

West Susitna Access Reconnaissance Study
West Susitna Access to Resource Development

Transportation Analysis Report

4 ALTERNATIVES DEVELOPMENT

Part 2 of 2

Prepared for:



Alaska Department of Transportation and Public Facilities
Division of Program Development

Prepared by:



HDR Alaska, Inc.
2525 C Street, Suite 305
Anchorage, AK 99503

In Association with:
Shannon & Wilson, Inc.
Sisyphus Consulting

January 2014

This page intentionally left blank.

Table of Contents

EXECUTIVE SUMMARY	x
1 INTRODUCTION.....	1-1
1.1 Study Overview.....	1-1
1.2 Study Setting.....	1-1
1.3 Background Information.....	1-3
1.3.1 Use of Public Lands.....	1-3
1.3.2 Roads to Resources Initiative Overview.....	1-4
1.4 General Study Methodology	1-6
1.5 Report Contents	1-6
2 RESOURCE INVENTORY	2-1
2.1 Data Collection and Interviews.....	2-1
2.2 Mineral Resources	2-5
2.2.1 Hardrock Mineral Exploration Activities	2-8
2.2.2 Placer Gold Mining Activities	2-12
2.2.3 Coal Exploration and Development Activities.....	2-13
2.3 Oil and Gas Resources	2-19
2.3.1 Current Exploration and Production Activities Snapshot	2-19
2.3.2 Other Oil and Gas Resources Potential.....	2-24
2.4 Forestry/Timber Resources.....	2-26
2.5 Agricultural Resources.....	2-33
2.6 Alternative Energy Resources.....	2-36
2.6.1 Geothermal Resources: Mount Spurr Geothermal Leases	2-36
2.6.2 Hydropower Resources: Chakachamna Hydroelectric Project	2-36
2.6.3 Woody Biomass Resources: Susitna Valley High School Project and the MSB ..	2-37
2.7 Recreational Resources	2-40
3 INFRASTRUCTURE INVENTORY.....	3-1
3.1 Transportation Infrastructure.....	3-3
3.1.1 Roadways.....	3-3
3.1.2 Aviation Access	3-4
3.1.3 Railroads.....	3-6
3.1.4 Port Facilities	3-7
3.1.5 Other Proposed Transportation Infrastructure.....	3-8
3.2 Energy Infrastructure.....	3-8
3.2.1 Pipelines.....	3-8
3.2.2 Fuel Storage Facilities	3-8
3.2.3 Power Generation Facilities and Electrical Distribution.....	3-9
3.2.4 Other Proposed Energy Infrastructure Sources or Needs.....	3-9
4 ALTERNATIVES DEVELOPMENT.....	4-1
4.1 Corridor Development Methodology	4-1
4.2 Previously Identified Alignments in the Study Area	4-2
4.2.1 McGrath-Upper Cook Inlet Corridor, DNR-DGGS 1992	4-4
4.2.2 Chuitna River to Goose Bay Corridor, Department of Highways 1972.....	4-4
4.2.3 Talkeetna-McGrath-Ruby Proposed Road Route, Bureau of Public Roads 1959 ..	4-5

4.3	Susitna River Crossing Location	4-6
4.3.1	Introduction	4-6
4.3.2	Crossing Location Options and Analysis	4-7
4.4	Environmental Constraints	4-12
4.4.1	Constraints Analysis	4-12
4.4.2	Constraints	4-13
4.5	Preliminary Corridors	4-28
4.5.1	Step 1: Preliminary Corridor Segments	4-28
4.5.2	Step 2: Preliminary Corridor Segment Screening - Dismissed Segments	4-30
4.5.3	Step 3: Proposed Access Routes	4-34
5	ENGINEERING OF RESOURCE ACCESS ROUTES.....	5-1
5.1	Preliminary Design Criteria	5-1
5.1.1	Functional Classification	5-2
5.1.2	Other Design Considerations based on Interview-Identified Needs	5-3
5.2	Additional Engineering Considerations	5-5
5.2.1	Seismicity	5-5
5.2.2	Hydrologic Considerations	5-8
5.2.3	Geological and Geotechnical Considerations	5-8
5.3	Proposed Access Routes	5-11
5.3.1	North Petersville Access Route.....	5-13
5.3.2	North Skwentna Access Route	5-15
5.3.3	Middle Susitna-Skwentna River Access Route.....	5-17
5.3.4	Beluga Access Route.....	5-19
5.3.5	Deshka Variant Access Route	5-21
5.4	Preliminary Cost Estimates	5-23
5.4.1	Assumptions for Cost Estimate Development.....	5-25
6	EVALUATION OF PROPOSED ACCESS ROUTES	6-1
6.1	Resource Accessibility.....	6-1
6.2	Land Status	6-6
6.3	Wetlands	6-6
6.4	Terrain Types and Road Grades	6-7
6.5	Seismicity	6-8
6.6	Hydrologic Considerations	6-9
6.7	Geological and Geotechnical Considerations	6-9
7	SUMMARY AND NEXT STEPS.....	7-1
7.1	Identified Data Gaps and Next Steps.....	7-3

Appendices

Appendix A	Preliminary Design Criteria Report
Appendix B	Proposed Access Routes Map Index
Appendix C	Geotechnical Reconnaissance Report
Appendix D	Preliminary Cost Estimate Details
Appendix E	Annotated Bibliography
Appendix F	Economic Considerations

Tables

Table ES-1. Proposed Access Routes Summary	xi
Table 2-1. Entities Contacted and/or Participated in the Resources Interviews	2-3
Table 2-2. Major Hardrock Mineral Exploration Activities in the Study Area.....	2-8
Table 2-3. Kiska’s Whistler Deposit Resource Estimates, 2011	2-9
Table 2-4. Estimated Coal Resources Potential in or near the Study Area	2-14
Table 2-5. Oil and Gas Units/Fields in the Study Area, as of November 2013.....	2-19
Table 2-6. Forest Resources in the Study Area per DNR Planning Regions.....	2-28
Table 2-7. Agricultural Resources in the Study Area per DNR Planning Regions	2-33
Table 2-8. MSB-Owned Forest Management Units in the Study Area with Measurable Woody Biomass Yields.....	2-38
Table 3-1. FAA-Identified Airstrips and Helicopter Landing Locations in the Study Area.....	3-4
Table 4-1. Potential Susitna River Crossing Locations	4-7
Table 4-2. General Land Ownership Status within the Study Area	4-15
Table 4-3. Refined Corridor Alignments.....	4-32
Table 5-1. West Susitna Access Design Criteria Summary	5-2
Table 5-2. Proposed Access Routes Engineering Considerations Summary	5-12
Table 5-3. Preliminary Cost Estimates (in millions)	5-24
Table 5-4. Preliminary ROW Acquisition Cost Estimates.....	5-27
Table 6-1. Summary of Amount of Resources Made Accessible within a 10-mile Buffer of Proposed Routes (“Route Strengths”)	6-2
Table 6-2. Land Status within a 200-foot-wide ROW of Proposed Access Routes	6-6
Table 6-3. Wetlands Potentially Impacted within a 200-foot-wide ROW of Proposed Access Routes	6-6
Table 6-4. Terrain Types.....	6-7
Table 6-5. Terrain Type by Proposed Access Route	6-7
Table 6-6. Hydrologic Considerations by Proposed Access Route.....	6-9
Table 6-7. Geologic and Geotechnical Considerations by Proposed Access Route.....	6-10
Table 7-1. Proposed Access Routes Strengths and Weaknesses Comparison.....	7-2

Figures

Figure 1-1. Study Area in State Context.....	1-1
Figure 1-2. Study Area.....	1-2
Figure 2-1. Mineral Resources: Hardrock and Gold Placer Mining.....	2-6
Figure 2-2. Mineral Resources: Coal.....	2-7
Figure 2-3. Previously Identified Transportation Routes Relative to the Proposed Canyon Creek Coal Lease Area and Kiska’s Whistler Project.....	2-16
Figure 2-4. Oil and Gas Resources.....	2-20
Figure 2-5. Timber and Agricultural Resources.....	2-29
Figure 2-6. Fish Creek Management Area with Proposed DNR 2014 Ice Road.....	2-30
Figure 2-7. Alternative Energy Resources.....	2-39
Figure 2-8. Recreational Resources by DNR Planning Regions.....	2-41
Figure 2-9. Existing Easements of R.S. 2477 Rights-of-Way.....	2-45
Figure 3-1. Existing Infrastructure.....	3-2
Figure 4-1. Previously Identified Alignments.....	4-3
Figure 4-2. Lower Susitna River Vicinity.....	4-6
Figure 4-3. Susitna River: Talkeetna (RM 95) to Kashwitna River (RM 62).....	4-8
Figure 4-4. Susitna River: Kashwitna River (RM 62) to Deshka River (RM 40).....	4-9
Figure 4-5. Susitna River: Rolly Creek (RM 39) to Yentna River (RM 27).....	4-10
Figure 4-6. Susitna River: Susitna Landing (RM 26) to Cook Inlet (RM 0).....	4-11
Figure 4-7. Composite Constraints Development Process.....	4-12
Figure 4-8. Anadromous Streams.....	4-17
Figure 4-9. Wetlands.....	4-18
Figure 4-10. Parks and Refuges.....	4-19
Figure 4-11. Land Status.....	4-20
Figure 4-12. Constraints: Slope.....	4-21
Figure 4-13. Constraints: Slope + Waterbodies and Streams.....	4-22
Figure 4-14. Constraints: Slope, Waterbodies, and Streams + Wetlands.....	4-23
Figure 4-15. Constraints: Slope, Waterbodies, and Streams + Parks and Refuges.....	4-24
Figure 4-16. Constraints: Slope, Waterbodies, and Streams + Land Status.....	4-25
Figure 4-17. Composite Constraints.....	4-26
Figure 4-18. Composite Constraints and Previously Identified Alignments.....	4-27
Figure 4-19. Access Route Development Process.....	4-28

Figure 4-19. Preliminary Corridor Segments 4-29

Figure 4-21. Preliminary Corridor Segments Considered but Dismissed..... 4-31

Figure 4-22. Refined Corridor Alignments 4-33

Figure 4-23. Proposed Access Routes 4-34

Figure 5-1. West Susitna Access Typical Cross Section for a Rural Resource Recovery Road..... 5-3

Figure 5-2. Proposed Access Routes and Fault Locations 5-7

Figure 5-3. North Petersville Proposed Access Route 5-14

Figure 5-4. North Skwentna Proposed Access Route 5-16

Figure 5-5. Middle Susitna-Skwentna River Proposed Access Route 5-18

Figure 5-6. Beluga Proposed Access Route 5-20

Figure 5-7. Deshka Variant Access Route..... 5-22

Figure 5-8. Reconnaissance-Level Total Cost Estimate Comparison..... 5-23

Figure 6-1. Mining Resources within a 10-mile Buffer of Proposed Routes 6-3

Figure 6-2. Oil and Gas Resources within a 10-mile Buffer of Proposed Routes 6-4

Figure 6-3. Forestry/Timber and Agricultural Resources within a 10-mile Buffer of Proposed Routes 6-5

Figure 6-4. Typical Road Cross Section by Terrain Type 6-8

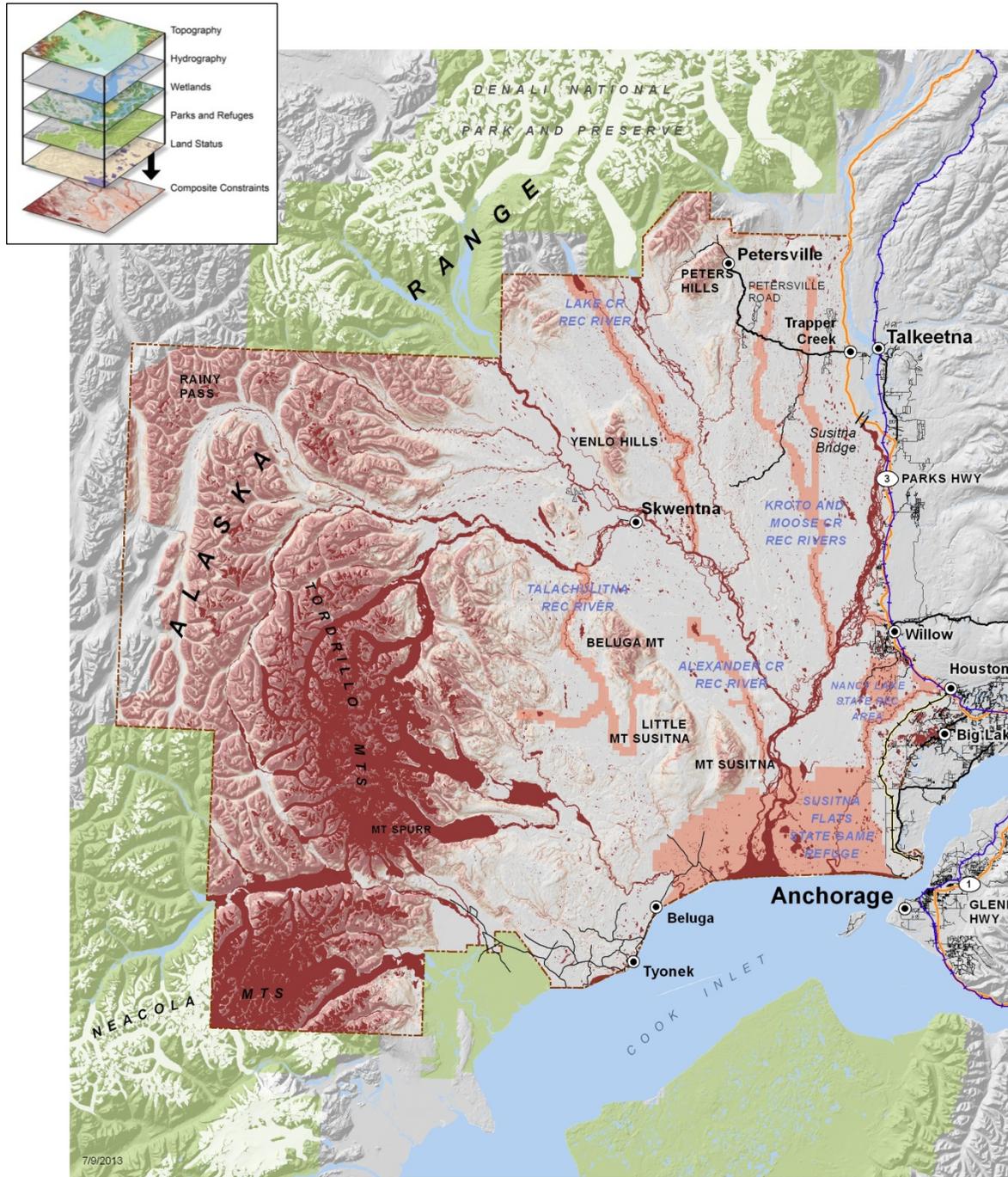
Acronyms

AAC	Alaska Administrative Code
AASHTO	American Association of State Highway and Transportation Officials
ADF&G	Alaska Department of Fish and Game
ADL	Alaska Division of Land
AEA	Alaska Energy Authority
AIDEA	Alaska Industrial Development and Export Authority
AMHT	Alaska Mental Health Trust
ANCSA	Alaska Native Claims Settlement Act
ARDF	Alaska Resource Data File
ARTEC	Alaska Railbelt Transmission and Electric Company
AS	Alaska Statute
ASCMCRA	Alaska Surface Coal Mining Control and Reclamation Act
ATV	all-terrain vehicle
bbbl	barrels
BIF	best interest finding
BLM	U.S. Bureau of Land Management
bpd	barrels per day
CEA	Chugach Electric Association
CBM	Coalbed Methane
CIE	Cook Inlet Energy, LLC
CIRI	Cook Inlet Region, Inc.
CWA	Clean Water Act
DEM	digital elevation model
DGGS	Division of Geologic and Geophysical Surveys
DNR	Alaska Department of Natural Resources
DOF	Division of Forestry
DOG	Division of Oil and Gas
DOT&PF	Alaska Department of Transportation and Public Facilities
DPOR	Department of Parks and Outdoor Recreation
EIS	environmental impact statement
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FMU	Forest Management Unit
GIS	Geographic Information System
GMU	Game Management Unit
KPB	Kenai Peninsula Borough

KPEDD	Kenai Peninsula Economic Development District
LNG	liquid natural gas
mcf	million cubic feet
MEA	Matanuska Electric Association
Mgal	million gallons
ML&P	Municipal Light and Power
MLW	Mining, Land and Water
MOA	Municipality of Anchorage
MSB	Matanuska-Susitna Borough
MW	megawatt
NHCC	National Highway Construction Cost Index
NPR-A	National Petroleum Reserve – Alaska
NWI	National Wetlands Inventory
OPMP	Office of Project Management and Permitting
PGDHS	A Policy on Geometric Design of Highways and Streets
PGE	platinum group elements
ROD	Record of Decision
RM	river mile
SRR	State Recreation River
SRS	State Recreational Site
syngas	synthetic gas
UCG	underground coal gasification
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

This page intentionally left blank.

Figure 4-15. Constraints: Slope, Waterbodies, and Streams + Parks and Refuges



CONSTRAINTS: Park or Refuge

West Susitna Access to Resource Development

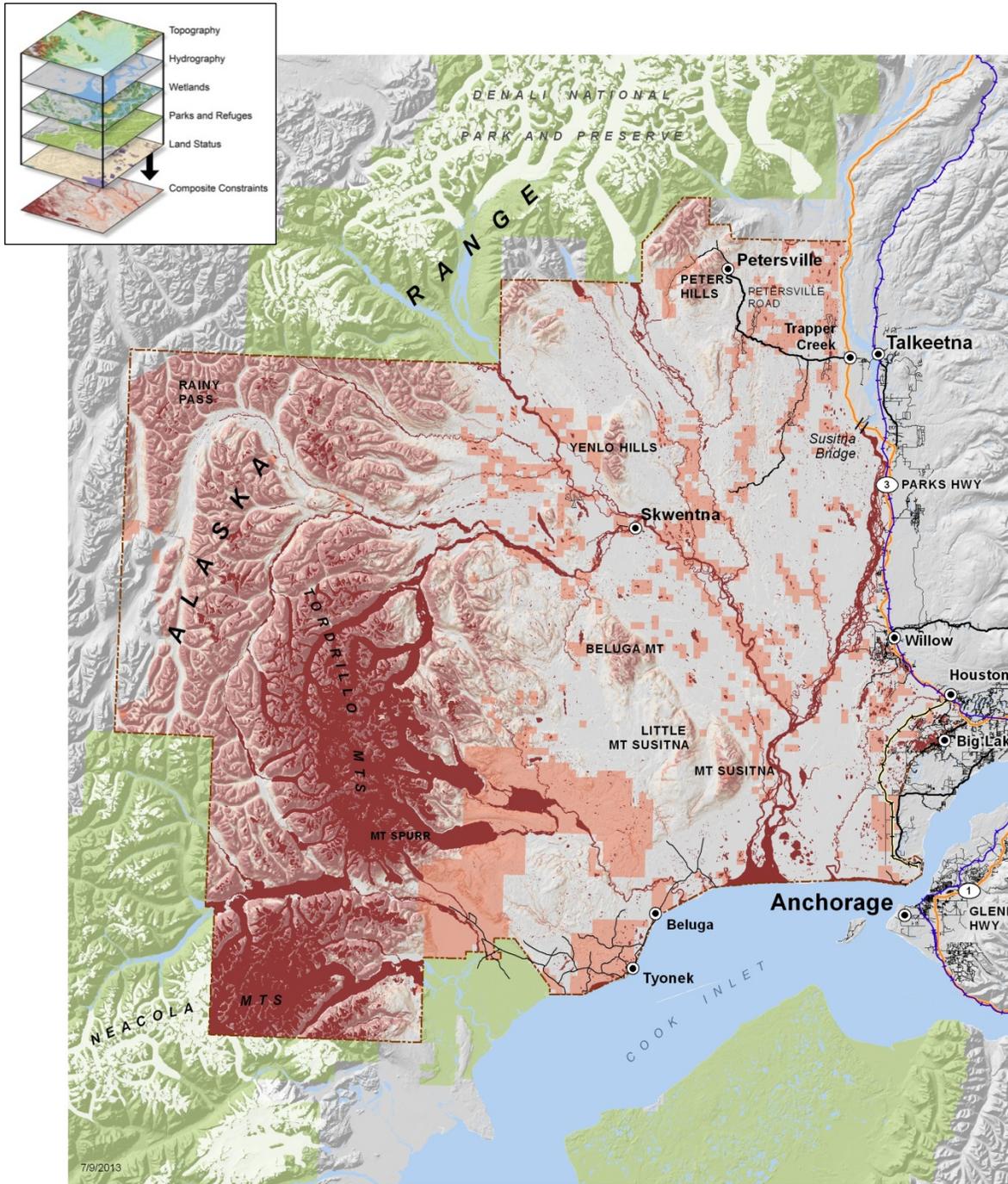
Suitability for Roadway Access



- Study Area
- Park or Refuge
- Highway
- Secondary Road
- Existing Rail
- Port MacKenzie Rail Extension



Figure 4-16. Constraints: Slope, Waterbodies, and Streams + Land Status



CONSTRAINTS: Land Status

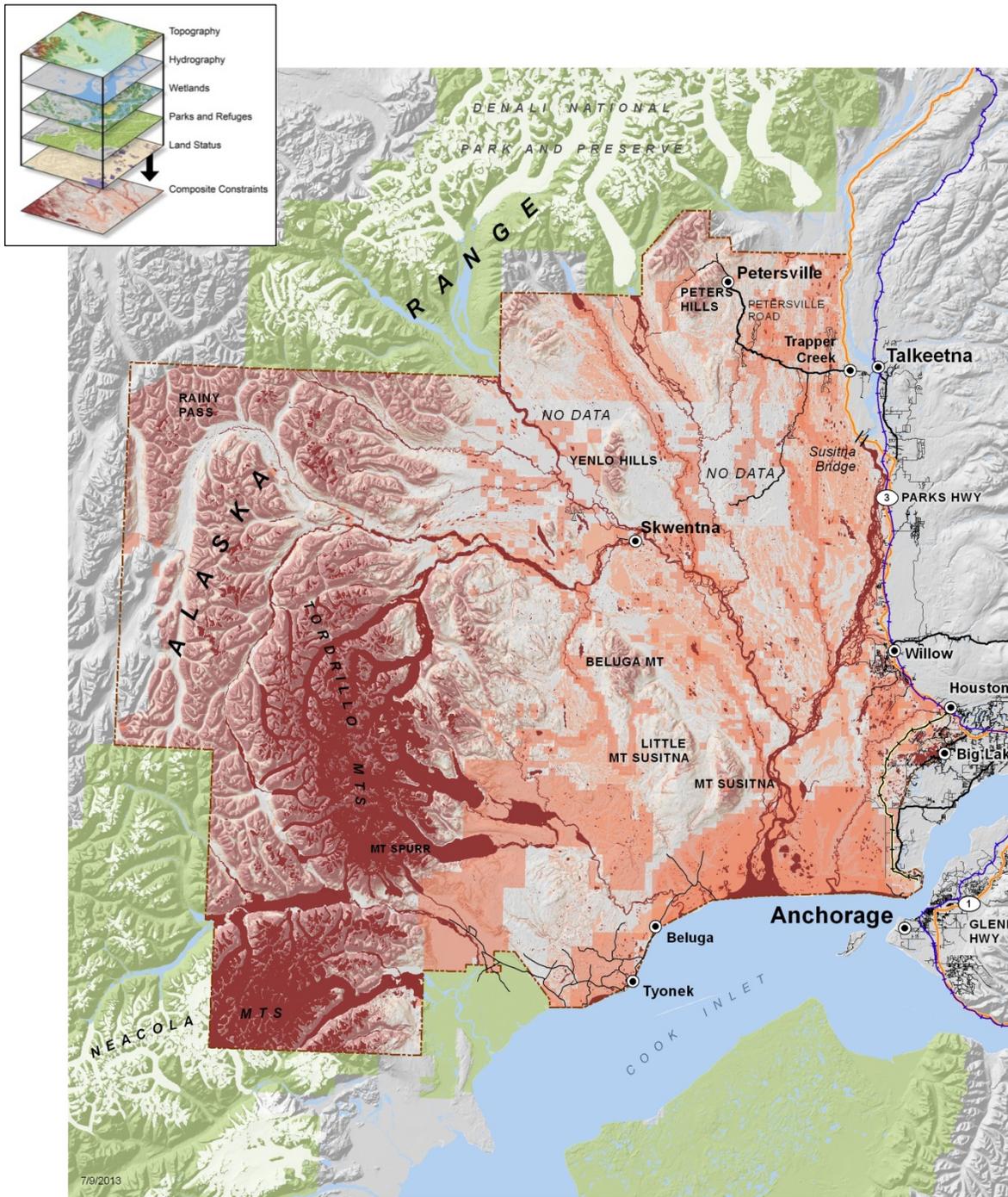
West Susitna Access to Resource Development

Suitability for Roadway Access
 Least suitable
 Most suitable

- Study Area
- Park or Refuge
- Highway
- Secondary Road
- Existing Rail
- Port MacKenzie Rail Extension



Figure 4-17. Composite Constraints



CONSTRAINTS: Composite

West Susitna Access to Resource Development

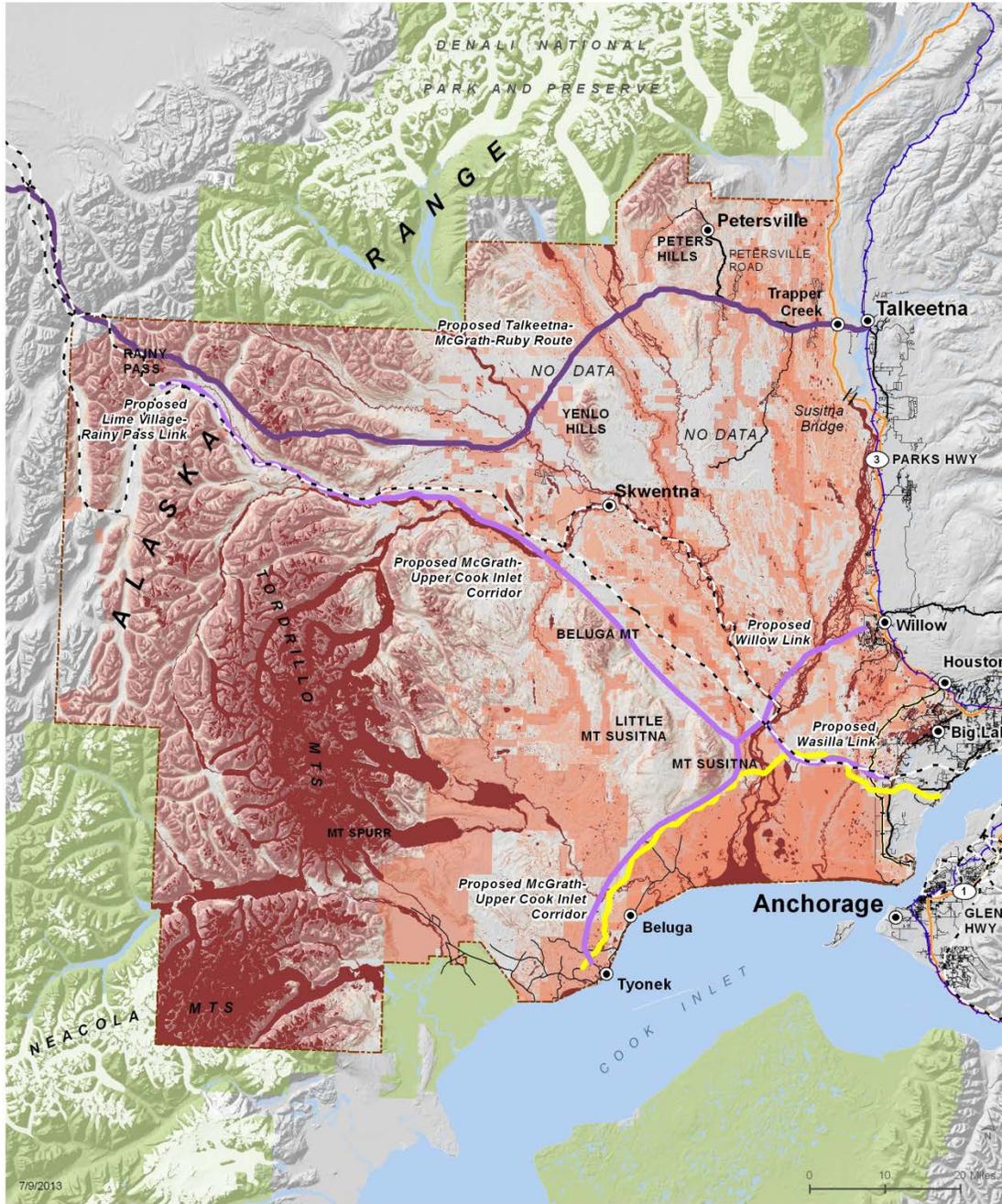
Suitability for Roadway Access



- Study Area
- Park or Refuge
- Highway
- Secondary Road
- Existing Rail
- Port MacKenzie Rail Extension



Figure 4-18. Composite Constraints and Previously Identified Alignments



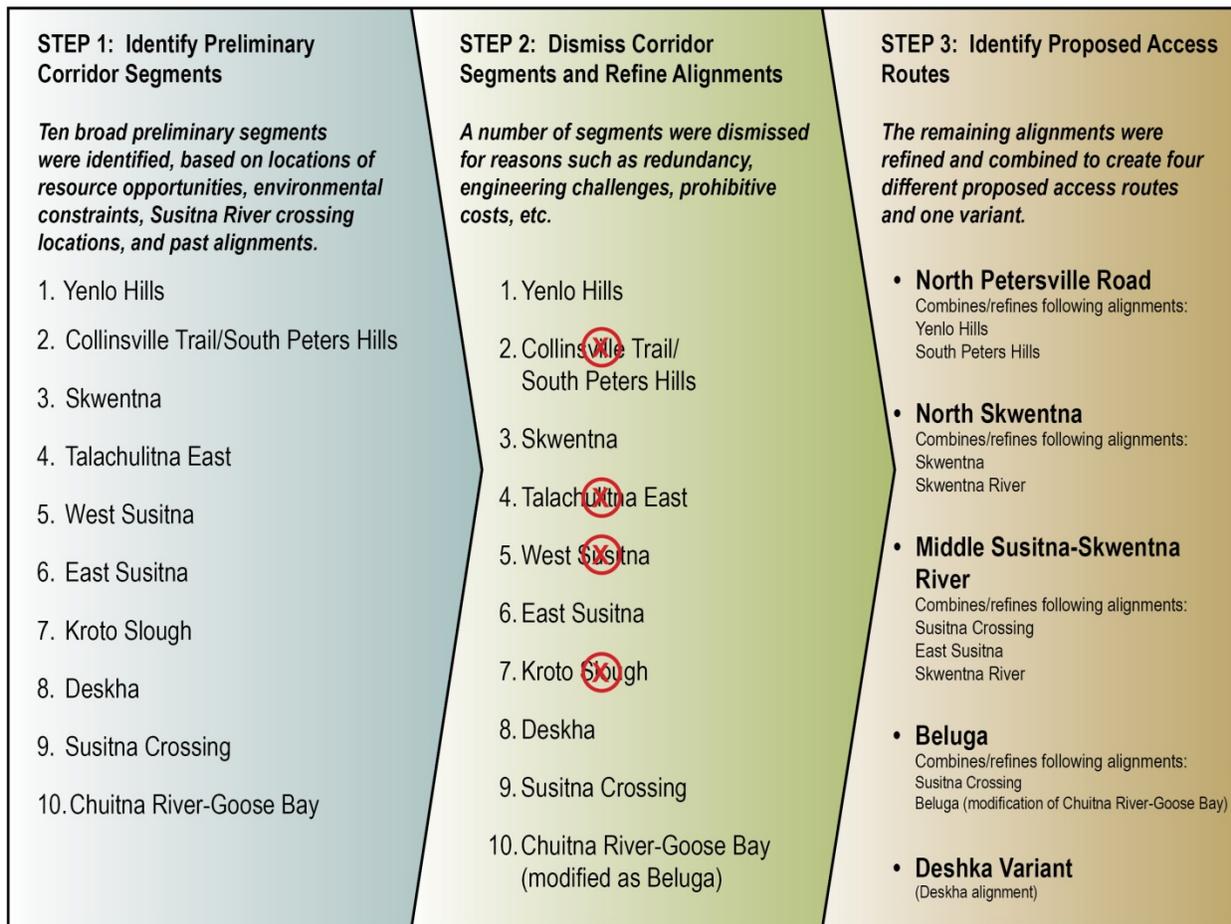
Previously Identified Alignments and Constraints Composite *West Susitna Access to Resource Development*



4.5 Preliminary Corridors

Developing preliminary corridor segments and centerline alignments was a multi-step process, as shown in Figure 4-19. As part of refining the initial 10 corridor segments (see Figure 4-20), preliminary conceptual engineering was conducted. Initial centerline alignments were laid out within the initial corridor segments in AutoCAD using USGS 15-minute, 1:63,360-scale quadrangle base maps to provide contour mapping for the Study Area. Standard roadway design criteria were used as specified in the Preliminary Design Criteria Technical Report. Additionally, the effort was assisted by use of aerial imagery available from Google Earth™. The goal was to provide a geographic range of corridor options that could access identified resources.

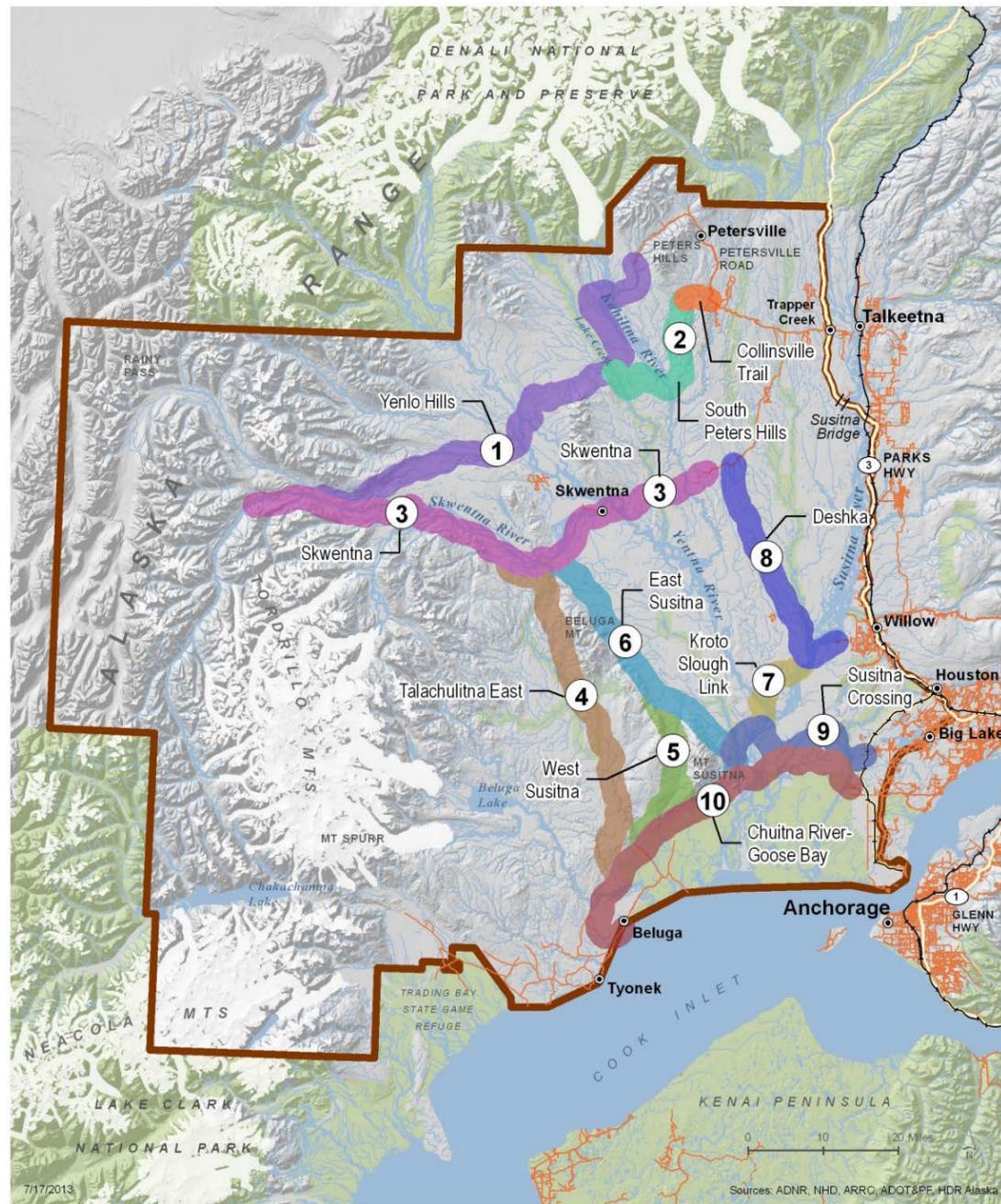
Figure 4-19. Access Route Development Process



4.5.1 Step 1: Preliminary Corridor Segments

Once the locations of the resource opportunities, environmental constraints, suitable Susitna River crossing locations, and past alignments were identified, 10 broad preliminary corridor segments were identified, as depicted on Figure 4-20. The broad preliminary corridor segments were based primarily on avoiding environmental constraints such as topographic features (mountains, steep slopes, and hills), waterbodies or wetlands, and river or stream crossings. Preliminary corridor segments were identified based on sound engineering judgment using available data.

Figure 4-20. Preliminary Corridor Segments



Preliminary Corridor Segments West Susitna Access to Resource Development



(1) Yenlo Hills Corridor Segment. This segment connects the Upper Skwentna mineralized area (the mineral deposits generally located southeast of Rainy Pass) with the road network at the Cache Creek mining district located near Petersville. This route crosses the Skwentna River, Johnson Creek, Yentna River, Lake Creek, and Kahiltna River. The route crosses wetlands in the Kahiltna and Yentna River valleys. It ascends and descends the northern flank of the Yenlo Hills. Near the western end the route passes near a couple of wilderness lodges located near Red and Finger Lakes. The road along Cache Creek would need to be upgraded.

(2) Collinsville Trail/South Peters Hills Corridor Segment. This segment is an attempt to shorten the distance of the Yenlo Hills segment. Instead of looping north along Cache Creek, it crosses south of the Peters Hills. It makes use of an old mining track called the Collinsville Trail, then passes down the west side of Little Peters Hills. This route crosses the Kahiltna River at a better location than the Yenlo Hills segment. It still has issues of crossing lumpy bedrock terrain and some wetlands.

(3) Skwentna Corridor Segment. This segment leaves the Upper Skwentna mineralized area and travels along the south side of the Skwentna River to connect with an extension from Oil Well Road. It crosses the Hayes River, Talachulitna River, Yentna River, Lake Creek and Kahiltna River. Portions of this route cross wetlands and pass through terrain consisting of lumpy bedrock and scattered kettle lakes.

(4) Talachulitna East Corridor Segment. This segment skirts the lower slopes of Mount Susitna and Beluga Mountain to avoid the wetlands prevalent in the Talachulitna River drainage. The north portion of the route between the Talachulitna River crossing and Skwentna River will be more difficult to construct due to lumpy bedrock terrain interspersed with many kettle lakes.

(5) West Susitna Corridor Segment. This segment was created in case the route around the east side of Mount Susitna ran into too many construction issues. The alignment crosses the saddle separating Mt. Susitna and Little Mt. Susitna; it is anticipated that this saddle experiences heavy snow drifting and avalanche potential.

(6) East Susitna Corridor Segment. This segment skirts the lower slopes of the east side of Mt. Susitna and Beluga Mountain and maintains a lower elevation than the other segments (Talachulitna East and West Susitna) going north from Beluga. This segment crosses fewer wetlands and avoids more of the lumpy terrain the Talachulitna East Alignment crosses.

(7) Kroto Slough Link Segment. This segment is used to link the Parks Highway access through Deshka Landing to Beluga. It travels along the north side of Kroto Slough and crosses the Yentna River 3 miles upstream from its confluence with the Susitna River. The portion of the alignment east of the Yentna River crosses wet soils. This link would connect the Deshka segment with the Susitna Crossing segment.

(8) Deshka Corridor Segment. This segment leaves the road network at Deshka Landing, west of Willow, to cross the Susitna River just downstream of the mouth of the Deshka River. It then turns north to roughly parallel the Deshka River to connect with the southern end of Oil Well Road. The north end of Oil Well Road connects to Petersville Road. The whole length of the Deshka segment on the west side of the Susitna River crosses soils with a high water table, if not true wetlands.

(9) Susitna Crossing Corridor Segment. This segment crosses the Susitna River at one of the most stable river bank locations along the southern portion of the river. It crosses just north of Flat Horn Lake to connect to Goldsteak Drive, west of Big Lake.

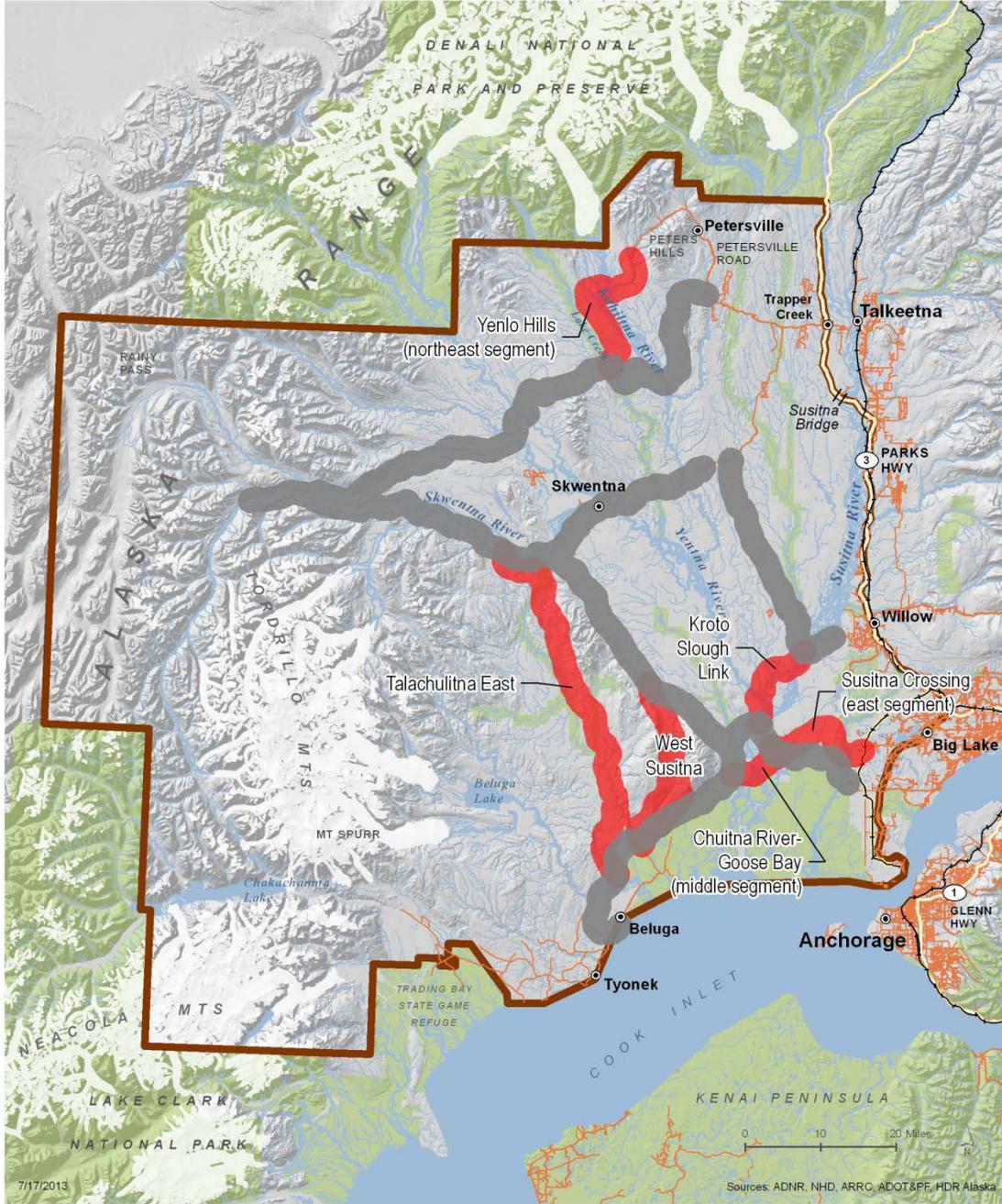
(10) Chuitna River-Goose Bay Corridor Segment. This is the corridor alignment previously identified by DOT in 1972. The main issue with this route is that it crosses the Susitna River in a braided area with many moving gravel bars. A better crossing of the Susitna River is located 8 miles upstream at the Susitna Crossing (as described earlier in Section 4.3). This alignment originally extended to the road network at Goose Bay, but since then the road network has been extended to the Little Susitna River where the project team shows it ending.

4.5.2 Step 2: Preliminary Corridor Segment Screening - Dismissed Segments

For the level of effort for this reconnaissance-level study, and as part of the preliminary corridor refinement process, several of the initial 10 preliminary corridor segments were dismissed for a variety of reasons. These reasons include redundancy compared with other similar alignments, engineering challenges, wetlands, and additional bridge requirements and associated costs with structures. See Figure 4-21 for the dismissed corridor segments. The corridor segments considered but dismissed are as follows:

- Only one of the two options departing the region near the end of the Petersville Road was retained for further analysis as part of the Yenlo Hills corridor segment. This region is characterized by lots of wetlands.
- Only one of the three options connecting from the Beluga area northwestward towards the Upper Skwentna mineralized area near Rainy Pass will be retained for further analysis. The Talachulitna East corridor segment and West Susitna corridor segment were dropped in this area and the East Susitna corridor segment was retained. The two dismissed segments were dropped because both options added extra, unnecessary miles from the crossing of the Susitna River compared with the West Susitna segment.
- The Kroto Slough link segment was eliminated from further analysis; the corridor crosses very wet terrain.
- The Chuitna River-Goose Bay route, the route previously identified by DOT in 1972, crosses the Susitna River in a location this study did not identify as a reasonable river crossing. Therefore, this specific route will not be carried forward. Instead, the corridor route will be modified to cross the Susitna River in a more reasonable location, as identified as part of this study. The alignment carried forward in this portion of the Study Area will be a combination of the Susitna Crossing segment and the Chuitna River-Goose Bay segment. In the next section and subsequent analysis in this report, this alignment will be known as the Beluga alignment west of the Susitna River crossing.

Figure 4-21. Preliminary Corridor Segments Considered but Dismissed



Preliminary Corridor Segments Considered but Dismissed

West Susitna Access to Resource Development

- | | | | |
|--|--|--|--|
| — Corridor segment dismissed from further study | — Highway | — Existing Rail | Study Area |
| — Corridor segment recommended for further study | — Secondary Road | — Port MacKenzie Rail Extension | Park or Refuge |

The seven remaining corridor alignments provide a geographical span of potential roadway access opportunities (see Table 4-3 and Figure 4-22). These seven corridor alignments are also depicted on USGS quad sheets (see Appendix B). These remaining corridor alignments have been combined in several ways to make several potential resource access route options, as described in this section. It should be noted that there are alternate ways to connect the segments together to create alternatives.

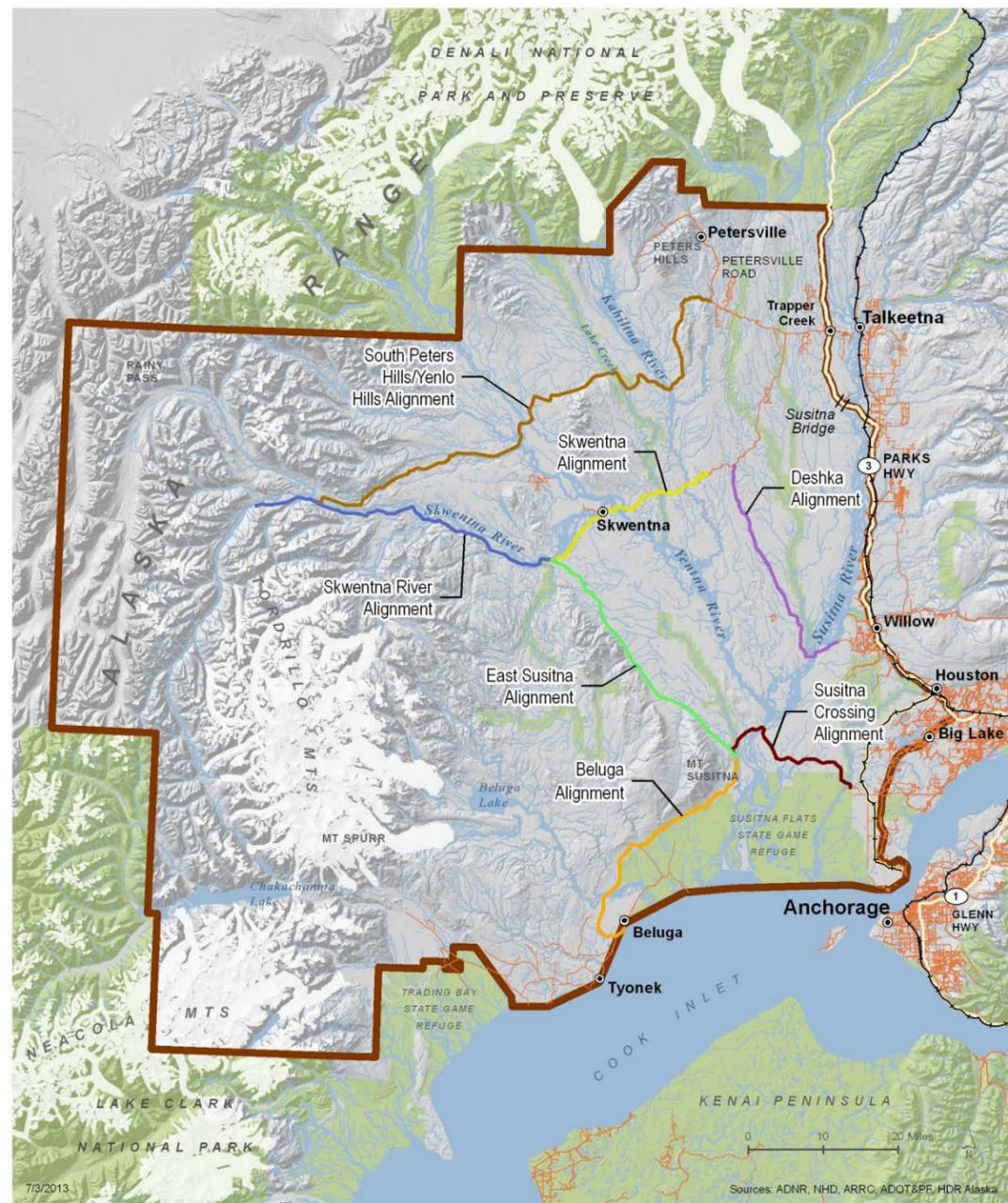
The benefit of having a range of alternatives is the option to do multi-phased construction, whereby multiple termini and resources may be accessed throughout the Study Area and alternative segments sequentially built based on priority, availability of funding, and timing of access needs. For instance, should accessing the Upper Skwentna mineralized area southeast of the Rainy Pass area be paramount, the South Peters Hills/Yenlo Hills Alignment could be the first phase of road access into the West Susitna region. Subsequent phases could then be built to the south, providing connection to the Beluga/Tyonek region. Alternatively, West Susitna access could be implemented in the reverse order, beginning with the Beluga/Tyonek region and subsequent development to the north later.

Table 4-3. Refined Corridor Alignments

Corridor Alignment Name	Approximate Length (miles)
South Peters Hills/Yenlo Hills	79
Skwentna River	44
Skwentna	27
East Susitna	37
Deshka	34
Susitna Crossing	26
Beluga ¹	38

¹ The Beluga alignment is a slightly altered version of the initial Chuitna River-Goose Bay corridor segment.

Figure 4-22. Refined Corridor Alignments



South Peters Hills/Yenlo Hills Alignment. The South Peters Hill/Yenlo Hills Alignment begins at Petersville Road, roughly at the location where it nears Peters Creek and veers north. This alignment would cross Peters Creek and trend west for about 3.5 miles, then travel southward on the western side of the Little Peters Hills to a crossing of the Kahiltna River. From the Kahiltna River crossing, this alignment trends generally westward, crossing Lake Creek and the Lake Creek Recreation River area, passing north of the Yenlo Hills, to a crossing of the Yetna River. From the Yetna River crossing, the alignment generally trends in a southwesterly direction to the Skwentna River. This alignment is roughly 79 miles in length and reaches a maximum elevation of approximately 1,800 feet.

Skwentna River Alignment. The Skwentna River Alignment begins at the theoretical junction of the Skwentna Alignment and the East Susitna Alignment. It provides access from the Skwentna River valley to the Upper Skwentna mineralized area, traveling in an east to west direction on the south side of the Skwentna River. From its beginning, this alignment travels about 2 miles to a crossing with the Talachuitna River. The alignment then climbs gradually along the south side of the Skwentna for nearly 15 miles to a crossing of the Hayes River. The alignment continues westward across a braided floodplain for another approximately 17.5 miles to the theoretical junction with the South Peters Hills/Yenlo Hills Alignment, then crosses the Chickak River and continues for another 7 miles to the terminus of the alignment. This alignment is roughly 44 miles in length.

Skwentna Alignment. The Skwentna Alignment begins at its highest elevation of about 800 feet at the southern end of Oilwell Road and travels west for approximately 4 miles before reaching a crossing of the Kahiltna River. It then traverses another 4 miles to a crossing of Lake Creek. From this crossing, the alignment continues westward to a crossing of the Yetna River, passing near the community of Skwentna. It then travels in a southwesterly direction, staying on the south side of the Skwentna River to the approximate confluence of the Talachuitna River and Skwentna River. This alignment is roughly 27 miles long and reaches a maximum elevation of about 1,500 feet.

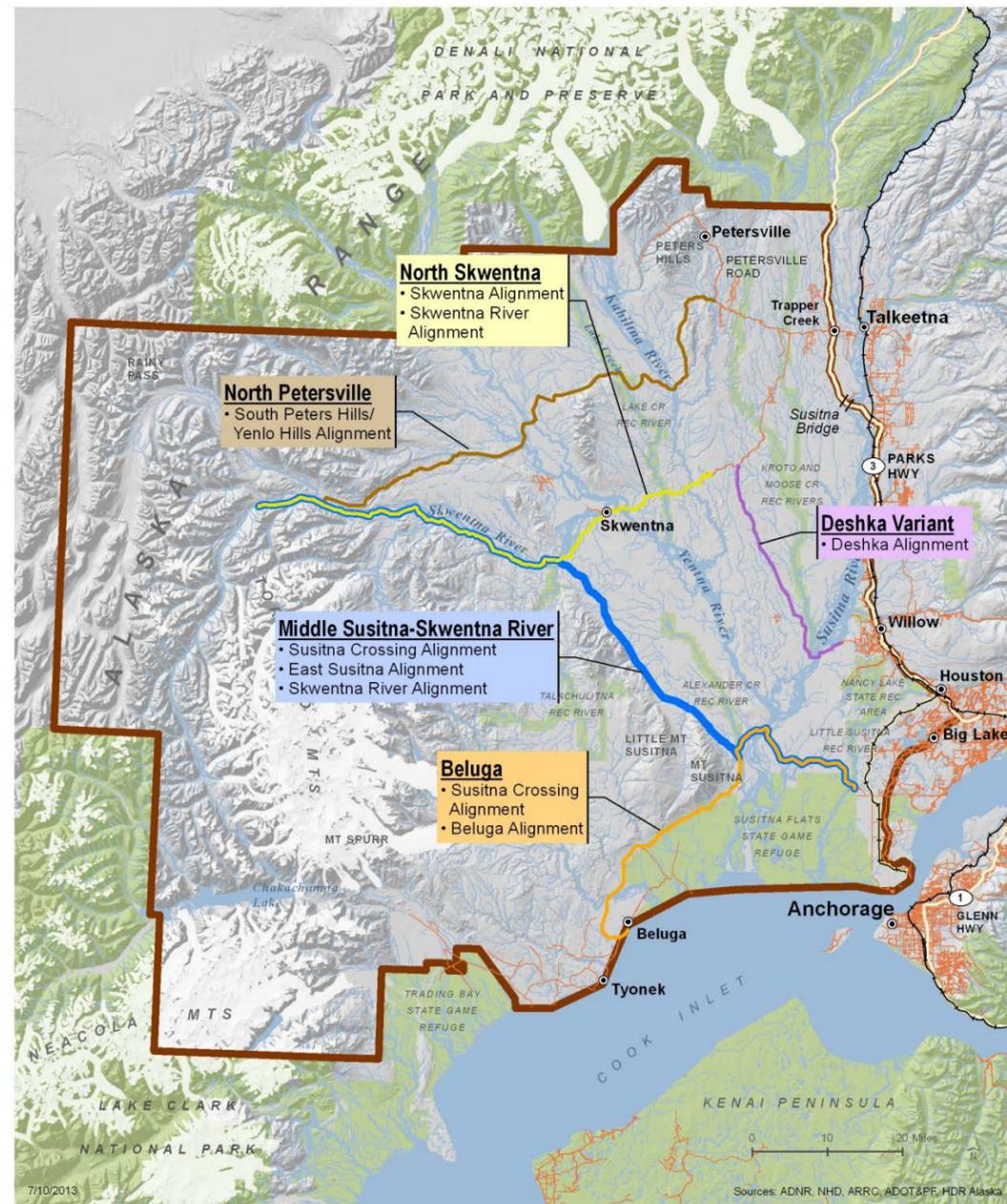
East Susitna Alignment. The East Susitna Alignment begins at the theoretical junction of the Susitna Crossing Alignment and the Beluga Alignment. It provides access from the eastern side of Mt. Susitna and the lower Susitna Valley to the Skwentna River. This alignment begins on the eastern side of Mt. Susitna and travels in a northwesterly direction and crosses many smaller creeks flowing from the eastern slopes of Mt. Susitna, Little Mt. Susitna, and Beluga Mountain. The alignment descends from the slopes of Beluga Mountain to lower-lying terrain and ends at the Skwentna River. The alignment is approximately 37.5 miles in length and reaches a maximum elevation of 560 feet.

Deshka Alignment. The Deshka Alignment provides access from the MSB road system across the Susitna River and up the valley between the Yetna and Kahiltna rivers and Kroto Creek to a point located on Oilwell Road. This alignment begins at Deshka Landing Road and travels about 3.5 miles to the southwest to a crossing of the Susitna River. The alignment then travels north-northwest for roughly 30 miles until it reaches Oilwell Road. This alignment is approximately 33.5 miles in length and reaches a maximum elevation of 600 feet.

Susitna Crossing Alignment. The Susitna Crossing Alignment provides access from the MSB road system to a location on the western side of the Susitna River. It begins from the Little Susitna River Road and crosses the Little Susitna River, then travels in a northwesterly direction, crossing several smaller streams, for roughly 16 miles to a crossing of the Susitna River. From this crossing, the alignment then turns to the southwest and travels another 6.5 miles and ends at the theoretical junction of the Beluga and East Susitna alignments. This alignment is approximately 26 miles in length and reaches a maximum elevation of about 150 feet.

Beluga Alignment. The Beluga Alignment provides access from the coastal community of Beluga and the Cook Inlet up to the eastern slopes of Mt. Susitna. This alignment begins at the southern end of the Beluga Airport and then wraps to the south around the large wetland complex before veering to the north and crossing the Beluga River. From the Beluga River the alignment trends generally to the north and northeast for roughly 9.5 miles to a crossing of the Theodore River. The alignment continues traveling in a northeast direction, remaining on more level terrain and crossing several smaller streams as it traverses the base of Little Susitna and Mt. Susitna and zigzags across the northwest boundary of the Susitna Flats State Game Refuge. The alignment then wraps around the southeastern side of Mt. Susitna before ending at the theoretical junction of the Susitna Crossing and East Susitna alignments. This alignment is approximately 38 miles long and reaches a maximum elevation of about 430 feet.

Figure 4-23. Proposed Access Routes



4.5.3 Step 3: Proposed Access Routes

The remaining alignments were refined and combined to create four different proposed access routes and one variant, as depicted on Figure 4-23. Appendix B contains a mapbook series of these remaining alignments drawn on USGS quad maps.

North Petersville Road

The North Petersville Road access route would be 78.8 miles long. This route originates from the existing Petersville Road and provides access to the western section of the Study Area, particularly the mining area west of the Upper Skwentna River (the Upper Skwentna mineralized area). A major bridge crossing of the Yentna River would be required. This route would require 13 bridge structures.

North Skwentna

The North Skwentna access route would be 71.6 miles long. It originates from Oil Well Road and also provides access to the Upper Skwentna mineralized area. This option would require two major bridge structures over the Yentna and Hayes rivers, in addition to 16 other bridges.

Middle Susitna-Skwentna River

The Middle Susitna-Skwentna River access route would be 107.9 miles long and is the longest route. It originates from the Little Susitna River Road and provides access to the mining area north of the Tordrillo Mountains. This route requires the highest number of bridges (24) of all the route options, including a 1,640-foot-long bridge over the Susitna River.

Beluga

The Beluga access route would be 63.8 miles long and is the shortest route. It originates from the Little Susitna River Road and provides access to the resources in the Beluga/Tyonek area. This route requires 13 bridge structures, including a 1,640-foot-long bridge over the Susitna River.

Deshka Variant

The Deshka variant option would be 33.5 miles long. It was included in this study to evaluate the possibility of providing access to nearby existing infrastructure, as well as providing road access particularly to lands with agricultural and timber/forestry potential.



Murray Walsh, Roads to Resources Manager

Alaska Department of Transportation & Public Facilities

DOT&PF, Commissioner's Office

PO BOX 112500; Juneau, AK 99811-2500

Telephone: 907-465-6973

e-mail: Murray.Walsh@alaska.gov