TRANSPORTATION

INTRODUCTION

Transportation planning is a necessary component of a comprehensive land use plan. A plan which identifies areas for developable resources should also locate transportation corridors which provide access to those resources. It is necessary to do a general transportation assessment to insure that the routes are practical, that they can be constructed at reasonable cost, and that they do not have unacceptable environmental or social impacts. In addition, it is important to analyze the alignment of potential transportation routes, to determine if they are needed to access the resources described in this plan, and to ascertain if construction materials such as sand and gravel deposits are easily accessible. This is necessary to insure that today's land management and disposal decisions do not unnecessarily prevent the construction of a route which may be needed in the future.

This portion of the Willow Sub-basin plan is not intended to provide detailed route alignment or construction recommendations. This planning effort cannot hope to duplicate the detail or scope of preliminary engineering studies conducted by the Department of Transportation and Public Facilities (DOT/PF). This section addresses two subjects:

1. the general location of transportation routes necessary to provide access to resource development areas located in this plan;

2. a general analysis of the costs of proposed routes and of potential environmental impacts;

A set of policies and guidelines designed to minimize unwanted impacts created by proposed routes, to insure compatibility between transportation corridors and adjacent land uses, and to maintain the integrity of corridors which may be needed in the future is presented in Chapter III, Transportation.

DESCRIPTION OF PROPOSED TRANSPORATION CORRIDORS

To implement the land use objectives of this plan, three major transportation systems are required: Fish Creek (agriculture), Susitna Corridor (forestry and agriculture), and Kashwitna (forestry). In addition, the Houston Right-of-Way is a potential future corridor accessing

Point MacKenzie. Each of these routes is shown on Map 5 and described in detail below. The cost referred to in the discussion of each of the roads is the estimated total initial construction cost of the road.* Using cost information from DOT/PF, the Soil Conservation Service and the Department of Natural Resources developed a methodology to estimate road costs based on soil characteristics, topography and hydrologic information. Cost estimates include the initial construction costs of gravel surfaces, underlying material, bridges, and culverts as well as related engineering, inspection, mobilization, and contingency fees.

Unless otherwise noted below cost estimates are for "class I" roads. A class I road is Alaska's standard, well built, two lane gravel road. It requires all of the costly design and construction techniques of the Parks Highway except for final paving; pavement can be added directly to it. Generally, the road is 32 feet wide including two four foot shoulders. (It has three to one side slopes and at least two feet of subbedding with six inches of graded gravel on top.) Examples of class I gravel roads include most of the Alaskan Highway and the first six miles of Petersville Road. If pavement is applied to class I roads, the result is a road similar to the Knik Road or much of the Parks Highway.

In a few cases cost esimtates have been made for "pioneer roads." Unlike a class I road, a pioneer road is not designed for highway traffic volumes and speed. The road is narrower, has no shoulders, and does not have the same quality surface. Pioneer roads are recommended when access is needed into hunting, forestry, and some agricultural areas. Typically, costruction costs of such a road is about 30%-35% less than that of class I roads.**

FISH CREEK - THE CHUITNA RIGHT-OF-WAY/WINNEBAGO WAY

The Fish Creek Management Unit is intended to provide acreage for a major commercial agriculture project. This project will require two main roads and a system of spur routes (pioneer roads) to access individual farms. DOT/PF has located an approximate alignment for a transportation corridor (road or railroad) to the Beluga Coal Fields, including alternate alignments to the Susitna River. That alignment, known as the Chuitna Right-of-Way, appears to adequately serve as the main road through the Fish Creek Management Unit. The second alignment located by DOT/PF runs north to south from five miles west of Willow to the Chuitna-Right-of-Way just north of Point MacKenzie. This route, also referred to as Winnebago Way, would provide continuous access from Fish Creek and Point MacKenzie to the Parks Highway and the Capital Site.

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* Total initial construction costs are based on DOT/PF's average costs for engineering services, mobilization, construction, inspection, and contingencies.

** This cost assumes DOT/PF lets and administers the construction contract.

If the Knik Arm crossing were constructed, such a route would provide direct access from Anchorage to the Capital Site and shorten the distance between Anchorage and Fairbanks by 30 miles. Constructing this route would require particular care to avoid unwanted visual, noise, or access impacts on the adjacent Nancy Lake State Recreation Area.

In addition, the Fish Creek Management Planning Team has located approximate alignments for spur roads to all parcels of agricultural land 40 acres or greater and to possible settlement areas on Moraine Ridge. These routes are shown on Map 5. It is expected that these routes will be significantly revised during the Management Plan for the Fish Creek Unit or during DOT/PF alignment studies.

The road system in this area has the potential to generate important negative impacts on the hydrologic system of Fish Creek, its related recreational habitat resources, and the Iditarod Trail. Fish Creek is an anadromous fish stream, and its flow and quality is dependent on the many large and small wetlands which dot the area. Numerous stream and wetland crossings are required of the main road and the spur system. It is crucial that the crossings be minimized and that roads be designed to not disturb either the streamflow or the water and nutrient flow of the wetlands, and to avoid creating erosion and introducing sediment or road pollution into the streams. This will require special care due to both the number of crossings required and the fact that steep slopes routinely abut the streams and wetlands. Because the stream crossings will create excellent road access for recreation/fishing sites, care must be taken to incorporate the expected recreational use into road design.

Fish Creek

Road Segment	Total Length (Miles)	Total Cost (Million $)	Average Cost per mile (Million $)
Chuitna Right-of-Way	10.1	5.0	.50
Pioneer Road to agricultural parcels	27.5	10.00	.36
Winnebago Way	20.2	8.1	.40
Morraine Ridge Road (pioneer)	10.3	3.7	.36
Total*	68.1	26.8	

* These totals assume that the entire system is constructed.

SUSITNA CORRIDOR

The Susitna Corridor Management Unit is intended to provide a large area to be managed for its forestry/habitat values. Forestry operations require a network of logging roads that typically have 12 foot wide road surfaces which would probably be designed and built by various logging companies. It is likely that the development of logging roads would occur in increments spread out over many years--as more areas are harvested, more roads would be needed. However, a pioneer road is recommended through the plan to provide initial access into the area. Map 5 shows a possible alignment reaching as far south as Susitna Station. The estimated cost of this road is 35% less than the cost of an average class I road. The lower cost of the pioneer road is attributed to less intensive construction techniques, narrower clearing requirements, and the use of winter roads to cross wetlands. The cost estimates below are for a pioneer road from the Parks Highway South 20 miles to the Sustina Station (see Map 5).

Susitna Corridor

Road Segment	Total Length (Miles)	Total Cost (Million $)	Average Cost per mile (Million $)
Susitna Corridor	24	4.7	.24

KASHWITNA

The Kashwitna Unit is intended to be a multiple use management area emphasizing fish and wildlife habitat, and forestry. Grazing and small farms are also permitted uses. Although cost estimates were prepared for most of the road, entry into the unit is very difficult, and information is not available to provide a reasonable cost estimate for the northern portion of the road.

The initial access would require one of three expensive options: a major bridge across Willow Creek just downstream from a canyon-like area of the creek; a smaller bridge closer to the Parks Highway and a road along the north side of Willow Creek; or access from the Parks Highway north of the creek and a road along the north side of the creek. Roads cost estimates were prepared for the first option -- a major bridge across Willow Creek and 9 miles of road extending into the management unit. Access to the small farm area (just north of the creek) would need to be a class I road to allow conventional vehicle traffic into the agricultural areas. This portion of the road (segment 1) would extend

5.8 miles. The remaining portion of road (segment 2) leading into the part of the management unit designated for forestry and habitat management could be a pioneer road similar to that described for the Susitna Corridor Unit. See the table below for details.

Kashwitna Route

Road Segment	Total Length (Miles)	Total Cost (Million $)	Average Cost per Mile (Million $)
1*	5.8	2.4	.41
2**	3.2	1.6	.50
Total	9.0	4.0	

* Class I Road
** Pioneer Road

HOUSTON RIGHT-OF-WAY

A north-south connection between Point MacKenzie and Houston has been proposed by various agencies. Presently, DOT/PF has a right-of-way application for this route, but there are currently no construction plans. Construction through this area involves miles of continuous wetlands. For that reason, road construction would be tremendously expensive (approximately $1.1 million per mile of road). Instead of a conventional road, DOT/PF is considering a rail corridor for transporting commodities into and out of Point MacKenzie.

Houston Right-of Way

Road Segment	Total Length (Miles)	Total Cost (Million $)	Average Cost per Mile (Million $)
Houston Right-of-Way	18.2	20.7	1.14

SAND AND GRAVEL

Sand and gravel - known in construction as "materials" - are essential for both the construction and maintenance of roads, railroads, and airports. In 1978, revenues from these materials reached $160 million - second only to oil and gas of all mineral resources extracted in Alaska. DOT/PF is the state's largest user of sand and gravel.

The cost of building and maintaining a road is in large part dependent on whether materials must be purchased from private sources or are available from public lands, and whether materials must be found locally or must be hauled from a distance. Personnel at DOT/PF suggest that five miles from borrow site to building site is the maximum feasible hauling distance. Thus, it is critical that an analysis of potential material sites precede detailed management design of proposed route areas.

The quality of information concerning the locations of sand and gravel deposits varies throughout the area. In current road accessed parts of the basin, fairly good information exists and DOT/PF has located enough potential borrow sites to supply their needs through at least the year 2000 (these are shown on Map 5). In the areas currently without road access, existing soils data provide an indication of the existence of material deposits; however, a much more detailed analysis will be necessary to locate the required borrow sites. This analysis will be conducted by Division of Geological and Geophysical Surveys (DGGS) or DOT/PF and the results should be integrated into the management plan for currently non-road accessed areas. DGGS has completed a detailed assessment of the materials potential in the areas covered by USGS quadrangels Anchorage C-7 and C-8.