$ 90,667,976	546	291	837	\$ 25,782,312	\$ 7,858,565	\$ 33,640,877
Alternative 4	\$ 27,000,000	\$ 8,478,773	\$ 35,478,773	214	114	327	\$ 10,088,731	\$ 3,075,091	\$ 13,163,822

Sources: Kittelson & Associates project team, IMPLAN Pro 2000 input/output model, Minnesota IMPLAN Group.

Definitions:

1. Business Income is gross income to businesses. Direct Business Income is total project costs.
2. Payroll includes gross wages paid to employees and gross income received by business proprietors.
3. Indirect impacts result when the contractors purchase goods and services from other producers in the local economy.
4. Induced impacts result when households receiving income from these projects increase local spending.
5. FTE is Full-time Equivalent, and represents one full-time job for one year. Assumes each project takes one year to complete.

*Project costs were reduced by the cost of things such as steel fabrication of signal poles and bridge girders, which are not available in the Juneau economy..



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

The following summary table presents total short-term economic impacts (including direct, indirect and induced impacts) to the Juneau Borough for the construction of West Egan Drive Corridor alternatives.

Table 2

Construction Impact of West Egan Drive Corridor Alternatives, in 2003 dollars.

Alternative	Total Business Income	Total Full Time Equivalent Jobs	Total Payroll
Alternative 1	\$ 110,378,407	1,237	\$ 40,954,110
Alternative 2	\$ 101,180,205	1,140	\$ 37,541,269
Alternative 3	\$ 90,667,976	1,006	\$ 33,640,877
Alternative 4	\$ 35,478,773	497	\$ 13,163,822

Sources: Kittelson & Associates project team, IMPLAN Pro 2000 input/output model, Minnesota IMPLAN Group.

Note: Notes and details available in Table 1.

Alternative 1 provides the greatest positive impact of all the alternatives, generating nearly \$110.4 million in total business income, and 1,237 full-time equivalent jobs, with a total payroll of nearly \$41.0 million. Alternative 4 generates the smallest local economic impact, adding only 497 jobs to the economy.

Table 3 presents Borough sales tax revenues generated by each alternative. Alternatives 1, 2 and 3 generate more than \$1 million in sales taxes for the local government.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Table 3

Sales Taxes Generated from Alternatives Construction, In 2003 Dollars

Alternative	Indirect and Induced Business Income	Local Sales Tax Revenues
Alternative 1	\$ 26,378,407	\$ 1,318,920
Alternative 2	\$ 24,180,205	\$ 1,209,010
Alternative 3	\$ 21,667,976	\$ 1,083,399
Alternative 4	\$ 8,478,773	\$ 423,939

Source: IMPLAN Pro 2000 input/output model, Minnesota
IMPLAN Group.

Note: Since direct business income is from a government entity,
it is not subject to the local sales tax of 5%. This analysis
assumes that secondary expenditures in Juneau by businesses
and households are taxed.

Long-term Impacts

Economic Impacts to Businesses

In this study, six specific business areas were identified within the West Egan Drive Corridor. Those areas are Vintage Park, Industrial Boulevard, Glacier Highway/Airport, the Mendenhall Mall, Old Dairy Road, and Fred Meyer. The Glacier Highway/Airport area contains Nugget Mall, Jordan Creek Mall, Airport Shopping Center as well as numerous other businesses spread throughout the area. While many businesses located in these areas are “destination” businesses, some areas contain businesses that depend heavily on drive-by traffic, and changes in traffic patterns could impact income to those businesses.

The following table presents changes in drive by traffic for those areas for each of the four alternatives compared to the No-build Alternative for the year 2025. Only changes of greater than 2 percent are considered significant.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Table 4

Percent Change in Drive-by Traffic, Alternatives vs. No Build, 2025

Business Area	No Build	Alt 1	Alt 2	Alt 3	Alt 4
Industrial Boulevard	0.0%	1%	0.0%	0%	0%
Vintage Park	0.0%	10%	10%	0%	4%
Mendenhall Mall	0.0%	-5%	2%	6%	-1%
Glacier Highway/Airport	0.0%	9%	10%	4%	3%
Old Dairy Road	0.0%	30%	-10%	6%	4%
Fred Meyer	0.0%	30%	-4%	150%	80%

Source: 2025 traffic projections, Kittelson and Associates, 2002.

Note: Only differences over 2.0% are considered significant.

Industrial Boulevard Area

The table shows that drive-by traffic in the Industrial Boulevard area will vary only slightly between the alternatives, and since the changes in traffic volume for all alternatives compared to the No-build Alternative is under 2 percent, the changes are not considered significant. In Alternatives 1 and 2, Industrial Boulevard itself is cul-de-saced and separated from direct access to Glacier Highway. Although there was some concern that businesses on Industrial Boulevard would get less visitation under these two alternatives, most businesses on Industrial Boulevard are destination businesses with minimal dependence on drive-by traffic, and so, their visitation should not be impacted by this separation.

Vintage Park Area

The Vintage Boulevard area will receive increased traffic of 10 percent in Alternatives 1 and 2. All of the alternatives increase traffic on Riverside Drive (east of Vintage Boulevard) likely due to the extension of Riverside across Egan, and Alternatives 1 and 2 improve access from Egan to the west side of Vintage Boulevard. Alternative 3 generates no change in drive-by traffic from the No-build Alternative, likely because the increased traffic on Riverside is balanced by no improvements to access between the west end of Vintage Boulevard and Egan, and no through access across Egan from Glacier Highway North. Alternative 4 generates a 4 percent increase in traffic on Vintage



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Boulevard. Alternatives 1 and 2 generate the most drive-by traffic, and so are most beneficial for existing businesses in the Vintage Park area, as well as for development of future businesses there. Nearly all of the businesses currently located in the Vintage Park area are destination businesses, but increased traffic could encourage the location of more drive-by businesses in the area.

Mendenhall Mall

Alternatives 1 and 3 both include allowing right in/right out access only between Mendenhall Mall Road and Glacier Loop Road, and full access to the Mall Road from James Boulevard. Alternative 1 generates less drive-by traffic at the Mendenhall Mall likely because that alternative allows direct access to Glacier Highway/Lemon Spur Road from Mendenhall Loop, which may divert shoppers away from Mendenhall Mall. Alternative 3 generates a 6 percent increase in drive-by traffic, which is important to many of the businesses in the Mendenhall Mall area. Alternatives 2 and 4 show no significant difference from the No-build Alternative in drive-by traffic.

Glacier Highway/Airport

Every alternative generates increased drive-by traffic on Glacier Highway by the Airport compared to the No-build Alternative. The extension of Riverside Drive across Egan to the Glacier Highway/Airport area, present in all four alternatives, is likely one reason for the increase, as it provides additional access to Glacier Highway/Airport without using Egan Drive. New access across Egan Drive at the McNugget intersection seems to generate greater traffic increases than improved access from Egan Drive at the same location. Alternative 2 generates the highest increase in traffic (10%). Alternative 1 generates nearly as big an increase (9%), but is slightly constrained by no access from Egan at McNugget intersection. While Nugget Mall, Jordan Creek Mall and other business groupings are destinations in themselves, many businesses in the Glacier Highway/Airport area get a large portion of their business from drive-by traffic. Restricted access from Egan at McNugget intersection will likely result in less traffic to businesses located close to that intersection.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Old Dairy Road

Alternative 1 generates a significant (30%) increase in traffic traveling on Old Dairy Road because there is no access to Egan Drive at the McNugget intersection, so drivers will access this Glacier Highway business area from the Yandukin to Old Dairy route. While most of the businesses on Old Dairy are currently destination businesses, the few that depend on drive-by business will benefit from this alternative, and additional businesses dependent on drive-by traffic may choose to locate on Old Dairy. In Alternative 2, access to Glacier Highway/Airport is available from Egan Drive by the McNugget Intersection, and by Lemon Spur Road, so the Old Dairy route receives less traffic than in the No-build Alternative (-10%). Alternatives 3 and 4 provide modest traffic increases along Old Dairy, likely due to improved access to and across Egan at Yandukin, which connects to Old Dairy.

Fred Meyer

Every alternative provides better access from Fred Meyer to and across Egan Drive. The increase in traffic passing Fred Meyer is greatest in Alternative 3 (150%) because all traffic using the Yandukin interchange to connect to Lemon Road must pass Fred Meyer. Alternative 4 (80% traffic increase) places the Yandukin at-grade at the existing location, and further connects Glacier Highway directly to Mendenhall Loop Road, allowing access between Fred Meyer, Mendenhall Mall and the Glacier Highway Airport businesses without having to use Egan Drive. Alternative 1 is similar to Alternative 4, except that access to Egan Drive is not available at the McNugget intersection, and so less traffic travels past Fred Meyer to the west of the Yandukin interchange. Alternative 2 provides even less traffic past Fred Meyer (-4%) because the Yandukin interchange is to the east of the store, and Glacier Highway/Lemon Spur travels west from there only to the McNugget intersection. Fred Meyer is a destination business, however, most of these alternatives generate increased drive-by traffic to that area. The increased drive-by traffic generated by three of the four alternatives could encourage more drive-by businesses to locate in this area.

Social Impacts

Several neighborhoods within the study area will be impacted by the various alternatives through changes in traffic volumes or patterns on or near residential streets. Increased traffic and driving speeds in and near residential areas decreases safety and quiet, and



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

may increase travel time through those areas. The neighborhoods most impacted are the Wildmeadow area across Glacier Highway from the Industrial Boulevard area, the James Boulevard area, the Atlin Drive area, the Hurlock Avenue area, and the Glacier Highway North area. Traffic volume figures for only two of these areas were available, but some impacts are evident without traffic volumes.

Table 5

Percent Change in Drive By Traffic, Alternatives vs. No Build, 2025

Neighborhood	No Build	Alt 1	Alt 2	Alt 3	Alt 4
James Boulevard	0%	300%	50%	200%	150.0%
Glacier Highway North	0%	130%	150%	200%	80%

Source: 2025 traffic projections, Kittelson and Associates, 2002.

Wildmeadow Area Neighborhoods

Alternatives 1 and 2 connect the Brotherhood Bridge trailhead and viewing area to a road accessing residential areas further to the west of the existing intersection with Glacier Highway. While Alternative 2 connects the trailhead with existing Wildmeadow Lane, Alternative 1 connects the trailhead to a newly-constructed extension of Jensine on the north side of Glacier Highway. In both of these alternatives, recreational traffic and tour busses will travel on these roads, especially in summer. This will compound and change the nature of traffic in these residential areas.

Alternatives 3 and 4 provide two access points for traffic to the Industrial Boulevard business area. This will better disperse traffic along Glacier Highway where it connects to these neighborhoods, making access to the neighborhoods safer.

James Boulevard Area Neighborhoods

Two of the alternatives include a connection to Lemon Spur Road at James Boulevard, and two of the alternatives include rerouting some of the Mendenhall Loop traffic to the Mendenhall Mall area through James Boulevard. Consequently, traffic for every alternative shows a large increase in traffic over the No-build Alternative. Table 5 shows changes in traffic volumes where James Boulevard meets Mendenhall Loop Road. Alternative 2 does not connect James to Lemon Spur, nor does it reroute Mendenhall



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Mall traffic through James, and this alternative generates the least increase in traffic (50%). Much of that increase likely results from the increased traffic on Riverside Drive, which is extended across Egan in each alternative. Alternative 1, which includes both the connection between James and Lemon Spur, and the redirecting of Mendenhall Mall traffic down James, generates three times the traffic as the No-build Alternative. The traffic congestion impact in and around James Boulevard residential areas will be significant, with most of that traffic concentrated on the East end of James.

Atlin Drive Area Neighborhoods

Alternatives 2 and 4 include the connection between Lemon Spur Road and James Boulevard. This traffic will be routed close to the residential areas of Atlin and Aurora Drives, and increase speed and congestion in those neighborhoods.

Hurlock Avenue Area Neighborhoods

Alternatives 1, 2, and 3 reroute access from Hurlock Avenue to Glacier Highway/Mendenhall Loop Extension. The current intersection of Hurlock and Glacier is extremely close to the Egan and Mendenhall Loop interchange, and makes access to those neighborhoods time consuming due to its restriction to right in/right out only. Rerouting the access will bring a mix of impacts. The connection to Glacier will be more efficient, but the rerouting will change circulation patterns within the neighborhoods near Hurlock Avenue, and give Hurlock residents a longer route to the highway.

Glacier Highway North Area Neighborhoods

There are several residential areas to the north and south of Glacier Highway North (between Egan and Glacier Highway/Mendenhall Loop Extension). Traffic volumes in this area increase dramatically in every alternative, in spite of the fact that in all but Alternative 4, Glacier Highway North is disconnected from Egan, and ends in a cul-de-sac. The main reason for increased traffic on that route is the extension of Riverside Drive across Egan. In addition, in Alternatives 1 and 3, Hurlock Avenue access is rerouted to connect across Glacier Highway/Mendenhall Loop Extension with Del Rae Road, likely drawing traffic towards Glacier Highway North neighborhoods. Alternative 3 has the greatest impact on traffic near neighborhoods with a 200 percent increase in traffic, and Alternative 4 has the least impact, generating an 80 percent increase in traffic. Every alternative will significantly impact access to these residential areas.

Section 9 Final Report Chapter 6 Appendix

Appendix D: Detailed Evaluations Alternatives 1-4 and No-Build



PURPOSE & NEED SORTED INTO FOUR CATEGORIES - "Ranking" - Final

- 1 Traffic Considerations
- 2 Non-Motor and Public Transit
- 3 Environmental and Planning
- 4 Practical Considerations

WEST EGAN DRIVE CORRIDOR STUDY - GOOD/FAIR/POOR - "Ranking"					
Qualitative Evaluation of Alternatives					
Evaluation Criteria		Proposed Road System - Four Most Viable Alternatives			
		#1	#2	#3	#4
1	Safety	Good	Fair	Fair	Poor
2	Emergency Vehicle Access and Circulation	Good	Good	Fair	Fair
3	Traffic Operations	Good	Good	Good	Fair
4	Airport Access	Good	Good	Good	Fair
5	Local Circulation	Good	Good	Fair	Fair
6	Compatibility with Public Transportation	Good	Good	Good	Fair
7	Compatibility with Pedestrians	Good	Good	Good	Poor
8	Compatibility with Bicyclists	Good	Good	Good	Poor
9	Environmental Impacts	Poor	Poor	Fair	Fair
10	Consistency with Other Planning Efforts	Fair	Fair	Fair	Fair
11 A	Compatibility with Built Environment - Social Impacts	Good	Good	Fair	Fair
11 B	Compatibility with Built Environment - Short-term Economic	Good	Good	Good	Good
11 C	Compatibility with Built Environment - Long-term Economic	Good	Fair	Good	Good
12	Constructability	Poor	Poor	Poor	Fair
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	Poor	Poor	Poor	Fair
17	Satisfies Design Requirements	Fair	Fair	Fair	Fair
18	Right-of-Way Requirements	Poor	Poor	Poor	Fair

- Changes since Memo 5

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 1 Safety

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard	1	1	1	1
Riverside Drive	1	1	1	-1
Mendenhall Loop Road	1	1	1	-2
Glacier Highway (Airport)	2	1	1	-2
Yandukin Drive	2	2	1	-1
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	1	1	1	-1
System Average	1	0.9	0.7	-1

Description of Evaluation Assignment	
+2	Eliminate safety concerns
+1	Improve safety
0	No change
-1	Decrease safety
-2	Unacceptable safety

Ranking	Good	Fair	Fair	Poor
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Location of intersection improved for westbound left turn; first signal inbound from out the road (driver expectations?)
	Vintage Boulevard -	Full access is allowed and the Egan through traffic is taken out, which should improve safety substantially
	Riverside Drive -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume, therefore less exposure)
	Mendenhall Loop Road -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume, therefore less exposure)
	Glacier Highway (Airport) -	Grade separated - no conflict points
	Yandukin Drive -	Egan through traffic separated - lower volumes at ramp terminal intersections (lower total entering volume per intersection, therefore less exposure)
	Areas off Egan Drive -	New James Blvd/Lemon Spur Rd connection should relieve traffic along Egan Dr & therefore improve safety; fourth leg at James Boulevard/Mendenhall Loop Road decreases safety; however off-set by right in right out intersection of Mendenhall Mall Road/Mendenhall Loop Road.
	System Holistic Perspective -	Deficiencies identified in the Purpose & Need will be improved (i.e. geometry, traffic control, signal timing, etc.) and Egan Dr has minimal unexpected conflicts
Alternative #2:	Industrial Boulevard -	Location of intersection improved for westbound left turn; first signal inbound from out the road (driver expectations?)
	Vintage Boulevard -	Full access is allowed and the Egan through traffic is taken out, which should improve safety substantially
	Riverside Drive -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume per intersection, therefore less exposure); weaving at westbound approach
	Mendenhall Loop Road -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume per intersection, therefore less exposure)
	Glacier Highway (Airport) -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume, per intersection, therefore less exposure)
	Yandukin Drive -	Egan through traffic separated - lower volumes at ramp terminal intersections (lower total entering volume per intersection, therefore less exposure)
	Areas off Egan Drive -	New Glacier Hwy (Airport)/Lemon Spur Rd connection should relieve traffic along Egan Dr & therefore improve safety. Local and through traffic can be separated.
System Holistic Perspective -	Deficiencies identified in the Purpose & Need will be improved (i.e. geometry, traffic control, signal timing, etc.) and Egan Dr has minimal unexpected conflicts	
Alternative #3:	Industrial Boulevard -	Location of intersection improved for westbound left turn; first signal inbound from out the road (driver expectations?)
	Vintage Boulevard -	Right-in-right-out access to westbound Egan Drive ramp; unusual treatment for a ramp (driver expectations?)
	Riverside Drive -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume per intersection, therefore less exposure)
	Mendenhall Loop Road -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve (lower total entering volume per intersection, therefore less exposure)
	Glacier Highway (Airport) -	Through traffic on Egan Drive is separated and operation at ramp intersections should improve. No conflicting movements.
	Yandukin Drive -	Egan through traffic separated - lower volumes at ramp terminal intersections (less exposure), but frontage roads add more movements (conflicts) Weaving section introduced at eastbound approach to south ramp terminal intersection.
	Areas off Egan Drive -	New Yandukin Dr/Lemon Spur Rd connection should relieve traffic along Egan Dr & therefore improve safety
	System Holistic Perspective -	Deficiencies identified in the Purpose & Need will be improved (i.e. geometry, traffic control, signal timing, etc.) and Egan Dr has minimal unexpected conflicts
Alternative #4:	Industrial Boulevard -	Location of intersection improved for westbound left turn; first signal inbound from out the road (driver expectations?)
	Vintage Boulevard -	Only Right-In/Right-Out (fewer conflicts)
	Riverside Drive -	Adding an additional leg to the intersection increases the number of approaches to the intersection and therefore would decrease the safety at this intersection
	Mendenhall Loop Road -	Large high volume intersections; high conflict areas.
	Glacier Highway (Airport) -	Large high volume intersections; high conflict areas.
	Yandukin Drive -	New additional signal decreases safety - angle crashes will become rear end crashes; more movements allowed ; first signal from Downtown (driver expectation?)
	Areas off Egan Drive -	New James Blvd/Lemon Spur Rd connection should relieve traffic along Egan Dr and separates through and local traffic. Therefore improve safety; fourth leg at James Boulevard/Mendenhall Loop Road decreases safety;
System Holistic Perspective -	Alternative marginally meets the Purpose & Need Statement, but will require additional investigation if carried forward for further evaluation	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 2 Emergency Vehicle Access and Circulation

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-2	-2	0	0
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek	1	1	0	0
Area off Egan: South of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: North of Egan & East of Jordan Creek	2	2	1	1
Area off Egan: South of Egan & East of Jordan Creek	2	2	1	1
System Holistic Perspective	2	2	1	1
System Average	1	1	0.7	0.7

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Fair	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	One access to and from the area, under existing conditions there are two. Full access at Riverside, Mendenhall Loop and Yandukin, full access to and from the North at Vintage; Four crossings of Egan Dr Large improvement over existing, due to more access into Valley with multiple linkages
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	One access to and from the area, under existing conditions there are two. Full access at Riverside, Mendenhall Loop and Yandukin, full access to and from the North at Vintage; Four crossings of Egan Dr Large improvement over existing, due to more access into Valley with multiple linkages
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Available routes unchanged To get to Mendenhall Valley North, can use two interchanges, and Yandukin connection provides linkage and full access; Three crossings of Egan Dr Two interchange systems will result in a small improvement over the existing (fewer linkages)
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Available routes unchanged East and west access to/from emergency services unchanged, but Yandukin and Riverside connections provide some improvement Three crossings of Egan Dr, but through more congestion

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 3 Traffic Operations

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard	1	1	2	1
Riverside Drive	1	1	1	0
Mendenhall Loop Road	1	1	1	-1
Glacier Highway (Airport)	2	1	2	1
Yandukin Drive	1	1	1	-1
Area off Egan: North of Egan & West of Jordan Creek	2	1	1	2
Area off Egan: South of Egan & West of Jordan Creek	2	1	1	1
Area off Egan: North of Egan & East of Jordan Creek	2	2	2	2
Area off Egan: South of Egan & East of Jordan Creek	2	2	-1	1
System Holistic Perspective	2	1	1	-1
System Average	1.4	1	0.9	0.4

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Traffic increases delay for Egan Drive, by decreases delay for side street
	Vintage Boulevard -	Interchange would provide acceptable operations
	Riverside Drive -	Adding the fourth leg to the south ramp terminal intersection would decrease intersection capacity, but operations at this location should improve
	Mendenhall Loop Road -	Multiple connections would decrease traffic volumes at Loop Rd/Egan Dr; improving traffic operations at this location
	Glacier Highway (Airport) -	Intersection has been eliminated. Traffic operations very good
	Yandukin Drive -	Diamond interchange is an efficient interchange form, and local connection to Mendenhall Loop Road should make traffic operations better
	Areas off Egan Drive -	Providing more north south connections and the northern local connection spreads traffic volumes to improve traffic operations at any one intersection
	System Holistic Perspective -	Multiple local connections (4 crossing Egan Dr) spreads volumes and allows for more consistent traffic operations through the system
Alternative #2:	Industrial Boulevard -	Traffic increases delay for Egan Drive, by decreases delay for side street
	Vintage Boulevard -	Interchange would provide acceptable operations
	Riverside Drive -	Adding the fourth leg to the south ramp terminal intersection & ramps to/from east would decrease intersection capacity, but operations at this location should improve
	Mendenhall Loop Road -	Multiple connections to/from east at Riverside decrease traffic volumes at Loop Rd/Egan Dr; weaving section on westbound ramp between Mendenhall Loop and Riverside
	Glacier Highway (Airport) -	Half diamond interchange plus westbound access to Loop; signalized north ramp terminal intersection;
	Yandukin Drive -	Diamond interchange is an efficient interchange form, options for access to Glacier Highway will balance intersection operations
	Areas off Egan Drive -	Increased local connections benefits minor street traffic operations; congestion likely on Mendenhall Loop Road between Mall and Egan Drive
	System Holistic Perspective -	Increased local connections (4 crossing Egan Dr) benefits minor street traffic operations
Alternative #3:	Industrial Boulevard -	Traffic increases delay for Egan Drive, by decreases delay for side street
	Vintage Boulevard -	Right-in-right-out access to westbound Egan Drive, traffic operations very good.
	Riverside Drive -	Adding the fourth leg to the south ramp terminal intersection & ramps to/from east would decrease intersection capacity, but operations at this location should improve
	Mendenhall Loop Road -	Multiple connections & ramps to/from east at Riverside would decrease traffic volumes at Loop Rd/Egan Dr; improving traffic operations at this location
	Glacier Highway (Airport) -	Minimal conflicting turning movements at this location
	Yandukin Drive -	One way circulation between Glacier and Yandukin allows efficient operations
	Areas off Egan Drive -	Operations west of Jordan Creek would improve while the Yandukin connection would marginally improve operations east of Jordan Creek
	System Holistic Perspective -	Multiple local connections (3 crossing Egan Dr) spreads volumes and allows for more consistent traffic operations through the system
Alternative #4:	Industrial Boulevard -	Traffic increases delay for Egan Drive, by decreases delay for side street
	Vintage Boulevard -	No left-turn movements improve traffic operations at this location
	Riverside Drive -	Adding an additional phase to the intersection results in a small reduction in capacity
	Mendenhall Loop Road -	Triple left-turns and improved lane configuration should assist intersection operation, but critical movements would result in longer delays (decrease in capacity)
	Glacier Highway (Airport) -	Improved lane configuration (3 through lanes per direction) should improve operation at signal
	Yandukin Drive -	Adding a signal to the system and accommodating all movements would result in longer delays and less capacity to Egan Drive
	Areas off Egan Drive -	Additional signals and full movement access points improves minor street traffic operations as well as James/Lemon Spur connection
	System Holistic Perspective -	More signals on Egan Dr - more delay along Egan Dr

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 4 Airport Access

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: South of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: North of Egan & East of Jordan Creek	2	2	2	1
Area off Egan: South of Egan & East of Jordan Creek	2	2	2	1
System Holistic Perspective	2	2	2	1
System Average	1.6	1.6	1.6	1

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	 Full access at Riverside/Loop and Yandukin and to the north at Vintage; north-south link at Riverside and east-west link from James to Glacier (McNugget) to Lemon Spur Yandukin signed as main airport access; interchange provides high capacity
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	 Full access at Riverside/Loop and at Yandukin and to the north at Vintage; north-south link at Riverside and east-west link at Glacier/Lemon Spur (ramps - east) Yandukin signed as main airport access; interchange provides high capacity
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	 Full access via frontage roads (additional north-south link from Mendenhall Valley - Riverside) & Yandukin/Lemon Spur connection Yandukin signed as main airport access; interchange provides high capacity
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	 Airport access improved: additional link at Riverside, and Yandukin full movement connection provides direct access with Glacier Hwy (Fred Meyer) Small improvement over existing

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 5 Local Circulation

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	0	0
Vintage Boulevard	1	1	-2	-1
Riverside Drive	2	2	2	1
Mendenhall Loop Road	0	0	-1	0
Glacier Highway (Airport)	2	2	1	0
Yandukin Drive	2	2	2	1
Area off Egan: North of Egan & West of Jordan Creek	1	2	1	2
Area off Egan: South of Egan & West of Jordan Creek	2	2	1	2
Area off Egan: North of Egan & East of Jordan Creek	2	2	1	2
Area off Egan: South of Egan & East of Jordan Creek	2	2	1	1
System Holistic Perspective	2	2	1	1
System Average	1.4	1.5	0.6	0.8

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Fair	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Change existing circulation
	Vintage Boulevard -	Full access to and from the north; access to and from the south eliminated
	Riverside Drive -	Extend Riverside south and full access
	Mendenhall Loop Road -	No change in access and traffic patterns
	Glacier Highway (Airport) -	New James Blvd/Lemon Spur Rd connection and linked with Glacier Hwy (Airport) major improvement for local trips
	Yandukin Drive -	Full access allowed at realigned Yandukin connection
	Areas off Egan Drive -	Riverside, James/Lemon Spur connections major improvements but emphasizes traffic on James - Mendenhall Mall as RIRO seen as positive contribution
	System Holistic Perspective -	Large improvements due to numerous connections and taking "study area" trips off Egan Dr
Alternative #2:	Industrial Boulevard -	Change existing circulation
	Vintage Boulevard -	Full access to and from the north; access to and from the south eliminated
	Riverside Drive -	Extend Riverside south and full access
	Mendenhall Loop Road -	No change in access
	Glacier Highway (Airport) -	Glacier Hwy (Airport)/Lemon Spur Rd to James Boulevard connection very important, and access to/from Downtown
	Yandukin Drive -	Full access allowed at realigned Yandukin connection
	Areas off Egan Drive -	Vintage/Glacier, Riverside, Glacier/Lemon Spur connections major improvements - Impact on Old Dairy Rd (realignment)
	System Holistic Perspective -	Large improvements due to numerous connections and taking "study area" trips off Egan Dr
Alternative #3:	Industrial Boulevard -	Circulation unchanged
	Vintage Boulevard -	Right-in-right-out access to westbound access to Egan Drive.
	Riverside Drive -	Extend Riverside south and full access (direct access)
	Mendenhall Loop Road -	No access to westbound Egan Drive will increase volumes on James Boulevard
	Glacier Highway (Airport) -	Easy access from east, but access from west will be via Riverside ramps or Yandukin ramps
	Yandukin Drive -	Full access allowed at realigned Yandukin connection
	Areas off Egan Drive -	Yandukin & Riverside connections major improvements
	System Holistic Perspective -	Small improvement due to Yandukin and Riverside connections
Alternative #4:	Industrial Boulevard -	Circulation unchanged
	Vintage Boulevard -	Prohibit left-turns
	Riverside Drive -	Access to the south
	Mendenhall Loop Road -	No change in access and traffic patterns
	Glacier Highway (Airport) -	No change in access and traffic patterns
	Yandukin Drive -	Full access allowed at Yandukin connection
	Areas off Egan Drive -	James/Lemon Spur & Yandukin connections and Riverside south extension improvements
	System Holistic Perspective -	Improvements due to James/Lemon Spur & Yandukin connections & Riverside extension

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 6 Compatibility with Public Transportation

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	1	2	2	2
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: South of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: North of Egan & East of Jordan Creek	2	2	2	1
Area off Egan: South of Egan & East of Jordan Creek	2	2	2	1
System Holistic Perspective	2	2	2	1
System Average	1.5	1.7	1.7	1.2

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Transit stops consolidated to signalized intersection with Egan Drive
	Vintage Boulevard -	Access prohibited, but regular, commuter and express routes can be re-routed via Riverside south extension
	Riverside Drive -	Commuter route can now cross Egan at Riverside Dr & Express route can access Egan Dr
	Mendenhall Loop Road -	Unchanged (except through two signals)
	Glacier Highway (Airport) -	Regular route follow new connection, but commuter route needs to be re-directed to Yandukin (turning movements separated from Egan through traffic)
	Yandukin Drive -	Full access is allowed at Fred Meyer - no change in transit patterns (possibility not to use Egan Dr)
	Areas off Egan Drive -	Riverside, James/Glacier/Lemon Spur & Yandukin connections provide new linkages
	System Holistic Perspective -	Transit service can be off Egan Drive, and decreased delay
Alternative #2:	Industrial Boulevard -	Transit stops consolidated to signalized intersection with Egan Drive
	Vintage Boulevard -	Access prohibited, but regular, commuter and express routes can be re-routed via Riverside south extension
	Riverside Drive -	Commuter route can now cross Egan at Riverside Dr
	Mendenhall Loop Road -	Unchanged (except through two signals)
	Glacier Highway (Airport) -	Regular route follows new connection, and commuter route unchanged due to ramps
	Yandukin Drive -	Full access is allowed at Fred Meyer - no change in transit patterns (possibility to not use Egan Dr), but interchange is moved east away from Fred Meyer
	Areas off Egan Drive -	Riverside, Glacier/Lemon Spur & Yandukin connections provide new linkages and possible transit routing options
	System Holistic Perspective -	Transit service can be off Egan Drive, and decreased delay
Alternative #3:	Industrial Boulevard -	Transit stops consolidated to signalized intersection with Egan Drive
	Vintage Boulevard -	Access prohibited, but regular, commuter and express routes can be re-routed via Riverside south extension, slight backtracking to get to Radcliffe Road
	Riverside Drive -	No change in access and transit along frontage road (turning movements separated from Egan through traffic)
	Mendenhall Loop Road -	Unchanged (except through two signals)
	Glacier Highway (Airport) -	No change in access and transit along frontage road (turning movements separated from Egan through traffic)
	Yandukin Drive -	Full access is allowed at Fred Meyer - no change in transit patterns (possibility to not use Egan Dr)
	Areas off Egan Drive -	Vintage and Yandukin connections provide new linkage and possibility of more off Egan Drive Drive routing
	System Holistic Perspective -	Transit service can be off Egan Drive, and decreased delay
Alternative #4:	Industrial Boulevard -	Transit stops consolidated to signalized intersection with Egan Drive
	Vintage Boulevard -	Left-turns prohibited, but south leg at Riverside requires no significant changes in transit routes
	Riverside Drive -	Commuter route can now cross Egan at Riverside Dr (does not need to Egan)
	Mendenhall Loop Road -	Unchanged
	Glacier Highway (Airport) -	Unchanged
	Yandukin Drive -	Full access is allowed at Fred Meyer - no change in transit patterns
	Areas off Egan Drive -	No significant changes in transit routes, except Yandukin and Riverside connections will provide the possibility to take transit off Egan Dr
	System Holistic Perspective -	No significant changes in transit routes, except Yandukin and Riverside connections will provide the possibility to take transit off Egan Dr

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 7 Compatibility with Pedestrians

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	1	2	2	2
Vintage Boulevard	1	1	0	0
Riverside Drive	2	2	2	1
Mendenhall Loop Road	1	1	1	-2
Glacier Highway (Airport)	2	1	2	-1
Yandukin Drive	0	0	2	1
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	2	2	2	-1
System Average	1.3	1.3	1.6	0

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Poor
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Signalized intersection provides improved access for pedestrians across Egan Drive.
	Vintage Boulevard - New connection will provide ped crossing and separated from Egan through traffic, could provide ped access to Glacier Highway (North) but Vintage crossing unsignalized
	Riverside Drive - Riverside extended south, short crossing distance and separated from Egan through traffic
	Mendenhall Loop Road - Short crossing distance and separated from Egan through traffic
	Glacier Highway (Airport) - New James/Glacier/Lemon Spur connection and separated from Egan through traffic (best local connectivity)
	Yandukin Drive - New connection will provide needed ped crossing and separated from Egan through traffic, but too far to the east
	Areas off Egan Drive - New roads or modifications to existing roadways would include sidewalks and bike lanes
	System Holistic Perspective - Linkage across Egan will be safer due to separation of through traffic
Alternative #2:	Industrial Boulevard - Signalized intersection provides improved access for pedestrians across Egan Drive.
	Vintage Boulevard - New connection will provide ped crossing and separated from Egan through traffic, could provide ped access to Glacier Highway (North) but Vintage crossing unsignalized
	Riverside Drive - Riverside extended south, short crossing distance and separated from Egan through traffic
	Mendenhall Loop Road - Short crossing distance and separated from Egan through traffic
	Glacier Highway (Airport) - New Glacier/Lemon Spur connection, short crossing distance and separated from Egan through traffic
	Yandukin Drive - New connection will provide needed ped crossing and separated from Egan through traffic, but too far to the east
	Areas off Egan Drive - New roads or modifications to existing roadways would include sidewalks and bike lanes
	System Holistic Perspective - Linkage across Egan will be safer due to separation of through traffic
Alternative #3:	Industrial Boulevard - Signalized intersection provides improved access for pedestrians across Egan Drive.
	Vintage Boulevard - No change - peds are not allowed to cross under existing
	Riverside Drive - Riverside extended south, short crossing distance and separated from Egan through traffic
	Mendenhall Loop Road - Short crossing distance and separated from Egan through traffic
	Glacier Highway (Airport) - Separated from Egan through traffic
	Yandukin Drive - New connection will provide needed ped crossing and separated from Egan through traffic
	Areas off Egan Drive - New roads or modifications to existing roadways would include sidewalks and bike lanes
	System Holistic Perspective - Linkage across Egan will be safer due to separation of through traffic
Alternative #4:	Industrial Boulevard - Signalized intersection provides improved access for pedestrians across Egan Drive.
	Vintage Boulevard - No ped crossing - unchanged
	Riverside Drive - Ped crossing distance increased to accommodate more lanes - southern leg will provide another north-south link
	Mendenhall Loop Road - Ped crossing distance increased to accommodate more lanes (substantially)
	Glacier Highway (Airport) - Ped crossing distance increased to accommodate more lanes
	Yandukin Drive - New signal will provide needed ped crossing, but will have to cross many lanes, and too far to the east
	Areas off Egan Drive - New roads or modifications to existing roadways would include sidewalks and bike lanes
	System Holistic Perspective - Linkage across Egan Drive is not improved because impact on signal operation due to wide crossings and time for pedestrians

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 8 Compatibility with Bicyclists

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	1	2	2	2
Vintage Boulevard	2	2	0	0
Riverside Drive	2	2	2	1
Mendenhall Loop Road	1	1	1	-1
Glacier Highway (Airport)	2	1	1	-1
Yandukin Drive	1	1	2	1
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	2	1	1	-1
System Average	1.6	1.4	1.3	0.1

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Poor
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Signalized intersection provides improved access for bicyclists across Egan Drive
	Vintage Boulevard -	Could provide bicycle access from interchange to Glacier Highway (North), but unsignalized crossings of through ramp terminal intersections
	Riverside Drive -	Riverside extended south and separated from Egan through traffic
	Mendenhall Loop Road -	Separated from Egan through traffic
	Glacier Highway (Airport) -	New James/Glacier/Lemon Spur connection and separated from Egan through traffic (best local connectivity)
	Yandukin Drive -	New connection will provide bike crossing and separated from Egan through traffic, but too far to the east
	Areas off Egan Drive -	New or modified roads will include new bicycle lanes
	System Holistic Perspective -	Linkage across Egan improved due to separation of through traffic & east-west, north-south connections
Alternative #2:	Industrial Boulevard -	Signalized intersection provides improved access for bicyclists across Egan Drive
	Vintage Boulevard -	Could provide bicycle access from interchange to Glacier Highway (North), but unsignalized crossings of through ramp terminal intersections
	Riverside Drive -	Riverside extended south and separated from Egan through traffic
	Mendenhall Loop Road -	Separated from Egan through traffic
	Glacier Highway (Airport) -	New Glacier/Lemon Spur connection and separated from Egan through traffic, will have separate, but adjacent multi-use path
	Yandukin Drive -	New connection will provide bike crossing and separated from Egan through traffic, but too far to the east
	Areas off Egan Drive -	New or modified roads will include new bicycle lanes
	System Holistic Perspective -	Linkage across Egan improved due to separation of through traffic
Alternative #3:	Industrial Boulevard -	Signalized intersection provides improved access for bicyclists across Egan Drive
	Vintage Boulevard -	No change - bikes are not allowed to cross anyway
	Riverside Drive -	Riverside extended south and separated from Egan through traffic
	Mendenhall Loop Road -	Separated from Egan through traffic
	Glacier Highway (Airport) -	Separated from Egan through traffic
	Yandukin Drive -	New connection will provide much needed bike crossing and separated from Egan through traffic
	Areas off Egan Drive -	New or modified roads will include new bicycle lanes
	System Holistic Perspective -	Linkage across Egan improved due to separation of through traffic
Alternative #4:	Industrial Boulevard -	Signalized intersection provides improved access for bicyclists across Egan Drive
	Vintage Boulevard -	No bike crossing - unchanged
	Riverside Drive -	Bike crossing distance increased to accommodate more lanes - southern leg will provide another north-south link
	Mendenhall Loop Road -	Bike crossing distance increased to accommodate more lanes (substantially)
	Glacier Highway (Airport) -	Bike crossing distance increased to accommodate more lanes
	Yandukin Drive -	New signal will provide needed bike crossing, but will have to cross many lanes, and too far to the east
	Areas off Egan Drive -	Local network improves due to James/Lemon Spur connection, new or modified roads will include bicycle lanes
	System Holistic Perspective -	Linkage across Egan Drive is not improved because of crossing width

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 9 Environmental Impacts

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-2	-2
Vintage Boulevard	0	0	0	0
Riverside Drive	-1	-1	-1	-1
Mendenhall Loop Road	-2	0	-2	-1
Glacier Highway (Airport)	-2	-1	-1	0
Yandukin Drive	-2	-2	0	-2
Area off Egan: North of Egan & West of Jordan Creek	-2	-1	-1	-1
Area off Egan: South of Egan & West of Jordan Creek	-1	-2	-2	0
Area off Egan: North of Egan & East of Jordan Creek	-2	-2	-1	-1
Area off Egan: South of Egan & East of Jordan Creek	-1	-1	0	0
System Holistic Perspective	-2	-2	-1	-2
System Average	-1.5	-1.2	-1	-0.9

Description of Evaluation Assignment	
+2	Large positive impact
+1	Small positive impact
0	No change
-1	Small negative impact
-2	Large negative impact

Ranking	Poor	Poor	Fair	Fair
---------	------	------	------	------

		Evaluation Notes
Alternative #1:	Industrial Boulevard -	May have some minor impact to high value wetland
	Vintage Boulevard -	No significant impact
	Riverside Drive -	Would impact low value wetland
	Mendenhall Loop Road -	Would impact Duck Creek but also could facilitate other planned Duck Creek projects including relocation of that creek south of Egan.
	Glacier Highway (Airport) -	Could impact high value wetlands along connecting road with Lemon Spur Rd
	Yandukin Drive -	Realignment influences category C wetland south of Egan but also cuts off existing habitat from wildlife refuge. North of Egan, new road goes through higher value wetland and stream area which is used for anadromous fish rearing.
	System Holistic Perspective -	large impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop overall loss of habitat
Alternative #2:	Industrial Boulevard -	May have some minor impact to high value wetland
	Vintage Boulevard -	No significant impact
	Riverside Drive -	Would impact low value wetland
	Mendenhall Loop Road -	Would impact Duck Creek but also could facilitate other planned Duck Creek projects including relocation of that creek south of Egan.
	Glacier Highway (Airport) -	Could impact high value wetlands along connecting road with Lemon Spur Rd. New connecting road goes into the hillside and would change the habitat in this area.
	Yandukin Drive -	Realignment influences category C wetland south of Egan but also cuts off existing habitat from wildlife refuge. North of Egan, new road goes through higher value wetland and stream area which is used for anadromous fish rearing.
	System Holistic Perspective -	some impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop overall loss of habitat
Alternative #3:	Industrial Boulevard -	Significant impact to high value wetland
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	System Holistic Perspective -	
Alternative #4:	Industrial Boulevard -	Significant impact to high value wetland
	Vintage Boulevard -	Widening with no significant change
	Riverside Drive -	Existing road straightened through low value wetland, minimal impact
	Mendenhall Loop Road -	Substantial widening is required, which will have a small environmental impact on the surroundings (Duck Creek)
	Glacier Highway (Airport) -	Widening with no significant change
	Yandukin Drive -	Realignment influences category C wetland south of Egan but also cuts off existing habitat from wildlife refuge. North of Egan, new road goes through higher value wetland and stream area which is used for anadromous fish rearing.
	System Holistic Perspective -	small impact on sensitive areas primarily along north side of Egan as road is widened and in the vicinity of Egan/Loop overall loss of habitat

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 10 Consistency with Other Planning Efforts

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	1	1	-1	-1
Vintage Boulevard	0	0	0	0
Riverside Drive	-1	1	1	1
Mendenhall Loop Road	1	1	1	1
Glacier Highway (Airport)	1	1	1	1
Yandukin Drive	0	0	0	0
Area off Egan: North of Egan & West of Jordan Creek	-2	0	1	1
Area off Egan: South of Egan & West of Jordan Creek	0	0	1	1
Area off Egan: North of Egan & East of Jordan Creek	1	1	1	1
Area off Egan: South of Egan & East of Jordan Creek	1	1	-1	1
System Holistic Perspective	1	1.5	0.5	1
System Average	0.3	0.7	0.4	0.6

Description of Evaluation Assignment	
+2	Consistent with all other plans
+1	Consistent with some other plans
0	Not addressed in any plan
-1	Conflicts with some other plans
-2	Conflicts with all other plans

Ranking	Fair	Fair	Fair	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Address in conceptual planning bringing extra traffic onto Riverside drive through James may alter long-term planning outcome.
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Address in conceptual planning
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Location probably to close to Mendenhall River - impact on bridge design and design of possible interchanges east of interchanges Consistent with other plans, i.e. Riverside Corridor, AWTP, etc. Less compatible with possible 2nd channel crossing connection at Yandukin.
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Location probably to close to Mendenhall River - impact on bridge design and design of possible interchanges east of interchanges Consistent with other plans, i.e. Riverside Corridor, AWTP, 2nd Channel crossing, etc.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 A Compatibility with Built Environment - Social Impacts

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek	0	1	2	-1
Area off Egan: South of Egan & West of Jordan Creek	1	2	0	1
Area off Egan: North of Egan & East of Jordan Creek	2	2	1	1
Area off Egan: South of Egan & East of Jordan Creek	2	2	-1	1
System Holistic Perspective	2	2	1	1
System Average	1	1.3	0.3	0.3

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Fair	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Improved access to Industrial Area
	Vintage Boulevard -	Only one access point to businesses in Vintage Park. Also possible barrier to future development.
	Riverside Drive -	Improved access from and across Egan.
	Mendenhall Loop Road -	Commuter access more efficient. Especially with removing the light at Mendenhall Mall Road.
	Glacier Highway (Airport) -	Better access to area businesses.
	Yandukin Drive -	
	Areas off Egan Drive -	Greatly improved access to businesses off Egan except for Vintage Park. Possible barrier to future development near Vintage.
	System Holistic Perspective -	Greatly improved access to businesses off Egan except for Vintage Park. Possible barrier to future development near Vintage.
Alternative #2:	Industrial Boulevard -	Improved access to Industrial Area
	Vintage Boulevard -	Good circular access to Vintage Park and potential development.
	Riverside Drive -	More traffic on Riverside and in Riverside neighborhoods.
	Mendenhall Loop Road -	Commuter access improved.
	Glacier Highway (Airport) -	Greatly improved access to area businesses.
	Yandukin Drive -	
	Areas off Egan Drive -	Greatly improved access between Fred Meyer and other commercial areas across Egan. Good access to Vintage Park.
	System Holistic Perspective -	Greatly improved access between Fred Meyer and other commercial areas across Egan. Good access to Vintage Park.
Alternative #3:	Industrial Boulevard -	Improved access to Industrial and Brotherhood Bridge
	Vintage Boulevard -	Better access from Vintage to Egan and elsewhere.
	Riverside Drive -	Traffic rerouted to Vintage, Loop and frontage roads.
	Mendenhall Loop Road -	Commuter access more efficient.
	Glacier Highway (Airport) -	Some traffic rerouted from Glacier to frontage roads. May hurt businesses dependent on drop-in traffic..
	Yandukin Drive -	
	Areas off Egan Drive -	Improved access across Egan, but frontage roads may route traffic away from existing businesses.
	System Holistic Perspective -	Good connectivity to business areas across Egan. Slight improvement.
Alternative #4:	Industrial Boulevard -	Improved access to Industrial and Brotherhood Bridge
	Vintage Boulevard -	Diminished access to Vintage Park businesses and future development.
	Riverside Drive -	More traffic on Riverside and in Riverside neighborhoods. Glacier Highway North neighborhoods will receive heavier traffic.
	Mendenhall Loop Road -	Commuter access improved as some traffic moves to Riverside Drive.
	Glacier Highway (Airport) -	Better access to area businesses.
	Yandukin Drive -	
	Areas off Egan Drive -	Better access to businesses off of Egan by Yandukin and Riverside connections.
	System Holistic Perspective -	Riverside and Yandukin connections improve business access in some areas. Slight improvement over existing.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 B Compatibility with Built Environment - Short-term Economic

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Boulevard Area				
Vintage Park Area				
Mendenhall Mall Area				
Glacier Highway/Airport Area				
Old Dairy Road				
Fred Meyer Area				
Jensine/Wild Meadow Neighborhood				
James Boulevard Neighborhood				
Atlin/Aurora Neighborhood				
Hurlock Neighborhood				
Glacier Highway North Neighborhoods				
Construction Economic Impact	2	2	2	1
System Holistic Perspective				
System Average	2	2	2	1

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Good	Good	Good
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	
	Vintage Park -	
	Mendenhall Mall -	
	Glacier Highway (Airport) -	
	Old Dairy Road -	
	Fred Meyer -	
	Construction Economic Impact -	Payroll = \$ 41 million and Local Sales Tax Revenues = \$1.3 million
	System Holistic Perspective -	
Alternative #2:	Industrial Boulevard -	
	Vintage Park -	
	Mendenhall Mall -	
	Glacier Highway (Airport) -	
	Old Dairy Road -	
	Fred Meyer -	
	Construction Economic Impact -	Payroll = \$ 38 million and Local Sales Tax Revenues = \$1.2 million
	System Holistic Perspective -	
Alternative #3:	Industrial Boulevard -	
	Vintage Park -	
	Mendenhall Mall -	
	Glacier Highway (Airport) -	
	Old Dairy Road -	
	Fred Meyer -	
	Construction Economic Impact -	Payroll = \$ 34 million and Local Sales Tax Revenues = \$1.1 million
	System Holistic Perspective -	
Alternative #4:	Industrial Boulevard -	
	Vintage Park -	
	Mendenhall Mall -	
	Glacier Highway (Airport) -	
	Old Dairy Road -	
	Fred Meyer -	
	Construction Economic Impact -	Payroll = \$ 14 million and Local Sales Tax Revenues = \$0.4 million
	System Holistic Perspective -	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 C Compatibility with Built Environment - Long-term Economic

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Boulevard Area	0	0	0	0
Vintage Park Area	1	1	0	1
Mendenhall Mall Area	-1	0	1	0
Glacier Highway/Airport Area	1	1	1	1
Old Dairy Road	2	-1	2	1
Fred Meyer Area	2	-1	2	2
Jensine/Wild Meadow Neighborhood				
James Boulevard Neighborhood				
Atlin/Aurora Neighborhood				
Hurlock Neighborhood				
Glacier Highway North Neighborhoods				
Construction Economic Impact				
System Holistic Perspective	2	1	1	2
System Average	1	0.1	1	1

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good	Fair	Good	Good
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Virtually no change in traffic.
	Vintage Park -	Slight increase in drive-by traffic
	Mendenhall Mall -	Slight decrease in drive-by traffic
	Glacier Highway (Airport) -	Slight increase in drive-by traffic
	Old Dairy Road -	Modest increase in drive-by traffic
	Fred Meyer -	Modest increase in drive-by traffic
	Construction Economic Impact -	
	System Holistic Perspective -	Good connectivity, increased traffic for business.
Alternative #2:	Industrial Boulevard -	Virtually no change in traffic.
	Vintage Park -	Slight increase in drive-by traffic
	Mendenhall Mall -	Virtually no change in traffic.
	Glacier Highway (Airport) -	Slight increase in drive-by traffic
	Old Dairy Road -	Slight decrease in drive-by traffic
	Fred Meyer -	Slight decrease in drive-by traffic
	Construction Economic Impact -	
	System Holistic Perspective -	Very little improvement for business.
Alternative #3:	Industrial Boulevard -	Virtually no change in traffic.
	Vintage Park -	Virtually no change in traffic.
	Mendenhall Mall -	Slight increase in drive-by traffic
	Glacier Highway (Airport) -	Slight increase in drive-by traffic
	Old Dairy Road -	Modest increase in drive-by traffic
	Fred Meyer -	Huge increase in drive-by traffic
	Construction Economic Impact -	
	System Holistic Perspective -	Improvement in traffic for businesses.
Alternative #4:	Industrial Boulevard -	Virtually no change in traffic.
	Vintage Park -	Slight increase in drive-by traffic
	Mendenhall Mall -	Virtually no change in traffic.
	Glacier Highway (Airport) -	Slight increase in drive-by traffic
	Old Dairy Road -	Slight increase in drive-by traffic
	Fred Meyer -	Large increase in drive-by traffic.
	Construction Economic Impact -	
	System Holistic Perspective -	Large improvement for business.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion				
Evaluation Criterion:		11 D Compatibility with Built Environment - Long-term Social		
Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Boulevard Area				
Vintage Park Area				
Mendenhall Mall Area				
Glacier Highway/Airport Area				
Old Dairy Road				
Fred Meyer Area				
Jensine/Wild Meadow Neighborhood	-1	-1	1	1
James Boulevard Neighborhood	-2	-2	-2	-2
Atlin/Aurora Neighborhood	-2	0	-2	-2
Hurlock Neighborhood	2	2	2	0
Glacier Highway North Neighborhoods	-2	-2	-2	-2
Construction Economic Impact				
System Holistic Perspective	-2	-1	-2	-2
System Average	-1.2	-0.7	-0.8	-1.2

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Poor	Poor	Poor	Poor
---------	------	------	------	------

Evaluation Notes	
Alternative #1:	Industrial Boulevard -
	Vintage Park -
	Mendenhall Mall -
	Glacier Highway (Airport) -
	Old Dairy Road -
	Fred Meyer -
	Wildmeadow Area - Increased bus and tourist traffic in neighborhoods.
	James Boulevard Area - Huge increase in traffic in these neighborhoods
	Atlan/Aurora Areas - Large increase in traffic in these neighborhoods
	Hurlock Area - Safer access by moving connection with Glacier Highway/Airport.
	Glacier Highway North - Large increase in traffic in these neighborhoods
	Construction Economic Impact -
	System Holistic Perspective - Huge negative impact on neighborhoods.
Alternative #2:	Industrial Boulevard -
	Vintage Park -
	Mendenhall Mall -
	Glacier Highway (Airport) -
	Old Dairy Road -
	Fred Meyer -
	Wildmeadow Area - Increased bus and tourist traffic in neighborhoods.
	James Boulevard Area - Modest increase in drive-by traffic
	Atlan/Aurora Areas - Virtually no change in traffic.
	Hurlock Area - Safer access by moving connection with Glacier Highway/Airport.
	Glacier Highway North - Large increase in traffic in these neighborhoods
	Construction Economic Impact -
	System Holistic Perspective - Modest increase in traffic near neighborhoods
Alternative #3:	Industrial Boulevard -
	Vintage Park -
	Mendenhall Mall -
	Glacier Highway (Airport) -
	Old Dairy Road -
	Fred Meyer -
	Wildmeadow Area - Traffic better dispersed with two accesses to Industrial
	James Boulevard Area - Huge increase in traffic in these neighborhoods
	Atlan/Aurora Areas - Large increase in traffic in these neighborhoods
	Hurlock Area - Safer access by moving connection with Glacier Highway/Airport.
	Glacier Highway North - Huge increase in traffic in these neighborhoods
	Construction Economic Impact -
	System Holistic Perspective - Huge negative impact on neighborhoods.
Alternative #4:	Industrial Boulevard -
	Vintage Park -
	Mendenhall Mall -
	Glacier Highway (Airport) -
	Old Dairy Road -
	Fred Meyer -
	Wildmeadow Area - Traffic better dispersed with two accesses to Industrial
	James Boulevard Area - Huge increase in traffic in these neighborhoods
	Atlan/Aurora Areas - Large increase in traffic in these neighborhoods
	Hurlock Area - No change
	Glacier Highway North - Large increase in traffic in these neighborhoods
	Construction Economic Impact -
	System Holistic Perspective - Huge negative impact on neighborhoods.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 12 Constructability

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	-2	-2	-2	0
System Average	-2	-2	-2	0

Description of Evaluation Assignment	
+2	Limited impact on traffic flow
+1	0
0	Moderate impact on traffic flow
-1	0
-2	Major impact on traffic flow

Ranking	Poor	Poor	Poor	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	New roads present opportunities to handle traffic. Urban section on Egan will require temporary structures. Estimate more than \$3 million in Traffic Maintenance.
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Diamond ramps can provide detours New roads present opportunities to handle traffic. Urban section on Egan will require temporary structures. Estimate more than \$3 million in Traffic Maintenance.
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Various ramps/fronage roads may facilitate traffic during construction. Urban section on Egan will require temporary structures. Est. about \$3 million in Traffic Maintenance
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Most construction ca occur without impacting traffic Duration of major disruption can be limited to a weekend Limited impact on traffic flow Re-routing of trips can be facilitated by James Lemon Spur extension. An order of magnitude less in construction traffic delay, compared to interchanges. Estimate \$1.5 million in Traffic Maintenance

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 13 Funding Feasibility

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	-2	-2	-1	2
System Average	-2	-2	-1	2

Description of Evaluation Assignment	
+2	Accelerated funding may be available
+1	0
0	Reasonable funding feasibility
-1	0
-2	Unreasonable funding feasibility

Ranking	Poor	Poor	Fair	Good
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Substantial additional funding should be made available
Alternative #2:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Substantial additional funding should be made available
Alternative #3:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Additional funding should be made available
Alternative #4:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	
	System Holistic Perspective -	Accelerated funding should be available for smaller projects

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 14 Phased Implementation & Expandability

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	0	0	-1	2
System Average	0	0	-1	2

Description of Evaluation Assignment	
+2	Easily phased into future improvements
+1	0
0	Phasing into future improvements limited
-1	0
-2	Future improvements - excessive abortive work

Ranking	Fair	Fair	Poor	Good
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Modifications along Glacier Hwy in the vicinity of Industrial Blvd can be built as one project Vintage Blvd, Riverside Dr & Loop Rd split diamond and Riverside Dr south extension would need to be built as one project. Ramps to/from east to be reconstructed if Glacier Hwy (Airport) grade separation is built after this project. James/Lemon Spur connection any time, then link to Glacier and grade separated at Egan. Change Loop Rd ramps to/from east if grade separation is constructed afterwa Yandukin realignment and conversion to interchange as needed (stand-alone project) Off Egan Dr modifications will be implemented as needed System can be divided into a few separate projects (as traffic growth requires) - approximately four phases for upgrading Egan Drive
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Modifications along Glacier Hwy in the vicinity of Industrial Blvd can be built as one project Vintage Blvd, Riverside Dr & Loop Rd interchanges and Riverside Dr south extension to be built as one project. If necessary, ramps to/from east would need to be reconstructed if Glacier Hwy (Airport) interchange is built after this project. Westbound frontage road Glacier to Loop to be constructed last. Lemon Spur Connection, and interchange can be done any time. Westbound frontage road Glacier to Loop to be constructed last. Yandukin realignment and conversion to interchange as needed (stand-alone project) Off Egan Dr modifications will be implemented as needed System can be divided into a few separate projects (as traffic growth requires) - approximately four phases for upgrading Egan Drive
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Modifications along Glacier Hwy in the vicinity of Industrial Blvd can be built as one project Riverside Dr & Loop Rd interchanges (incl. Vintage Blvd right-in/right-out) and Riverside Dr south extension would need to be built as one project. Ramps to/from east to be reconstructed if Glacier Hwy (Airport) and Yandukin interchanges are built after this project. Glacier Hwy (Airport) & Yandukin realignment and interchanges will need to be built as one project. West approach to be reconstructed if Riverside/Loop interchanges is built after this project. Off Egan Dr modifications will be implemented as needed System has limited options for phased implementation (as traffic growth requires) - approximately three phases for upgrading Egan Drive
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Modification can be done as needed - separate project Modification can be done as needed - separate project Modifications (including Riverside extension south) can be done as needed - separate project Modification can be done as needed - separate project Modification can be done as needed - separate project Modification can be done as needed - separate project Off Egan Dr modifications will be implemented as needed System can easily be divided into different projects (phased implementation), as traffic growth requires

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 15 Construction Costs

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	-2	-2	-1	1
System Average	-2	-2	-1	1

Description of Evaluation Assignment		
Less than 25 million	+2	Relatively inexpensive
25-50 million	+1	0
50-75 million	0	Moderately inexpensive
75-100 million	-1	0
more than 100 million	-2	Very expensive

Ranking	Poor	Poor	Fair	Good
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	At Grade at Realigned Industrial Split Diamond between Vintage/Loop Extend Riverside South, Grade Separation Grade Separation Glacier-Egan Tight Urban Diamond at realigned Yandukin East James Blvd./Lemon Spur Connect Change eastern Mall access Relocate Hurlock Ave Access Estimate = \$112 million
Alternative #2:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	At Grade at Realigned Industrial Split Diamond Vintage to Riverside Extend Riverside south of Egan Partial Diamond at Loop Half Diamond at Glacier Tight Diamond at Realigned Yandukin East Glacier Hwy/Lemon Spur Rd. Connection Relocate Hurlock Ave Access Estimate = \$109 million
Alternative #3:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	At Grade at Existing Industrial Split Diamond Riverside to Loop Extend Riverside South Grade Searate Glacier and Egan Diamond at realigned Yandukin west Glacier Hwy/Lemon Spur Rd. Connection Frontage Road, Glacier to Yandukin Change eastern Mall access Relocate Hurlock Ave Access Estimate = \$95 million
Alternative #4:	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	At Grade at Existing Industrial Vintage at Grade, RIRO Riverside at Grade Extend Riverside South Loop Rd. at Grade Glacier at Grade Full signalized at Yandukin Dr. James Blvd./Lemon Spur Rd. Connect Estimate = \$46 million

} |2 addnl lanes, Fred Meyers to Loop

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 16 Maintenance Requirements

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard	1	1	0	2
Riverside Drive	-1	-1	-1	0
Mendenhall Loop Road	-2	-2	-2	0
Glacier Highway (Airport)	-1	-1	-2	2
Yandukin Drive	-2	-2	-2	-1
Area off Egan: North of Egan & West of Jordan Creek	-2	1	1	1
Area off Egan: South of Egan & West of Jordan Creek	1	1	1	1
Area off Egan: North of Egan & East of Jordan Creek	-2	-2	-2	1
Area off Egan: South of Egan & East of Jordan Creek	1	1	-1	1
System Holistic Perspective	-2	-2	-2	1
System Average	-0.9	-0.6	-1	0.6

Description of Evaluation Assignment	
+2	No Change
+1	Small increase in maintenance
0	Moderate increase in maintenance
-1	Large increase in maintenance
-2	Very Large increase in maintenance

Ranking	Poor	Poor	Poor	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	New Roads
	Vintage Boulevard -	Cul-de-sac slightly increases snow plowing effort
	Riverside Drive -	New road, structure
	Mendenhall Loop Road -	Interchange
	Glacier Highway (Airport) -	New road, structure
	Yandukin Drive -	Interchange
	Areas off Egan Drive -	Lemon Spur Road to James extension
	System Holistic Perspective -	Less snow storage, more lane miles, new roads, and more complex interchange configuration will increase maintenance.
Alternative #2:	Industrial Boulevard -	New Roads
	Vintage Boulevard -	Cul-de-sac slightly increases snow plowing effort
	Riverside Drive -	New road, structure
	Mendenhall Loop Road -	Interchange
	Glacier Highway (Airport) -	Interchange
	Yandukin Drive -	Interchange
	Areas off Egan Drive -	Lemon Spur Road extension and Egan Ramp
	System Holistic Perspective -	Less snow storage, more lane miles, new roads, and more complex interchange configuration will increase maintenance.
Alternative #3:	Industrial Boulevard -	New Roads
	Vintage Boulevard -	Cul-de-sac slightly increases snow plowing effort
	Riverside Drive -	Extensive structures, lane miles, guardrail, lighting, drainage, etc.
	Mendenhall Loop Road -	Extensive structures, lane miles, guardrail, lighting, drainage, etc.
	Glacier Highway (Airport) -	Extensive structures, lane miles, guardrail, lighting, drainage, etc.
	Yandukin Drive -	Extensive structures, lane miles, guardrail, lighting, drainage, etc.
	Areas off Egan Drive -	Slight increase East end due to new roads, West side very slight increase
	System Holistic Perspective -	Less snow storage, more lane miles, new roads, and more complex interchange configuration will increase maintenance.
Alternative #4:	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	New Road
	Mendenhall Loop Road -	Added Intersection Lanes
	Glacier Highway (Airport) -	
	Yandukin Drive -	New Road/Intersection
	Areas off Egan Drive -	James to Lemon Spur extension.
	System Holistic Perspective -	Numerous lane additions will require greater maintenance, especially snow removal.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 17 Satisfies Design Requirements

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd				
Vintage Boulevard				
Riverside Drive				
Mendenhall Loop Road				
Glacier Highway (Airport)				
Yandukin Drive				
Area off Egan: North of Egan & West of Jordan Creek				
Area off Egan: South of Egan & West of Jordan Creek				
Area off Egan: North of Egan & East of Jordan Creek				
Area off Egan: South of Egan & East of Jordan Creek				
System Holistic Perspective	1	1	1	1
System Average	1	1	1	1

Description of Evaluation Assignment	
+2	Meets desirable standards
+1	0
0	Meets minimum standards
-1	0
-2	Does not meet standards

Ranking	Fair	Fair	Fair	Fair
---------	------	------	------	------

Evaluation Notes

Alternative #1:	Industrial Boulevard -	Undesirable northbound intersection approach due to limited visibility of new signal
	Vintage Boulevard	Interchange according to desirable standards with possible exceptions
	Riverside Drive	Interchange according to desirable standards with possible exceptions
	Mendenhall Loop Road	Interchange according to desirable standards with possible exceptions
	Glacier Highway (Airport)	New connections - minimum standards to minimize impact
	Yandukin Drive	Interchange according to desirable standards with possible exceptions (location of eastbound off-ramp could be a concern)
	Areas off Egan Drive	All improvements off Egan Dr will be done according to minimum standards or better
	System Holistic Perspective	Standards ranging from minimum to desirable standards (Interchange and improved geometry will comply with more desirable design standards)
Alternative #2:	Industrial Boulevard -	According to minimum standards or better
	Vintage Boulevard	Interchange according to desirable standards with possible exceptions
	Riverside Drive	Interchange according to desirable standards with possible exceptions (location of westbound off-ramp could be a concern)
	Mendenhall Loop Road	Interchange according to desirable standards with possible exceptions (westbound weaving section Loop to Riverside is questionable)
	Glacier Highway (Airport)	New connection minimum standards (minimize impact) and interchange desirable standards with possible exceptions
	Yandukin Drive	Interchange according to desirable standards with possible exceptions (location of eastbound off-ramp could be a concern)
	Areas off Egan Drive	All improvements off Egan Dr will be done according to minimum standards or better
	System Holistic Perspective	Standards ranging from minimum to desirable standards (Interchange and improved geometry will comply with more desirable design standards)
Alternative #3:	Industrial Boulevard -	According to minimum standards or better
	Vintage Boulevard	Undesirable right-in/right-out on westbound on-ramp (non-standard)
	Riverside Drive	Interchange according to desirable standards with possible exceptions (location of westbound off-ramp could be problematic)
	Mendenhall Loop Road	Interchange according to desirable standards with possible exceptions
	Glacier Highway (Airport)	Interchange according to desirable standards with possible exceptions
	Yandukin Drive	Interchange according to desirable standards with possible exceptions (weaving section Glacier to Yandukin is questionable)
	Areas off Egan Drive	All improvements off Egan Dr will be done according to minimum standards or better
	System Holistic Perspective	Standards ranging from minimum to desirable standards (Interchange and improved geometry will comply with more desirable design standards)
Alternative #4:	Industrial Boulevard -	According to minimum standards or better
	Vintage Boulevard	Left-turns prohibited at intersection - eliminate geometric deficiency
	Riverside Drive	Addition of south leg to the intersection according to minimum standards or better
	Mendenhall Loop Road	Unusual large footprint of at-grade intersection, especially in Alaska (i.e. dual left-turns and dual right-turns)
	Glacier Highway (Airport)	No change to existing intersection geometry, except for addition of third through lane in both east- and westbound directions
	Yandukin Drive	Undesirable northbound intersection approach due to limited visibility of new signal
	Areas off Egan Drive	All improvements off Egan Dr will be done according to minimum standards or better
	System Holistic Perspective	System will meet minimum standards or better

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 18 Right-of-Way Requirements

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives			
	#1	#2	#3	#4
Industrial Blvd	-1	-1	-1	-1
Vintage Boulevard	1	-2	-2	2
Riverside Drive	-2	-2	-2	-1
Mendenhall Loop Road	-2	-2	-2	0
Glacier Highway (Airport)	-2	-2	-2	1
Yandukin Drive	-1	-1	-2	-1
Area off Egan: North of Egan & West of Jordan Creek	-2	-1	-1	-2
Area off Egan: South of Egan & West of Jordan Creek	0	-2	-1	0
Area off Egan: North of Egan & East of Jordan Creek	-2	-2	-2	-2
Area off Egan: South of Egan & East of Jordan Creek	-1	-1	-2	-1
System Holistic Perspective	-2	-2	-2	0
System Total	-2	-2	-2	0

Description of Evaluation Assignment	
+2	No affected properties
+1	0
0	Limited affected properties
-1	0
-2	Numerous affected properties

Ranking	Poor	Poor	Poor	Fair
---------	------	------	------	------

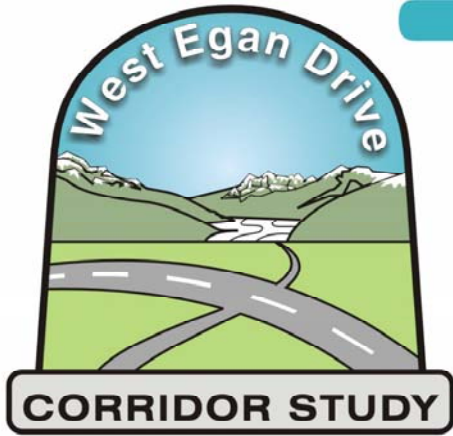
Evaluation Notes

Alternative #1:	Industrial Boulevard -	Minimizes involvement along and south of Egan, some 4(f) involvement.
	Vintage Boulevard -	
	Riverside Drive -	New ROW required
	Mendenhall Loop Road -	New ROW required
	Glacier Highway (Airport) -	New ROW required
	Yandukin Drive -	New ROW required
	Areas off Egan Drive -	New James/Lemon Spur/Glacier Extension
	System Holistic Perspective -	Estimate \$12 million ROW cost
Alternative #2:	Industrial Boulevard -	Minimizes involvement along and south of Egan, some 4(f) involvement.
	Vintage Boulevard -	
	Riverside Drive -	New ROW required
	Mendenhall Loop Road -	New ROW required
	Glacier Highway (Airport) -	New ROW required
	Yandukin Drive -	New ROW required
	Areas off Egan Drive -	New Glacier/Lemon Spur
	System Holistic Perspective -	Estimate \$14 million ROW cost
Alternative #3:	Industrial Boulevard -	Minimizes involvement along and south of Egan, some 4(f) involvement.
	Vintage Boulevard -	New ROW required
	Riverside Drive -	New ROW required
	Mendenhall Loop Road -	New ROW required
	Glacier Highway (Airport) -	New ROW required
	Yandukin Drive -	New ROW required
	Areas off Egan Drive -	Yandukin west
	System Holistic Perspective -	Estimate \$12 million ROW cost
Alternative #4:	Industrial Boulevard -	Minimizes involvement along and south of Egan, some 4(f) involvement.
	Vintage Boulevard -	
	Riverside Drive -	New ROW required
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	Some new ROW required
	Areas off Egan Drive -	
	System Holistic Perspective -	Estimate \$5 million ROW costs

Section 9 Final Report Chapter 6 Appendix

Appendix E: Traffic Operations Proposed Action





West Egan Drive Corridor Study

Appendix E

Proposed Action Traffic Operations Analysis

May 2003

Kittelson & Associates, Inc.
in association with CH2M Hill,
Cogan Owens Cogan, and Southeast Strategies

INTRODUCTION

This memo documents the results of the traffic operations analysis performed on the Department's Proposed Action. This analysis considers weekday a.m. and p.m. peak hour intersection capacity, level of service, and queuing conditions assuming full buildout of the proposed action by 2025.

The forecast a.m. and p.m. peak hour 2025 traffic volumes are presented in Figures 1 and 2, respectively. These forecasts were developed based on information from the future conditions no-build traffic analysis, and the results of the origin-destination survey conducted as part of Task 3. The Proposed Action intersection lane configurations and traffic control devices are shown in Figure 3.

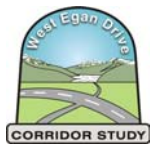
ANALYSIS OF PROPOSED ACTION

The lane configurations and traffic control devices identified for the proposed action have been designed to provide Level of Service (LOS) D or better operating conditions and an intersection volume-to-capacity ratio less than or equal to 0.90, except where noted. Though ADOT&PF design guidelines strive for LOS C conditions, LOS D is considered generally acceptable at signalized intersections. A tabular summary of forecasted a.m. and p.m. peak hour traffic operating conditions for the Department's Proposed Action is included in Tables 1 and 2, respectively. Supporting traffic operations calculation work sheets are included as Appendix A.

The evaluation also includes a study of 95th-percentile vehicle queue lengths at critical study intersections – those where queuing may be of concern because of close intersection spacing, or where travel demand is high and it is essential to confirm that adequate vehicle storage is provided. A 95th-percentile queue represents a standard design threshold that is used to ensure that turn lanes are sized properly and that intersections are spaced appropriately. In broad terms, the 95th percentile queue length means that queues will be no longer than the 95th-percentile queue for 95 percent of the signal cycles during the peak hour.

Proposed Action – Major System Features

- The intersections of Riverside Drive/Egan Drive and Mendenhall Loop Road/Egan Drive are converted to full access interchanges, with frontage roads connecting Riverside Drive to Mendenhall Loop Road on both the north and south side of Egan Drive. Access from

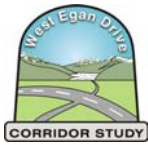


Vintage Boulevard to Egan Drive is limited to right-in/right-out only to and from the westbound Egan Drive on-ramp.

- The Glacier Highway (Airport)/Egan Drive intersection is converted to a partial interchange that provides an off-ramp from Egan Drive with access to Lemon Spur Road, Glacier Highway (Airport), a westbound frontage road to Mendenhall Loop Road, and an on-ramp from Glacier Highway (Airport) to eastbound Egan Drive. No off-ramp is provided between eastbound Egan Drive and Glacier Highway (Airport).
- Access to Riverside Drive from westbound Egan Drive is provided via an off-ramp from Egan Drive. This ramp is configured to exit Egan Drive after the Mendenhall Loop Road off-ramp and continue as a bridge crossing over the north ramp terminal intersection of Mendenhall Loop Road/Egan Drive. This design allows the heavy right turn movement from westbound Egan Drive to northbound Riverside Drive to occur without weaving on the frontage road.
- Lemon Spur Road is extended as a two-lane road to Glacier Highway (Airport), providing access from the south side of Egan Drive to Fred Meyer.
- The Yandukin Drive/Egan Drive intersection is relocated east and converted to a traditional diamond interchange with full access for all movements.
- Industrial Boulevard is relocated to the west opposite Wildmeadow Lane and signalized.
- Riverside Drive is extended south from Egan Drive and aligned with Glacier Highway (north). Glacier Highway (North) no longer connects to Egan Drive at Vintage Boulevard.
- Mendenhall Mall Road/Mendenhall Loop Road intersection remains a full access intersection.
- Access to/from Hurlock Avenue via Mendenhall Loop Road would be replaced by a new access to Mendenhall Loop Road opposite where Del Rae Road currently intersects Mendenhall Loop Road.
- Del Rae Road is closed west of Mendenhall Loop Road and re-aligned to intersect with Glacier Highway (North) south of the current intersection.
- Old Dairy Road maintains its existing alignment and continues to provide a connection between Glacier Highway (Airport) and Yandukin Drive.

Proposed Action Facility Needs

- Egan Drive is a four-lane, divided roadway throughout the corridor. Access is provided only through on-ramps and off-ramps except at the realigned Industrial Boulevard, which is signalized.



- Glacier Highway (Airport), from the south ramp terminal intersection at the Egan Drive on-ramp to the Mendenhall Loop Road interchange, is a five-lane roadway.
- Right turns from Egan Drive to northbound Mendenhall Loop Road are no longer free flowing; they would be controlled by traffic signals.
- Riverside Drive is a four-lane roadway north of the interchange at Egan Drive (two through lanes northbound, one through lane southbound, plus center left turn lane) to James Boulevard where Riverside Drive would return to its existing configuration as a two-lane roadway.
- Lemon Spur Road is a two-lane facility.

Traffic Operations

Some notable operational elements of the Proposed Action are identified below:

Capacity and Delay

- All but one of the signalized intersections will at Level of Service (LOS) C or better and a volume-to-capacity ratio of 0.90 or better during both the a.m. and p.m. peak hours. The exception is Egan Drive North Ramp/Mendenhall Loop Road, which is expected to operate at LOS C and a volume-to-capacity ratio of 0.92 during the p.m. peak hour.
- The intersection of Glacier Highway (Airport) and Berners Avenue is not signalized. This results in northbound motorists experiencing considerable delay when trying to turn left onto Glacier Highway during the a.m. and p.m. peak hours. This low volume movement has alternative signalized access to Glacier Highway. In addition, while delay may be high there is capacity available for motorists to complete the turning movement.
- At the Glacier Highway (North)/Del Rae Road intersection the delay experienced by the westbound (side street) vehicles due to the relatively high volume of northbound and southbound through traffic results in LOS E during the weekday p.m. peak hour. However, the westbound volumes are very low and do not warrant any additional lanes or traffic control.

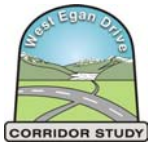
Queuing

The design accommodates the forecasted vehicle queuing needs except at Egan Drive/Mendenhall Loop Road North Ramp Terminal. During the p.m. peak hour the southbound through movement queues will spill north through the Mendenhall Loop Road/Mendenhall Mall Road intersection. This queue is expected to occur on green indication and therefore is not likely to have a lasting impact during the p.m. peak hour.

Weaving Sections

In the Proposed Action there are weaving sections at the following locations:

- *Egan Drive between the westbound on-ramp west of Vintage Boulevard and the westbound left turn at Industrial Boulevard:* The realignment of Industrial Boulevard opposite Wildmeadow Lane increases the weaving length to decrease the impact of the



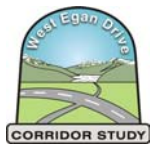
potential lane changing conflicts. However, weaving will still occur where vehicles coming from Mendenhall Loop Road, Riverside Drive, and Vintage Boulevard cross over Egan Drive to turn left at Industrial Boulevard.

- *Westbound Riverside Drive fly-over off-ramp merge with the westbound frontage road from Mendenhall Loop Road:* Although the heaviest movement (westbound Egan Drive to northbound Riverside Drive) will not experience any weaving, other minor movements will have to change lanes in a short distance (e.g., westbound Egan Drive to southbound Riverside Drive, westbound frontage road to northbound Riverside Drive).
- *Westbound Mendenhall Loop Road off-ramp merge with the westbound frontage road from Glacier Highway (Airport) for motorists traveling to northbound Mendenhall Loop Road:* Some vehicles in this heavy movement may want to change lanes to be in the right-most lane when turning right onto northbound Mendenhall Loop Road.

Geometric Considerations

Some notable geometric elements of the Proposed Action include:

- The existing horizontal alignment of Egan Drive in the vicinity of Mendenhall Loop Road intersection has an undesirable broken-back arrangement of curves. Providing a single 2,850-foot radius curve eliminates this geometric deficiency.
- The smallest horizontal curve introduced in the new Egan Drive horizontal alignment has a 2,000-foot radius. With the future construction of median barrier between opposing traffic, the stopping sight distance for motorists traveling on the outside of the curve would comply with a design speed of approximately 55 miles per hour.
- The Riverside Drive extension impacts existing buildings (a residential house and church). The proposed alignment currently conforms to a design speed of approximately 35 miles per hour.
- The location of the eastbound off-ramp at the new Yandukin Drive interchange is located on the outside of a 2,000-foot radius curve. Exit speeds could be too high and the exact location of this ramp should be reviewed as this alternative is carried forward in the design process.
- The proposed Egan Drive/Yandukin Drive interchange alignment results in an intersection angle of approximately 62 degrees. This satisfies the minimum design criterion for intersection angle. As this alternative is carried forward, there may be an opportunity to optimize the intersection angle and approach alignment during the next stage of the design process.
- The location of stop bars and crosswalks at intersections should be finalized during the next design stage to accommodate the turning swept paths of trucks.



LINK VOLUME COMPARISON

Table 1 presents a comparison of selected link volumes for each of the alternatives, derived from the traffic volume figures in this appendix. Link volumes are between intersections or interchanges and have been approximated where there are intermediate streets or driveways. Additional volumes can be derived from the traffic volume figures as needed.

TABLE 1: DESIGN YEAR LINK VOLUMES, A.M. PEAK HOUR

	Design Year A.M. Peak Hour Traffic Volumes (Bi-Directional)					
	No-build	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Proposed Action
Egan Drive						
Industrial Blvd to Vintage Blvd	1620	1650	1650	1620	1630	1650
Vintage Blvd to Riverside Dr	1265	540	540	470	1360	540
Riverside Dr to Mend. Loop Rd	1715	540	1160	470	1580	1160
Mend. Loop to Glacier Hwy (Apt)	3010	2620	2510	2620	2820	2510
Glacier Hwy (Apt) to Yandukin Dr	3185	2620	3150	2620	2950	3150
Glacier Highway (North, Airport)						
Egan Dr to Sunset Dr/Riverside Dr	495	<100	<100	<100	250	<100
Riverside Dr to Mend. Loop Rd	400	820	860	1040	650	860
Mend. Loop Rd to Shell Simmons	1230	2070	1550	1660	1470	1550
Shell Simmons Dr to Jordan Ave	1200	1820	1500	1520	1440	1500
Jordan Ave to Old Dairy Rd	1145	1820	1255	1050	1280	1255
Old Dairy Rd to Egan Dr	1375	190	770	---	1100	770
Mendenhall Loop Road						
South of Egan Dr.	865	1190	970	820	840	970
Egan Dr to Mend. Mall Rd.	2310	1970	2190	2080	2230	2190
Mend. Mall Rd. to James Blvd	2345	2070	2370	2130	2240	2370
Riverside Drive						
South of Egan Dr	---	790	860	1040	600	860
Egan Dr to Vintage/Mend. Mall Rd	1110	1100	1080	1390	1080	1110
Vintage/Mend. Mall Rd to James	1005	1100	920	1300	1040	920
James Boulevard						
East of Riverside Dr	80	120	110	90	120	110
West of Mend. Loop Rd	220	430	270	400	340	270
Lemon Spur Road/Glacier Hwy (Lemon Rd)						
Mend. Loop to Glacier Hwy (Apt)	---	290	---	---	210	---
Glacier Hwy (Airport) to Yandukin	40	180	150	---	210	150

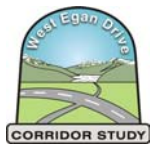
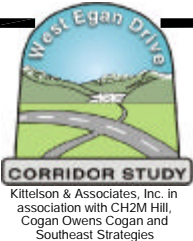
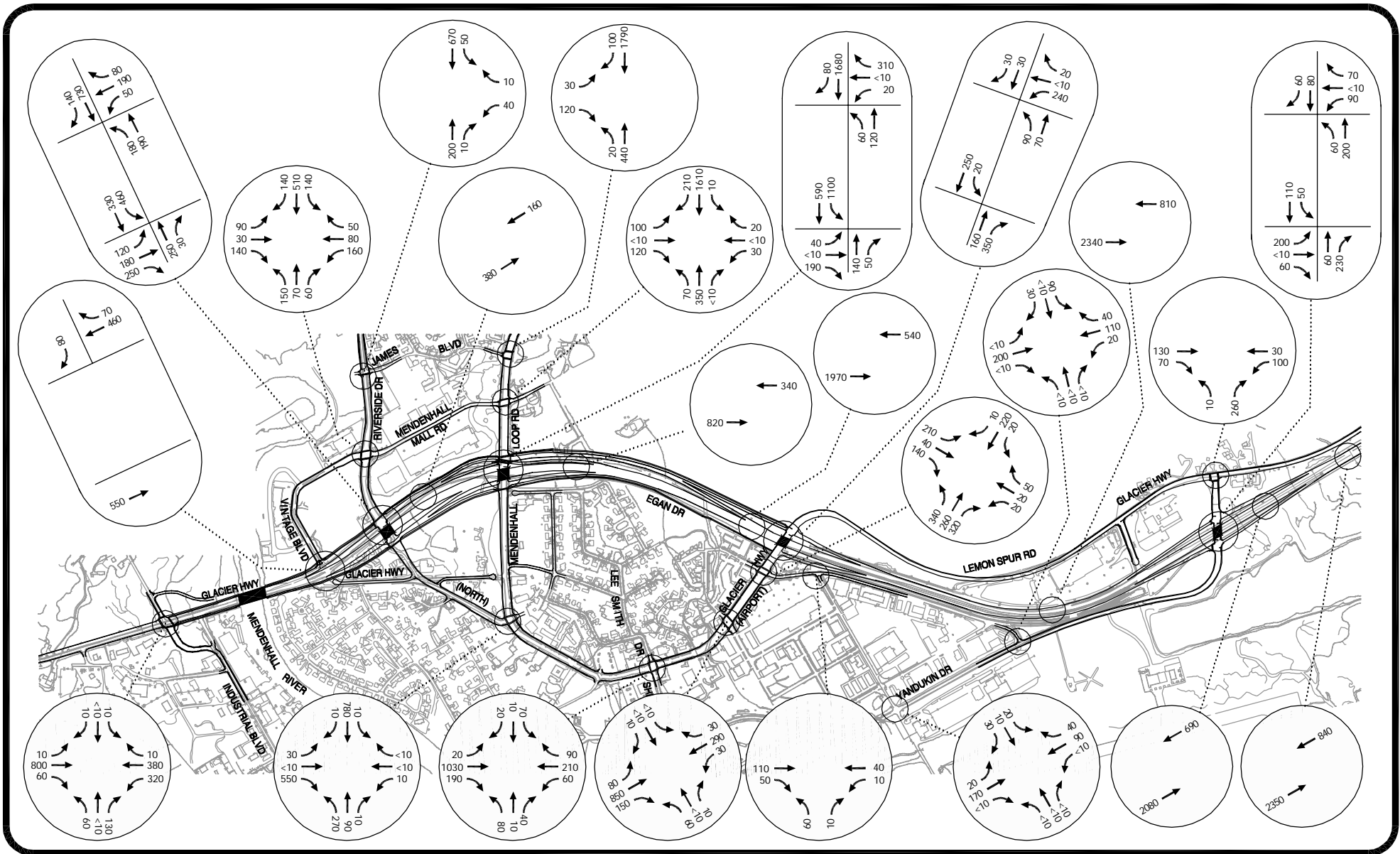


TABLE 2: DESIGN YEAR LINK VOLUMES, P.M. PEAK HOUR

	Design Year P.M. Peak Hour Traffic Volumes (Bi-Directional)					
	No-build	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Proposed Action
Egan Drive						
Industrial Blvd to Vintage Blvd	2695	2730	2720	2710	2710	2720
Vintage Blvd to Riverside Dr	2585	650	650	440	2570	650
Riverside Dr to Mend. Loop Rd	2765	650	1930	440	2490	1930
Mend. Loop to Glacier Hwy (Apt)	4455	3790	3540	3760	3900	3540
Glacier Hwy (Apt) to Yandukin Dr	4835	3790	4650	3760	4260	4650
Glacier Highway (North, Airport)						
Egan Dr to Sunset Dr/Riverside Dr	645	<100	<100	<100	220	<100
Riverside Dr to Mend. Loop Rd	630	1450	1630	1880	1150	1630
Mend. Loop Rd to Shell Simmons	2390	2860	2880	2860	2490	2880
Shell Simmons Dr to Jordan Ave	2250	2500	2650	2480	2350	2650
Jordan Ave to Old Dairy Rd	2000	1150	2040	1200	1570	2040
Old Dairy Rd to Egan Dr	2370	390	1660	---	1590	1660
Mendenhall Loop Road						
South of Egan Dr.	1540	1940	1440	1320	1550	1440
Egan Dr to Mend. Mall Rd.	3260	2670	2950	2860	3050	2950
Mend. Mall Rd. to James Blvd	3120	2470	2960	2780	2820	2960
Riverside Drive						
South of Egan Dr	---	1450	1630	1900	1090	1630
Egan Dr to Vintage/Mend. Mall Rd	1980	2100	2070	2300	1890	2260
Vintage/Mend. Mall Rd to James	1680	1760	1670	2060	1590	1670
James Boulevard						
East of Riverside Dr	120	410	240	250	320	240
West of Mend. Loop Rd	220	930	290	810	570	290
Lemon Spur Road/Glacier Hwy (Lemon Rd)						
Mend. Loop to Glacier Hwy (Apt)	---	650	---	---	900	---
Glacier Hwy (Airport) to Yandukin	515	440	430	---	900	430



PROPOSED ACTION
WEEKDAY AM PEAK HOUR TRAFFIC VOLUMES

West Egan Drive Corridor Study

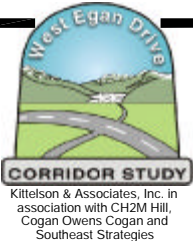
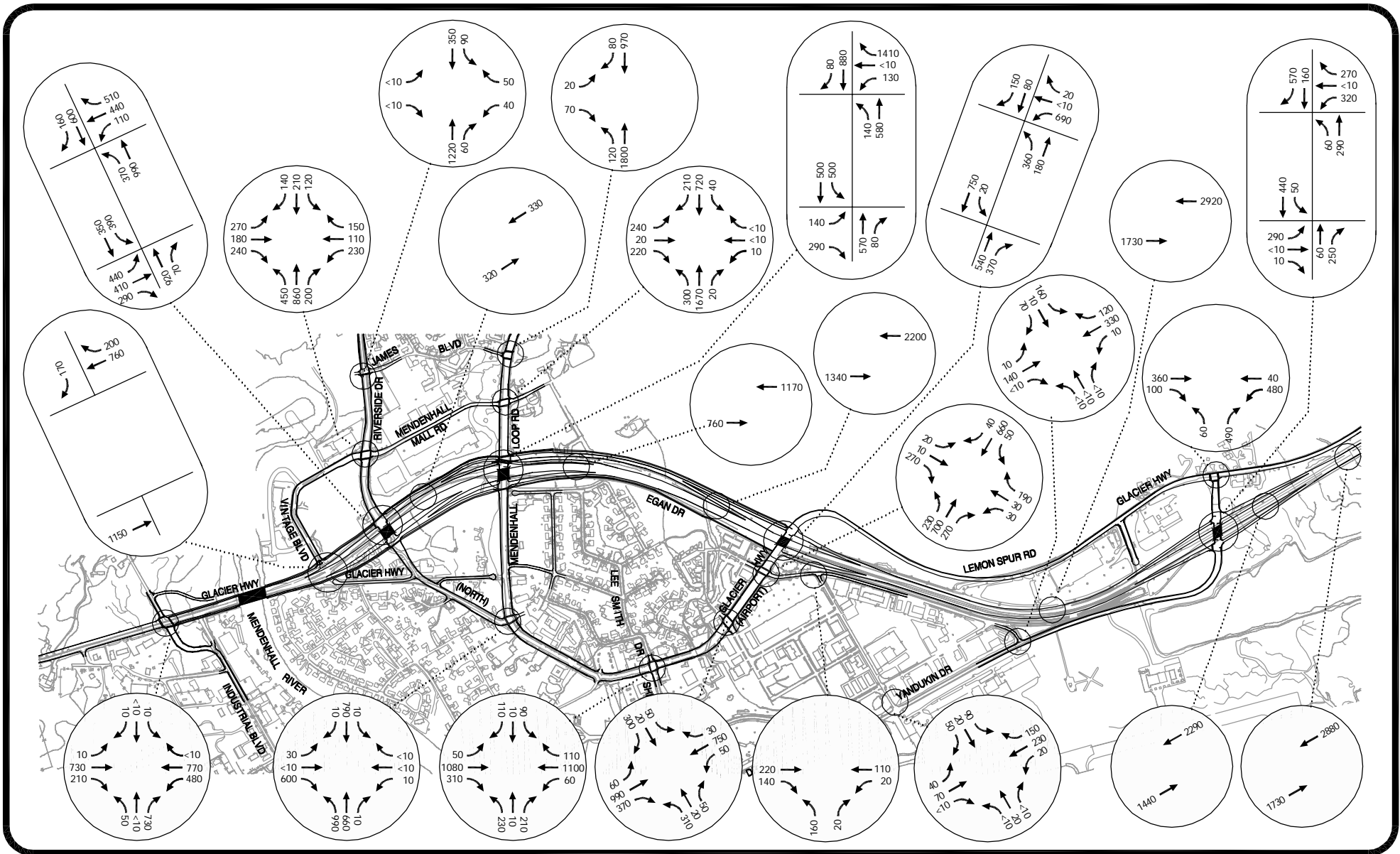
Alaska Department of Transportation & Public Facilities



DATE
MAY 2003

FIGURE
1

4978/DWGS/TASK-6/PROPOSED_ACTION



PROPOSED ACTION
WEEKDAY PM PEAK HOUR TRAFFIC VOLUMES

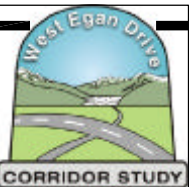
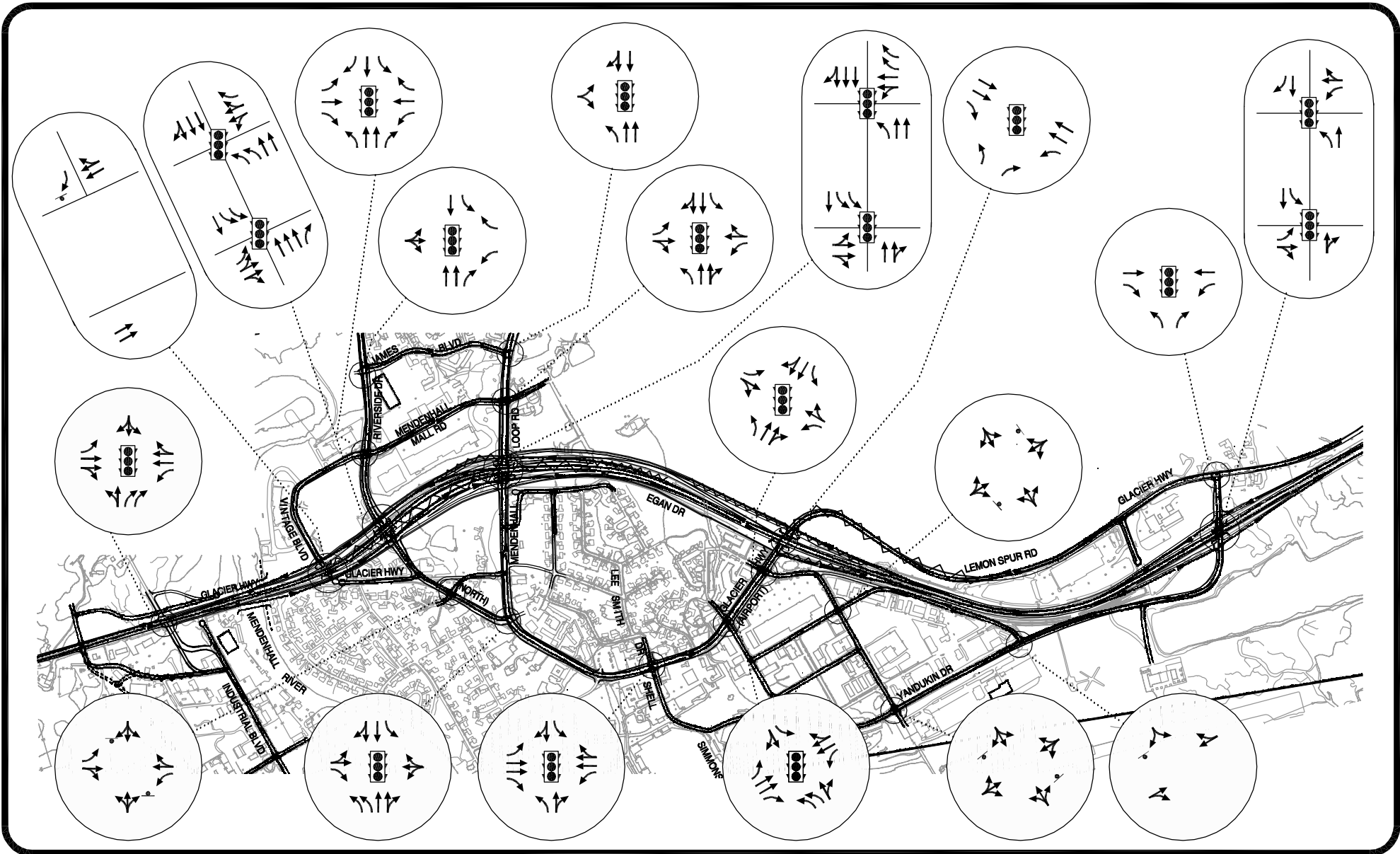
West Egan Drive Corridor Study

Alaska Department of Transportation & Public Facilities



DATE
MAY 2003

FIGURE
2



CORRIDOR STUDY
 Kittelson & Associates, Inc. in
 association with CH2M Hill,
 Cogan Owens Cogan and
 Southeast Strategies

INTERIM ACTION LANE CONFIGURATION AND TRAFFIC CONTROL DEVICES

West Egan Drive Corridor Study

Alaska Department of Transportation & Public Facilities



DATE
 MAY 2003

FIGURE
 3

4978DWGS/TASK-6/INTERIM_ACTION



TABLE 3: PROPOSED ACTION YEAR 2025 WEEKDAY OPERATIONS

Intersection (* = signalized)	LOS	V/C ¹	Control delay (sec/veh) ¹	Crit. Mov't	LOS	V/C ¹	Control delay (sec/veh) ¹	Crit. Mov't
	AM Peak Hour				PM Peak Hour			
Glacier Hwy / Industrial Blvd*	C	0.59	24.7	--	C	0.76	22.4	--
Egan Dr / Vintage Blvd North Ramp	B	0.11	10.5	SB RT	B	0.32	14.9	SB RT
Egan Dr / Riverside Dr North Ramp*	C	0.37	24.3	--	C	0.63	24.5	--
Egan Dr / Riverside Dr South Ramp*	B	0.42	19.0	--	C	0.67	26.1	--
Egan Dr / Mendenhall Loop Rd North Ramp*	B	0.59	17.1	--	C	0.92	30.3	--
Egan Dr / Mendenhall Loop Rd South Ramp*	B	0.66	12.5	--	C	0.64	21.2	--
Egan Dr / Glacier Highway (Airport) North Ramp*	B	0.19	13.6	--	B	0.73	17.7	--
Egan Dr / Glacier Highway (Airport) South Ramp	A	0.02	8.5	SB LT	A	0.03	10.0	SB LT
Egan Dr / Yandukin Dr North Ramp*	B	0.19	11.9	--	B	0.65	18.1	--
Egan Dr / Yandukin Dr South Ramp*	C	0.39	20.4	--	B	0.48	14.4	--
Mendenhall Mall Rd / Vintage Blvd / Riverside Dr*	C	0.54	23.9	--	C	0.69	21.8	--
James Blvd. / Riverside Dr*	A	0.46	6.0	--	A	0.48	6.6	--
James Blvd / Mendenhall Loop Rd*	A	0.75	9.2	--	A	0.67	3.6	--
Mendenhall Mall Rd / Mendenhall Loop Rd*	B	0.78	16.8	--	C	0.85	29.7	--
Glacier Hwy (North) / Del Rae Rd	C	0.05	16.9	EB LTR	E	0.14	42.7	WB LTR
Glacier Hwy (North)/Mendenhall Loop Rd Ext*	C	0.68	24.1	--	C	0.72	21.8	--
Glacier Hwy (Airport) / Berners Ave.	F	0.22	>50	NB LT	F	0.90	>50	NB LT
Glacier Hwy (Airport)/ Shell Simmons Dr.*	A	0.43	6.0	--	B	0.65	13.1	--
Glacier Hwy (Airport) / Jordan Ave.*	A	0.35	8.5	--	C	0.70	23.7	--
Glacier Hwy (Airport) / Old Dairy Rd./Trout St.*	B	0.55	10.6	--	B	0.61	15.5	--
Old Dairy Rd / Crest St	A	0.09	9.9	NB LT/RT	C	0.37	15.4	NB LT/RT
Yandukin Dr / Old Dairy Rd*	B	0.17	11.3	SB LTR	C	0.54	21.6	SB LTR
Yandukin Dr / Crest Street	B	0.02	10.8	NB LTR	C	0.32	15.4	SB LTR
Glacier Hwy (Lemon Rd) / Lemon Spur Road*	C	0.32	28.3	--	C	0.75	29.0	--

¹ Averaged over all movements at signalized intersections; for critical movement only at unsignalized intersections

NB = northbound, SB = southbound, EB = eastbound, WB = westbound

LT = left, TH = through, RT = right; LTR = left/through/right

LOS = Level of Service, V/C= volume-to-capacity ratio

Section 9 Final Report Chapter 6 Appendix

Appendix F: Compatibility with the Built Environment Proposed Action





Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Socioeconomic Analysis

Methods of Analysis

Short Term (construction) Impacts

Construction cost estimates were developed by the project team. These costs were then entered into the IMPLAN econometric input/output model (IMPLAN Pro 2000, Minnesota IMPLAN Group) with Juneau-specific employment and expenditure data. This model is accepted as an industry standard, and is frequently used to analyze local and regional economies in Alaska.

Total project costs were reduced by an amount that will be spent on such things as steel fabrication for signal poles, bridge girders, and other items not available in the local economy. They also exclude right-of-way costs. Project costs were input into the model industry sector for construction of new highways and streets. Output from the model includes direct impacts (resulting from direct project spending), indirect impacts (increased business spending as a result of direct project spending), and induced impacts (increased household spending as a result of direct and indirect business spending). Impacts for the proposed action are reported in terms of employment created, payroll, and business spending (output). All dollar amounts are adjusted for inflation to 2002 dollars using the Anchorage Consumer Price Index for Urban Consumers (CPI-U) unless otherwise noted. The number of jobs created from construction are reported in full-time equivalents (FTEs), and assumes that the construction job will be completed within one year, and jobs created are full-time for one year. While we know that these jobs will be spread out over several years time, and some may be of less or more than one year's duration, we are reporting employment in FTEs for simplicity, and because we cannot predict the actual duration of jobs with the available information.

City and Borough sales tax revenues produced as a result of this construction activity are also estimated. Because these projects are contracted by government (DOT&PF), which is not subject to local taxation, local sales tax revenues would be limited to indirect and induced spending.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Long-term Impacts

Economic Impacts

The local economy can be impacted by changes to transportation systems that affect travel time, safety, and general access between residential areas, commercial areas, and public facilities such as airports. While these impacts are difficult to quantify, they can be anticipated in general terms.

Businesses may be impacted from changes in public access to their locations. If a business is a “destination” business, meaning people make the decision to travel to visit that business, changes in access don’t have a significant impact on revenues. However, if a business gets a large percentage of its customers from people who are passing by on the way to other destinations, then changes in access can significantly impact revenues. Every business receives some percentage of both “destination” and “drive-by” business. Those with a higher percentage of drive-by business will realize greater impacts from changes in access. Often, businesses dependant on drive-by traffic will locate next to destination businesses in order to take advantage of the destination traffic.

Traffic volumes passing business areas for each component of the proposed action were compared to the no-build alternative components to determine potential changes in access to area businesses. Professional and personal knowledge of businesses impacted, such as nature of the business, how much of its business depends on drive-by traffic, and other factors, will be considered in this analysis. Impacts are often expressed in qualitative terms, and percentage changes expressed are rough estimates of magnitude.

Social Impacts

Social impacts, such as changes in local traffic patterns and volumes or noise levels, as well as changes in access to area neighborhoods, were considered. Impacts were estimated by looking at changes in traffic volume where that data was available. In cases where that data was not available, professional knowledge and judgment was used to determine potential impacts. These impacts are stated in qualitative terms.



Southeast Strategies

Economics and Planning Services
1014 Edwin Place
Juneau, AK 99801
Phone/Fax: (907) 780-6106

Short-term (Construction) Impacts

The following table presents short-term economic impacts to the Juneau Borough from the construction of West Egan Drive Corridor proposed action in terms of direct, indirect and induced business income, jobs and payroll.

Table 1

Economic Impacts of Construction for West Egan Drive Corridor
Proposed Action, in 2003 Dollars

	Proposed Action
Direct Business Income (Project Costs)*	\$80,740,000
Indirect & Induced Business Income	\$25,354,673
Total Business Income	\$106,094,673
Direct FTE Jobs	638.5
Indirect & Induced FTE Jobs	340.3
Total FTE Jobs	978.8
Direct Payroll	\$30,169,042
Indirect & Induced Payroll	\$9,195,660
Total Payroll	\$39,364,702

Sources: Kittelson & Associates project team, IMPLAN Pro 2000 input/output model, Minnesota IMPLAN Group.

*Project costs were reduced by the cost of things such as steel fabrication of signal poles and bridge girders, which are not available in the Juneau economy. They also exclude right-of-way costs.

Definitions:

1. Direct Business Income is gross income to businesses (Project Costs).
2. Indirect impacts result when the contractors purchase goods and services from other businesses in the local economy.
3. Induced impacts result when households receiving income from these projects increase local spending.
4. Payroll includes gross wages paid to employees and gross income received



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

by business owners.

5. FTE is Full-time Equivalent, and represents one full-time job for one year. Assumes each project takes one year to complete.

Note: All dollar amounts are in 2003 dollars.

Short-term (construction) economic impacts from the proposed action include generation of nearly \$106.1 million in business income, 978 FTE jobs of one-year duration, and nearly \$39.4 million in payroll for the Juneau economy. In addition, more than \$1.3 million in local sales taxes will be generated from this construction. Although construction of this project will likely cause occasional short-term restrictions to access for some area businesses, the construction strategy contains alternative access and sequencing plans to minimize any disruption.

In addition to the short-term impacts to Juneau's economy from construction of the proposed action listed in Table 1, this construction will generate nearly \$1.3 million in sales taxes to the local government. Since direct business income comes from the Alaska Department of Transportation and Public Facilities, a government entity, it is not subject to the local sales tax of 5%. This analysis assumes that indirect and induced expenditures in Juneau by businesses and households are taxed.

Long-term Impacts

Economic Impacts

Building of the proposed action will benefit the overall economy of Juneau through improved traffic flow on Egan Drive, shortening commute time and improving safety for workers, as well as for commercial users traveling through the study area. In addition, it will provide improved access to and between commercial centers and transportation facilities such as the Juneau International Airport.

In this study, six specific business areas were identified within the West Egan Drive Corridor. Those areas are Vintage Park, Industrial Boulevard, Glacier Highway/Airport, the Mendenhall Mall, Old Dairy Road, and Fred Meyer. The Glacier Highway/Airport area contains Nugget Mall, Jordan Creek Mall, Airport Shopping Center as well as



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

numerous other businesses spread throughout the area. While many businesses located in these areas are “destination” businesses, some areas house businesses that depend heavily on drive-by traffic, and changes in traffic patterns could impact income to those businesses.

The following table presents changes in drive-by traffic in the identified business areas for the proposed action compared to the no-build alternative in the year 2025.

Table 2

Percent Change in Drive-by Traffic, Proposed Action vs.
No-Build Alternative, 2025

Business Area	Proposed Action
Industrial Boulevard	0.0%
Vintage Park	10%
Mendenhall Mall	4%
Glacier Highway/Airport	25%
Old Dairy Road	-10%
Fred Meyer	-4%

Source: 2025 traffic projections, Kittelson and Associates, 2002.

The proposed action provides improved connections between residential and business areas in the corridor without having to use Egan Drive. Currently, there is only one connection across Egan Drive from the Mendenhall Valley to the business areas on Glacier Highway near the Juneau International Airport. The proposed action will provide two connections – the existing connection at Mendenhall Loop Road, and a new, full-access connection at Riverside Drive. In addition, the proposed action will provide access across Egan between Glacier Highway south of the McNugget intersection and the Glacier Highway Airport business areas where none exists today. Those connections include full access at Yandukin Drive, and limited access at the McNugget intersection (indirect access for westbound traffic).

Long-term socioeconomic impacts of the proposed action include a moderate increase in drive-by traffic in the Glacier Highway/Airport area (25%), and slight increases in drive-by traffic in the Vintage Park area (10 %) and the Mendenhall Mall area (4%). Drive-by traffic drops in the Old Dairy Road area (-10%), and the Fred Meyer area (-4%), and remains unchanged at Industrial Boulevard.



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

Industrial Boulevard Area

Table 2 shows that drive-by traffic in the Industrial Boulevard area is not expected to change as a result of the proposed action. The rerouting and signalization of the Industrial Boulevard intersection will increase safety and decrease congestion at that intersection.

Vintage Park Area

The Vintage Boulevard area will receive increased traffic of 10% as a result of the proposed action, likely a result of increased traffic on Riverside Drive (east of Vintage Boulevard) due to the extension of Riverside across Egan. Improved access past this business area is beneficial for existing businesses in the Vintage Park area, as well as for development of future businesses there. Nearly all of the businesses currently located in the Vintage Park area are destination businesses, but increased traffic could encourage the location of more drive-by businesses in the area.

Mendenhall Mall

The proposed action provides a 4% increase in traffic through the Mendenhall Mall area over the no-build alternative. This is likely a result of increased traffic on Riverside Drive due to the extension of Riverside across Egan.

Glacier Highway/Airport

Under the no-build scenario, there is only one connection across Egan Drive to the business areas on Glacier Highway near the Juneau International Airport. The proposed action will provide four connections – the existing connection at Mendenhall Loop Road, a connection at Riverside Drive, a connection at the McNugget intersection, and a connection at Yandukin Drive. This improved access across Egan will allow vehicle traffic from residential areas in the Mendenhall Valley to access business areas without having to travel on Egan. Similarly, vehicle traffic traveling between business areas to the north and south of Egan can do so without using Egan. This improved connectivity will generate a 25% increase in drive-by traffic in the Glacier Highway/Airport area. While Nugget Mall, Jordan Creek Mall and other business groupings are destinations in



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

themselves, many businesses in the Glacier Highway/Airport area get a large portion of their business from drive-by traffic, and will benefit from this project.

Old Dairy Road

Under the proposed action, access to Glacier Highway/Airport is available from Egan Drive by the Riverside Drive, Mendenhall Loop Road, McNugget and Yanduking Drive intersections, so the Old Dairy Road route (from Yandukin) receives less traffic than in the no-build alternative (-10%). While most of the businesses on Old Dairy are currently destination businesses, the decrease in traffic may slightly impact the few businesses that depend on drive-by business. In addition, businesses that depend on drive-by traffic may choose not to locate on Old Dairy Road in the future.

Fred Meyer Area

The proposed action provides better access to and across Egan Drive at the Yandukin Drive intersection than the no-build alternative. However, the proposed action provides less traffic past Fred Meyer (-4%) because the Yandukin Drive interchange is to the East of the Fred Meyer, and Glacier Highway/Lemon Spur travels West from there only to the McNugget intersection. Fred Meyer is a destination business, so this slight drop in drive-by traffic will likely not affect the store's business

Social Impacts

Several neighborhoods within the study area will be impacted by the proposed action through changes in traffic volumes or patterns on or near residential streets. Increased traffic and driving speeds in and near residential areas decreases safety and quiet, and may increase travel time through those areas. The residential neighborhoods most impacted are the Wildmeadow Lane area across Glacier Highway from the Industrial Boulevard business area, the James Boulevard area, the Hurlock Avenue area, and the Glacier Highway North area. Traffic volume figures for only two of these areas were available, but some impacts are evident without traffic volume analysis.

Wildmeadow Lane Area Neighborhoods

The proposed action connects the Brotherhood Bridge trailhead and viewing area with the existing Wildmeadow Lane, rerouting recreational traffic and tour busses along this quiet



Southeast Strategies

Economics and Planning Services

1014 Edwin Place

Juneau, AK 99801

Phone/Fax: (907) 780-6106

residential street. This action will compound and change the nature of traffic in these residential areas, especially in summer when tour and recreational traffic is high. Signalizing the intersection will ease congestion in the area, allowing safer access to Glacier Highway from these neighborhoods.

James Boulevard Area Neighborhoods

The proposed action does not connect James Boulevard to Lemon Spur, nor does it reroute Mendenhall Mall traffic through James Boulevard. Therefore, any increase in traffic on James Boulevard due to the proposed action will be negligible.

Hurlock Avenue Area Neighborhoods

The proposed action will reroute access to many of the neighborhoods between Egan Drive and Glacier Highway/Airport from Hurlock Avenue to an extension of Miner Drive. Rerouting the access will bring a mix of impacts. The connection to Glacier Highway will be safer and less congested, but the rerouting will change circulation patterns within the neighborhoods near Hurlock Avenue, and give some area residents a longer route to the highway.

Glacier Highway North Area Neighborhoods

There are several residential areas to the north and south of Glacier Highway North (between Egan and Glacier Highway/Mendenhall Loop Extension). Traffic volumes in this area increase dramatically (150%) in spite of the fact that Glacier Highway North is disconnected from Egan, and Del Rae Road is disconnected from Glacier Highway/Airport. The main reason for increased traffic on that route is the extension of Riverside Drive across Egan.

Section 9 Final Report Chapter 6 Appendix

Appendix G: Detailed Evaluation Proposed Action



WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 1 Safety

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	-1	
Vintage Boulevard	1	
Riverside Drive	1	
Mendenhall Loop Road	1	
Glacier Highway (Airport)	1	
Yandukin Drive	2	
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective	1	
System Average	0.9	

Description of Evaluation Assignment	
+2	Eliminate safety concerns
+1	Improve safety
0	No change
-1	Decrease safety
-2	Unacceptable safety

Ranking | Fair

Evaluation Notes

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 2 Emergency Vehicle Access and Circulation

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	#1	
Industrial Blvd	-2	
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek	0	
Area off Egan: South of Egan & West of Jordan Creek	1	
Area off Egan: North of Egan & East of Jordan Creek	2	
Area off Egan: South of Egan & East of Jordan Creek	2	
System Holistic Perspective	1	
System Average	0.7	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking: Fair

Evaluation Notes		
Proposed Action	Industrial Boulevard -	One access to and from the area, under existing conditions there are two.
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive -	Full access at Riverside, Mendenhall Loop and Yandukin, partial access to and from Downtown on Egan Drive; three full crossings of Egan Dr
	System Holistic Perspective -	Two interchange systems will result in a small improvement over the existing (fewer linkages)

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion														
Evaluation Criterion: 3 Traffic Operations														
Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives													
	Proposed Action													
Industrial Blvd	-1	<table border="1"> <thead> <tr> <th colspan="2">Description of Evaluation Assignment</th> </tr> </thead> <tbody> <tr> <td>+2</td> <td>Large improvement over existing</td> </tr> <tr> <td>+1</td> <td>Small improvement over existing</td> </tr> <tr> <td>0</td> <td>No change</td> </tr> <tr> <td>-1</td> <td>Small reduction over existing</td> </tr> <tr> <td>-2</td> <td>Large reduction over existing</td> </tr> </tbody> </table>	Description of Evaluation Assignment		+2	Large improvement over existing	+1	Small improvement over existing	0	No change	-1	Small reduction over existing	-2	Large reduction over existing
Description of Evaluation Assignment														
+2	Large improvement over existing													
+1	Small improvement over existing													
0	No change													
-1	Small reduction over existing													
-2	Large reduction over existing													
Vintage Boulevard	2													
Riverside Drive	1													
Mendenhall Loop Road	1													
Glacier Highway (Airport)	1													
Yandukin Drive	1													
Area off Egan: North of Egan & West of Jordan Creek	1													
Area off Egan: South of Egan & West of Jordan Creek	1													
Area off Egan: North of Egan & East of Jordan Creek	2													
Area off Egan: South of Egan & East of Jordan Creek	2													
System Holistic Perspective	1													
System Average	1.1													

Ranking	Good
---------	------

Evaluation Notes		
Proposed Action	Industrial Boulevard -	Traffic signal increases delay for Egan Drive, but decreases delay for side street
	Vintage Boulevard -	Right-in-right-out access to westbound Egan Drive, traffic operations very good.
	Riverside Drive -	Adding the fourth leg to the south ramp terminal intersection & ramps to/from east would decrease intersection capacity, but operations at this location should improve
	Mendenhall Loop Road -	Multiple connections to/from east at Riverside decrease traffic volumes at Loop Rd/Egan Dr; weaving section on westbound ramp between Mendenhall Loop and Riverside
	Glacier Highway (Airport) -	Half diamond interchange plus westbound access to Loop; signalized north ramp terminal intersection;
	Yandukin Drive -	Diamond interchange is an efficient interchange form, options for access to Glacier Highway will balance intersection operations
	Areas off Egan Drive -	Increased local connections benefits minor street traffic operations; congestion possible on Mendenhall Loop Road between Mall and Egan Drive, intersection timing will have to be carefully monitored
	System Holistic Perspective -	Multiple local connections (2 crossing Egan Dr. in the valley, Yandukin and partial at Glacier Highway (Airport)) spreads volumes and allows for more consistent traffic operations through the system

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 4 Airport Access

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd		
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek	1	
Area off Egan: South of Egan & West of Jordan Creek	1	
Area off Egan: North of Egan & East of Jordan Creek	2	
Area off Egan: South of Egan & East of Jordan Creek	2	
System Holistic Perspective	2	
System Average	1.6	

+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good
---------	------

Evaluation Notes

Proposed Action	Industrial Boulevard -	
	Vintage Boulevard -	
	Riverside Drive -	
	Mendenhall Loop Road -	
	Glacier Highway (Airport) -	
	Yandukin Drive -	
	Areas off Egan Drive	- Full access at Riverside/Loop and at Yandukin and to the north at Vintage; north-south link at Riverside and east-west link at Glacier/Lemon Spur (ramps - east)
	System Holistic Perspective	- Yandukin signed as main airport access; interchange provides high capacity

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **5 Local Circulation**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	-1	
Vintage Boulevard	-2	
Riverside Drive	2	
Mendenhall Loop Road	0	
Glacier Highway (Airport)	2	
Yandukin Drive	2	
Area off Egan: North of Egan & West of Jordan Creek	1	
Area off Egan: South of Egan & West of Jordan Creek	1	
Area off Egan: North of Egan & East of Jordan Creek	1	
Area off Egan: South of Egan & East of Jordan Creek	2	
System Holistic Perspective	1	
System Average	0.8	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking: Fair

Evaluation Notes

Proposed Action	Industrial Boulevard -	Change existing circulation
	Vintage Boulevard -	Right-in-right-out access to westbound Egan Drive.
	Riverside Drive -	Extend Riverside south and full access
	Mendenhall Loop Road -	No change in access
	Glacier Highway (Airport)	Lemon Spur Road is extended as a two-way road to Glacier Highway Airport, Easy access to and from the east, but access to and from the west will be via Riverside Ramp
	Yandukin Drive -	Full access allowed at realigned Yandukin connection
	Areas off Egan Drive -	Yandukin & Riverside connections major improvements
	System Holistic Perspective -	Large improvements due to numerous connections and taking "study area" trips off Egan Dr

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 6 Compatibility with Public Transportation

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	2	
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek	1	
Area off Egan: South of Egan & West of Jordan Creek	1	
Area off Egan: North of Egan & East of Jordan Creek	2	
Area off Egan: South of Egan & East of Jordan Creek	2	
System Holistic Perspective	2	
System Average	1.7	

+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good
---------	------

Evaluation Notes

Proposed Action	Evaluation Notes
Industrial Boulevard -	Transit stops consolidated to signalized intersection with Egan Drive
Vintage Boulevard -	Access prohibited, but regular, commuter and express routes can be re-routed via Riverside south extension
Riverside Drive -	Commuter route can now cross Egan at Riverside Dr
Mendenhall Loop Road -	Unchanged (except through two signals)
Glacier Highway (Airport) -	Regular route follows new connection, and commuter route unchanged due to ramps
Yandukin Drive -	Full access is allowed at Fred Meyer - no change in transit patterns (possibility to not use Egan Dr), but interchange is moved east away from Fred Meyer
Areas off Egan Drive -	Riverside, Glacier/Lemon Spur & Yandukin connections provide new linkages and possible transit routing options
System Holistic Perspective -	Transit service can be off Egan Drive, and decreased delay

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 7 Compatibility with Pedestrians

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	2	
Vintage Boulevard	0	
Riverside Drive	2	
Mendenhall Loop Road	1	
Glacier Highway (Airport)	1	
Yandukin Drive	1	
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective	2	
System Average	1.3	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking: Good

Evaluation Notes

Proposed Action	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	<p>Signalized intersection provides improved access for pedestrians across Egan Drive.</p> <p>No change - peds are not allowed to cross under existing</p> <p>Riverside extended south, short crossing distance and separated from Egan through traffic</p> <p>Shorter crossing distance and separated from Egan through traffic</p> <p>New Glacier/Lemon Spur connection, short crossing distance and separated from Egan through traffic</p> <p>New connection will provide needed ped crossing and separated from Egan through traffic, but too far to the east</p> <p>New roads or modifications to existing roadways would include sidewalks and bike lanes</p> <p>Linkage across Egan will be safer due to separation of through traffic</p>
-----------------	--	--

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **8 Compatibility with Bicyclists**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	2	
Vintage Boulevard	0	
Riverside Drive	2	
Mendenhall Loop Road	1	
Glacier Highway (Airport)	1	
Yandukin Drive	1	
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective		
System Average	1.2	

+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking: **Good**

Evaluation Notes

Proposed Action	Industrial Boulevard - Signalized intersection provides improved access for bicyclists across Egan Drive
	Vintage Boulevard - No change - bikes are not allowed to cross anyway
	Riverside Drive - Riverside extended south and separated from Egan through traffic
	Mendenhall Loop Road - Separated from Egan through traffic
	Glacier Highway (Airport) - New Glacier/Lemon Spur connection and separated from Egan through traffic, will have separate, but adjacent multi-use path
	Yandukin Drive - New connection will provide bike crossing and separated from Egan through traffic, but too far to the east
	Areas off Egan Drive - New or modified roads will include new bicycle lanes
	System Holistic Perspective - Linkage across Egan improved due to separation of through traffic

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 9 Environmental Impacts

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	Score
Industrial Blvd	-1	
Vintage Boulevard	0	
Riverside Drive	-1	
Mendenhall Loop Road	0	
Glacier Highway (Airport)	-1	
Yandukin Drive	0	
Area off Egan: North of Egan & West of Jordan Creek	-1	
Area off Egan: South of Egan & West of Jordan Creek	-2	
Area off Egan: North of Egan & East of Jordan Creek	-2	
Area off Egan: South of Egan & East of Jordan Creek	-1	
System Holistic Perspective	-2	
System Average	-1	

Description of Evaluation Assignment	
+2	Large positive impact
+1	Small positive impact
0	No change
-1	Small negative impact
-2	Large negative impact

Ranking	Poor
---------	------

Evaluation Notes

Proposed Action	Notes
Industrial Boulevard -	May have some minor impact to high value wetland
Vintage Boulevard -	No significant impact
Riverside Drive -	Would impact low value wetland
Mendenhall Loop Road -	Would impact Duck Creek but also could facilitate other planned Duck Creek projects including relocation of that creek south of Egan.
Glacier Highway (Airport) -	Could impact high value wetlands along connecting road with Lemon Spur Rd. New connecting road goes into the hillside and would change the habitat in this area.
Yandukin Drive -	Realignment influences category C wetland south of Egan but also cuts off existing habitat from wildlife refuge. North of Egan, new road goes through higher value wetland and stream area which is used for anadromous fish rearing.
Areas off Egan Drive -	some impact on sensitive areas primarily along north side of Egan as a new road cuts through forested areas and in the vicinity of Egan/Loop
System Holistic Perspective -	overall loss of habitat

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **10 Consistency with Other Planning Efforts**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives		
	Proposed	Action	
Industrial Blvd	1		
Vintage Boulevard	0		
Riverside Drive	1		
Mendenhall Loop Road	1		
Glacier Highway (Airport)	1		
Yandukin Drive	0		
Area off Egan: North of Egan & West of Jordan Creek	0		
Area off Egan: South of Egan & West of Jordan Creek	0		
Area off Egan: North of Egan & East of Jordan Creek	1		
Area off Egan: South of Egan & East of Jordan Creek	1		
System Holistic Perspective	1.5		
System Average	0.7		

Description of Evaluation Assignment	
+2	Consistent with all other plans
+1	Consistent with some other plans
0	Not addressed in any plan
-1	Conflicts with some other plans
-2	Conflicts with all other plans

Ranking | Fair

Evaluation Notes		
Proposed Action	Industrial Boulevard -	Consistent with other planning efforts.
	Vintage Boulevard -	Consistent with other planning efforts.
	Riverside Drive -	Consistent with other planning efforts.
	Mendenhall Loop Road -	Consistent with other planning efforts.
	Glacier Highway (Airport) -	Consistent with other planning efforts.
	Yandukin Drive -	Consistent with other planning efforts.
	Areas off Egan Drive -	Consistent with other plans, i.e. Riverside Corridor, AWTP, etc.
	System Holistic Perspective -	Consistent with all other plans

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 11 A Compatibility with Built Environment - Social Impacts

Proposed Road System - Four Most Viable Alternatives

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	-1	
Vintage Boulevard	0	
Riverside Drive	-1	
Mendenhall Loop Road	-1	
Glacier Highway (Airport)	-1	
Yandukin Drive	0	
Area off Egan: North of Egan & West of Jordan Creek	1	
Area off Egan: South of Egan & West of Jordan Creek	2	
Area off Egan: North of Egan & East of Jordan Creek	2	
Area off Egan: South of Egan & East of Jordan Creek	2	
System Holistic Perspective	2	
System Average	0.5	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Fair
---------	------

Evaluation Notes

Proposed Action	Industrial Boulevard -	Access is improved to businesses.
	Vintage Boulevard -	Access maintained.
	Riverside Drive -	Access across Egan is greatly improved. Function of Riverside becomes more arterial.
	Mendenhall Loop Road -	Access on and off Egan less direct than current.
	Glacier Highway (Airport) -	Access will include additional stopping to access airport.
	Yandukin Drive -	Considered best fit considering airport access, property and expansion, and property issues of other locations.
	Areas off Egan Drive -	Greatly improved access between Fred Meyer and other commercial areas across Egan. Good access to Vintage Park.
	System Holistic Perspective -	Greatly improved access between Fred Meyer and other commercial areas across Egan. Good access to Vintage Park.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **11 B Compatibility with Built Environment - Short-term Economic**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Boulevard Area		
Vintage Park Area		
Mendenhall Mall Area		
Glacier Highway/Airport Area		
Old Dairy Road		
Fred Meyer Area		
Jensine/Wild Meadow Neighborhood		
James Boulevard Neighborhood		
Atlin/Aurora Neighborhood		
Hurlock Neighborhood		
Glacier Highway North Neighborhoods		
Construction Economic Impact	2	
System Holistic Perspective		
System Average	2	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Good
---------	------

Evaluation Notes	
Proposed Action	Industrial Boulevard -
	Vintage Park -
	Mendenhall Mall -
	Glacier Highway (Airport) -
	Old Dairy Road -
	Fred Meyer -
Construction Economic Impact	Payroll = \$39.4 million, FTE jobs = 978 , Local Sales Tax Revenues = \$1.3 million.
System Holistic Perspective	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **11 C Compatibility with Built Environment - Long-term Economic**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Boulevard Area	0	
Vintage Park Area	1	
Mendenhall Mall Area	1	
Glacier Highway/Airport Area	1	
Old Dairy Road	-1	
Fred Meyer Area	-1	
Jensine/Wild Meadow Neighborhood		
James Boulevard Neighborhood		
Atlin/Aurora Neighborhood		
Hurlock Neighborhood		
Glacier Highway North Neighborhoods		
Construction Economic Impact		
System Holistic Perspective	1	
System Average	0.3	

Description of Evaluation Assignment	
+2	Large improvement over existing
+1	Small improvement over existing
0	No change
-1	Small reduction over existing
-2	Large reduction over existing

Ranking	Fair
---------	------

Evaluation Notes		
Proposed Action	Industrial Boulevard -	Virtually no change in traffic.
	Vintage Park -	Slight increase in drive-by traffic.
	Mendenhall Mall -	Slight increase in drive-by traffic.
	Glacier Highway (Airport) -	Slight increase in drive-by traffic.
	Old Dairy Road -	Slight decrease in drive-by traffic.
	Fred Meyer -	Slight decrease in drive-by traffic.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **12 Constructability**

Proposed Road System - Four Most Viable Alternatives

Nodes / Areas / System	Proposed Action
Industrial Blvd	
Vintage Boulevard	
Riverside Drive	
Mendenhall Loop Road	
Glacier Highway (Airport)	
Yandukin Drive	
Area off Egan: North of Egan & West of Jordan Creek	
Area off Egan: South of Egan & West of Jordan Creek	
Area off Egan: North of Egan & East of Jordan Creek	
Area off Egan: South of Egan & East of Jordan Creek	
System Holistic Perspective	-2
System Average	-2

Description of Evaluation Assignment	
+2	Limited impact on traffic flow
+1	0
0	Moderate impact on traffic flow
-1	0
-2	Major impact on traffic flow

Ranking: Poor

Evaluation Notes

- Proposed Action
- Industrial Boulevard -
- Vintage Boulevard -
- Riverside Drive -
- Mendenhall Loop Road -
- Glacier Highway (Airport) -
- Yandukin Drive -
- Areas off Egan Drive -
- System Holistic Perspective -

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **13 Funding Feasibility**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd		
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective	-2	
System Average	-2	

Description of Evaluation Assignment	
+2	Accelerated funding may be available
+1	0
0	Reasonable funding feasibility
-1	0
-2	Unreasonable funding feasibility

Ranking	Poor
---------	------

Evaluation Notes	
Proposed Action	Industrial Boulevard -
	Vintage Boulevard -
	Riverside Drive -
	Mendenhall Loop Road -
	Glacier Highway (Airport) -
	Yandukin Drive -
	Areas off Egan Drive -
	System Holistic Perspective -
	Substantial additional funding should be made available

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 14 Phased Implementation & Expandability

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd		
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective	0	
System Average	0	

Description of Evaluation Assignment	
+2	Easily phased into future improvements
+1	0
0	Phasing into future improvements limited
-1	0
-2	Future improvements - excessive abortive work

Ranking: Fair

Evaluation Notes

Proposed Action	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	} See documentation of Interim Action	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion**Evaluation Criterion: 15 Construction Costs**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives		
	Proposed Action		
Industrial Blvd			
Vintage Boulevard			
Riverside Drive			
Mendenhall Loop Road			
Glacier Highway (Airport)			
Yandukin Drive			
Area off Egan: North of Egan & West of Jordan Creek			
Area off Egan: South of Egan & West of Jordan Creek			
Area off Egan: North of Egan & East of Jordan Creek			
Area off Egan: South of Egan & East of Jordan Creek			
System Holistic Perspective	-2		
System Average	-2		

Description of Evaluation Assignment		
Less than 25 million	+2	Relatively inexpensive
25-50 million	+1	0
50-75 million	0	Moderately inexpensive
75-100 million	-1	0
more than 100 million	-2	Very expensive

Ranking: Poor

Evaluation Notes

Proposed Action	Industrial Boulevard -		
	Vintage Boulevard -		
	Riverside Drive -		
	Mendenhall Loop Road -		
	Glacier Highway (Airport) -		
	Yandukin Drive -		
	Areas off Egan Drive -	Change eastern Mall access	Relocate Hurlock Ave Access
	System Holistic Perspective -	Estimate = \$104 million	

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: 16 Maintenance Requirements

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	-1	
Vintage Boulevard	1	
Riverside Drive	-1	
Mendenhall Loop Road	-2	
Glacier Highway (Airport)	-1	
Yandukin Drive	-2	
Area off Egan: North of Egan & West of Jordan Creek	1	
Area off Egan: South of Egan & West of Jordan Creek	1	
Area off Egan: North of Egan & East of Jordan Creek	-2	
Area off Egan: South of Egan & East of Jordan Creek	1	
System Holistic Perspective	-2	
System Average	-0.6	

Description of Evaluation Assignment	
+2	No Change
+1	Small increase in maintenance
0	Moderate increase in maintenance
-1	Large increase in maintenance
-2	Very Large increase in maintenance

Ranking	Poor
---------	------

Evaluation Notes		
Proposed Action	Industrial Boulevard -	New Roads
	Vintage Boulevard -	Cul-de-sac slightly increases snow plowing effort
	Riverside Drive -	New road, structure
	Mendenhall Loop Road -	Interchange
	Glacier Highway (Airport) -	Interchange
	Yandukin Drive -	Interchange
	Areas off Egan Drive -	Lemon Spur Road extension and Egan Ramp
	System Holistic Perspective -	Less snow storage, more lane miles, new roads, and more complex interchange configuration will increase maintenance.

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **17** *Satisfies Design Requirements*

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd		
Vintage Boulevard		
Riverside Drive		
Mendenhall Loop Road		
Glacier Highway (Airport)		
Yandukin Drive		
Area off Egan: North of Egan & West of Jordan Creek		
Area off Egan: South of Egan & West of Jordan Creek		
Area off Egan: North of Egan & East of Jordan Creek		
Area off Egan: South of Egan & East of Jordan Creek		
System Holistic Perspective	1	
System Average	1	

+2	Meets desirable standards
+1	0
0	Meets minimum standards
-1	0
-2	Does not meet standards

Ranking | Fair

Evaluation Notes

Proposed Action	Industrial Boulevard -	According to minimum standards or better
	Vintage Boulevard -	Undesirable right-in/right-out on westbound on-ramp (non-standard)
	Riverside Drive -	Interchange according to desirable standards with possible exceptions (possible weaving section for motorists traveling to northbound Riverside Drive)
	Mendenhall Loop Road -	Interchange according to desirable standards with possible exceptions (possible weaving section for motorists traveling to northbound mendenhall Loop Road)
	Glacier Highway (Airport) -	New connection minimum standards (minimize impact) and interchange desirable standards with possible exceptions
	Yandukin Drive -	Interchange according to desirable standards with possible exceptions (location of eastbound off-ramp could be a concern)
	Areas off Egan Drive -	All improvements off Egan Dr will be done according to minimum standards or better
	System Holistic Perspective -	Standards ranging from minimum to desirable standards (Interchange and improved geometry will comply with more desirable design standards)

WEST EGAN DRIVE CORRIDOR STUDY: Evaluation according to each criterion

Evaluation Criterion: **18 Right-of-Way Requirements**

Nodes / Areas / System	Proposed Road System - Four Most Viable Alternatives	
	Proposed Action	
Industrial Blvd	-1	
Vintage Boulevard	-2	
Riverside Drive	-2	
Mendenhall Loop Road	-2	
Glacier Highway (Airport)	-2	
Yandukin Drive	-1	
Area off Egan: North of Egan & West of Jordan Creek	-1	
Area off Egan: South of Egan & West of Jordan Creek	-2	
Area off Egan: North of Egan & East of Jordan Creek	-2	
Area off Egan: South of Egan & East of Jordan Creek	-1	
System Holistic Perspective	-2	
System Total		

Description of Evaluation Assignment	
+2	No affected properties
+1	0
0	Limited affected properties
-1	0
-2	Numerous affected properties

Ranking: Poor

Evaluation Notes		
Proposed Action	Industrial Boulevard - Vintage Boulevard - Riverside Drive - Mendenhall Loop Road - Glacier Highway (Airport) - Yandukin Drive - Areas off Egan Drive - System Holistic Perspective -	Minimizes involvement along and south of Egan, some 4(f) involvement. New ROW required New ROW required New ROW required New ROW required New ROW required New Glacier/Lemon Spur Estimate \$10 million ROW cost

1 Safety		
Description of Evaluation Assignment		
+2	Eliminate safety concerns	
+1	Improve safety	
0	No change	
-1	Decrease safety	
-2	Unacceptable safety	

2 Emergency Vehicle Access and Circulation		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

3 Traffic Operations		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

4 Airport Access		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

5 Local Circulation		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

6 Compatibility with Public Transportation		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

7 Compatibility with Pedestrians		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

8 Compatibility with Bicyclists		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

9 Environmental Impacts		
Description of Evaluation Assignment		
+2	Large positive impact	
+1	Small positive impact	
0	No change	
-1	Small negative impact	
-2	Large negative impact	

10 Consistency with Other Planning Efforts		
Description of Evaluation Assignment		
+2	Consistent with all other plans	
+1	Consistent with some other plans	
0	Not addressed in any plan	
-1	Conflicts with some other plans	
-2	Conflicts with all other plans	

11 Compatibility with Built Environment		
Description of Evaluation Assignment		
+2	Large improvement over existing	
+1	Small improvement over existing	
0	No change	
-1	Small reduction over existing	
-2	Large reduction over existing	

12 Constructability		
Description of Evaluation Assignment		
+2	Limited impact on traffic flow	
+1		
0	Moderate impact on traffic flow	
-1		
-2	Major impact on traffic flow	

13 Funding Feasibility		
Description of Evaluation Assignment		
+2	Accelerated funding may be available	
+1		
0	Reasonable funding feasibility	
-1		
-2	Unreasonable funding feasibility	

14 Phased Implementation & Expandability		
Description of Evaluation Assignment		
+2	Easily phased into future improvements	
+1		
0	Phasing into future improvements limited	
-1		
-2	Future improvements - excessive abortive work	

15 Construction Costs		
Description of Evaluation Assignment		
+2	Relatively inexpensive	
+1		
0	Moderately inexpensive	
-1		
-2	Very expensive	

16 Maintenance Requirements		
Description of Evaluation Assignment		
+2	No Change	
+1	Small increase in maintenance	
0	Moderate increase in maintenance	
-1	Large increase in maintenance	
-2	Very Large increase in maintenance	

17 Satisfies Design Requirements		
Description of Evaluation Assignment		
+2	Meets desirable standards	
+1		
0	Meets minimum standards	
-1		
-2	Does not meet standards	

18 Right-of-Way Requirements		
Description of Evaluation Assignment		
+2	No affected properties	
+1		
0	Limited affected properties	
-1		
-2	Numerous affected properties	