SUSITNA
HYDROELECTRIC PROJECT

FEDERAL ENERGY REGULATORY COMMISSION
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# HOUSING AND RESIDENTIAL AND COMMERCIAL LAND USE CONSTRAINTS REPORT FOR THE SUSITNA HYDROELECTRIC PROJECT

PREPARED BY

FRANK ORTH & ASSOCIATES, INC.

FINAL REPORT

UNDER CONTRACT TO

HARZA-EBASCO
SUSITNA JOINT VENTURE

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NOTICE

ANY QUESTIONS OR COMMENTS CONCERNING
THIS REPORT SHOULD BE DIRECTED TO
THE ALASKA POWER AUTHORITY
SUSITNA PROJECT OFFICE

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# 1.0 INTRODUCTION

## 1.1 PURPOSE

The objectives of this report are: 1) to provide information on baseline and with-project conditions related to the demand for, and supply of, housing and land by residential and commercial use; and 2) determine the significance of any imbalances between supply and demand and how they affect the in-migration of people to communities potentially affected by the Susitna Hydroelectric Project. These communities include Cantwell, Healy, Nenana, Talkeetna, Trapper Creek, Wasilla, Palmer, and Houston. The report was prepared in order to support the needs of the Social Sciences Program for the Susitna Hydroelectric Project of the Alaska Power Authority. It will serve as a guide to refining the gravity model by specifying the communities that could have difficulty in absorbing project-related employment and population effects.

## 1.2 ORGANIZATION

This report is organized into five chapters. Chapter 1 discusses the purpose and the organization of the report. Chapter 2 describes several conditions (variables) that could potentially constrain residential and business development in the communities selected for analysis. The conditions are: housing demand, housing supply, demand for residential land, supply of residential land, demand for commercial land, and supply of commercial land. Data sources for these conditions are also identified in this chapter.

Chapter 3 forecasts and compares baseline supply and demand for the conditions identified in Chapter 2. The ability of communities to accommodate expected changes in demand conditions is also examined. Chapter 4 examines project-related effects on housing and land use conditions within each community. The last chapter contains recommendations regarding whether capacity constraints should be entered into gravity assignment procedures in the Susitna socioeconomic model.

# 2.0 METHODOLOGY

## 2.1 COMMUNITY SELECTION CRITERIA

This report focuses on the housing and land use conditions in several communities located near the vicinity of the proposed Susitna Project site. Communities were selected for analysis based on the relative size of project-related increases in population forecasted by the Susitna socioeconomic model (Frank Orth & Associates, Inc., March 1984). These projections demonstrated that significant Project effects on population were likely to occur in Cantwell, Healy, Trapper Creek, and Talkeetna. Somewhat less significant, but still important, effects were identified in the communities of Nenana, Houston, Wasilla, and Palmer.

Community boundaries used in this report represent the incorporated boundaries for the cities of Palmer, Wasilla, Houston, and Nenana and the boundaries used in the 1983 socioeconomic surveys of households and businesses for Cantwell, Talkeetna, and Trapper Creek (Frank Orth & Associates, Inc., February 1984). The boundaries for Healy were based on the 1980 U.S. Census designated place definition.

## 2.2 DATA COLLECTION

Data on housing demand, housing supply, average lot sizes, square footage requirements per commercial employee, and land use acreages within each community were collected during 1984. Information was obtained from: 1) socioeconomic reports prepared on the Susitna Project; 2) comprehensive development plans; 3) land use maps showing land ownership status, land use by types, and holding capacities for population; 4) assessment records; 5) surveys of population and housing; and 6) key informant interviews with local planning officials, residential and commercial developers, and banking officials.

### 2.2.1 Housing Demand and Supply.

Housing demand in each community was specified by the number of occupied housing units (households). The Susitna socioeconomic model provided housing demand forecasts by community for both the baseline and with-project scenarios. The baseline projections were developed to predict future housing trends within each community. The projections were derived from historical trends in housing. With-project projections were based on the settlement patterns of project-related workers which, in turn, were derived from each community's distance from the Project site and community attractiveness (services, housing, land, and recreation available).

Housing supply in each community was specified by the number of total housing units. The Susitna socioeconomic model provided housing unit forecasts by community for both the baseline and with-project scenarios. Data on housing supply was based on socioeconomic model projections conducted in FY84 (Frank Orth & Associates, Inc., March 1984). However, the housing unit information reported in the socioeconomic model did not reflect the ability of the construction industry to respond to changes in demand in each community. In order to improve the accuracy of projections for housing units, key informant interviews were conducted with local developers in each community and the results were incorporated in assumptions about future growth trends.

Ajustments to trends in housing supply were determined primarily from key informant interviews with local contractors, planning officials, and banking officers. For 1983 and 1984, each key informant was asked where in the communities houses and businesses were constructed and how many housing units and business establishments they constructed within each of these locations. Contractors were also asked to estimate the number of housing units that were built during the 1983 and 1984 construction seasons in each community by all contractors. They also were asked to estimate the number to be built during 1985. Additional questions were asked detailing whether homes are built on a pre-sold or speculative basis, whether the developers face impediments to obtaining construction financing, the likelihood that larger contractors from Anchorage and Fairbanks would build more homes in the subject communities, and the ability of

existing contractors in the selected communities to accommodate projected increases in housing and commercial demand.

The information obtained from these interviews was then used to adjust the model projections of baseline housing units in each community. For example, the model values for Cantwell are 127 housing units in 1984 with an increase of from 0-1 units per year between 1985 and 2002. Based on interviews with local contractors about the 1984 construction season in Cantwell and their available resources, the 1984 value was raised to 131 units with a 5 unit per year increase thereafter (Gilbertson and M. Miller, personal communications, 1984).

Adjustments in the number of housing units and average annual growth rates were also made for Healy, Nenana, Wasilla, and Houston when supported by data in the key informant interviews. In Wasilla, 133 housing units were added to the baseline projection in every year. Average annual growth rates in housing units were revised for Healy (from 2.9 percent to 3.9 percent per year), Nenana (from 2.6 percent to 2 percent per year), and Houston (from 10.1 percent to 6.8 percent per year). Values in Talkeetna were raised for 1985 and 1990 and lowered in 1995, 1999, and 2002 to reflect the greater initial housing inventory and more moderate growth related to the ability of local contractors to supply housing. No changes in model projections of housing supply were warranted in Trapper Creek and Palmer.

Supply constraints in community housing markets were determined by comparing demand for housing with housing supply. Baseline supply constraints were determined by comparing baseline housing demand with baseline housing units in communities. Project-related supply effects were determined by comparing project-related housing demand with the available supply of housing in each community. Available supply of housing is equal to the number of housing units that would be vacant under baselire conditions since new housing units were assumed to be occupied.

### 2.2.2 Residential Land Demand and Supply.

Demand for residential land was determined by multiplying the number

of households by average lot size. For the communities in the Mat-Su Borough, several sources of information were available. These sources included: 1) Mat-Su Borough assessment records; 2) the Palmer Comprehensive Development Plan; 3) the City of Houston Comprehensive Development Plan; 4) the Matanuska-Susitna Borough Comprehensive Development Plan; 5) Mat-Su Borough Holding Capacity Maps; and 6) key informant interviews. For the communities of Cantwell, Healy, and Nenana, key informant interviews provided all data on lot size.

The supply of residential land for communities in the Mat-Su Borough was determined from borough assessment records (Mat-Su Borough Assessment Department, 1981). The records showed the number of parcels with improvements and the number of parcels without improvements by community. Holding capacity maps were also available for a number of areas in the Mat-Su Borough. These maps provided an estimate of the number of people that could be accommodated in square mile sections in some of the smaller Mat-Su Borough communities such as Talkeetna and Trapper Creek. By converting population holding capacities into households (through persons per household multipliers) and dividing by average residential lot size, estimates of the supply of residential land were obtained. The supply of residential land in the communities of Healy, Nenana, and Cantwell was determined from land use maps for each community and key informant interviews (Blakeway, Coghill, Cotter, Hail, Harvey, Jouhala, Miller, King, Lindahl, and Williams, personal communications, 1984). The supply of residential land consisted of available land with occupied housing units, land with unoccupied housing units, and land with no improvements.

Baseline supply constraints were determined by comparing baseline residential land use with baseline residential land supply in communities. Project-related supply effects were determined by comparing project-related residential land use demand with the available supply of residential land in each community. The available supply of residential land in each community was determined by subtracting baseline demand for residential land from baseline supply. The difference reflects the amount of residential land available in each community to accommodate increases in project-related demand for residential land.

### 2.2.3 Commercial Land Demand and Supply.

The demand for commercial land was projected by multiplying the ratio of the average square footage of commercial land per commercial employee by the number of commercial employees in the community. Values for the ratio were determined from estimates of existing commercial acreage that were in use in each community and by the number of employees in each community.

Existing commercial acreage was obtained for communities in the Mat-Su Borough from comprehensive development plans, land use status maps, and key informant interviews. The comprehensive development plans contained land use inventories and land ownership patterns. The land use status maps present the amount of acreage in residential, commercial, industrial, and agricultural uses.

The number of jobs, the size of labor force, and the number of business establishments were obtained from household and business survey reports, the Overall Economic Development Plan for the Mat-Su Borough, socio-economic model projections, and key informant interviews. Employment in Wasilla, Palmer, and Houston was estimated from the ratio of business establishments in each community to total business establishments in the Mat-Su Borough, employment to population ratios for the Borough, and labor force data. The business establishment ratios varied from 2 percent for Houston to 53 percent for Wasilla. The Borough employment to population ratio and community-specific labor force data were then used to adjust the business establishment ratios. The values used for the community employment to population ratios for Wasilla, Palmer, and Houston were 0.475, 0.36, and 0.20, respectively. These ratios were then applied to the population projections for each community to determine the number of workers in each community over time.

For some communities, information on commercial space requirements per commercial employee was not directly obtainable. For Cantwell, Healy, and Nenana, the ratio was determined from key informant interviews, data contained in business survey reports, ratios between baseline employment by place of work and baseline population for Cantwell and the observations of survey interviewers regarding business establishment size.

Based on surveys conducted in Healy and Cantwell in 1984, the number of employed adults as a percentage of total population was 42.2 percent in Healy and 39.4 percent in Cantwell (Harza-Ebasco, 1985). Taking the ratio of these two percentages shows that Healy has about 7 percent more employed adults in its population than Cantwell. Applying this percentage to the ratio of employment by place of work to population for Cantwell of 51.3 percent would imply that the similar ratio for Healy would be about 55 percent.

Given the lack of employment data for Nenana, it was assumed that employment to population ratios for Nenana would be similar to that found for Healy. This assumption was based on the fact that Nenana contains one large employer (the Yutana Barge Line) and that residents are within daily commuting distance of Fairbanks. The latter fact implies that residents of Nenana can take advantage of employment opportunities in Fairbanks. Thus, employment in Nenana was estimated by applying the ratio of employment by place of work to population in Healy to the baseline population of Nenana. A ratio of 0.55 was used for the years 1985 to 2002.

Baseline supply constraints were determined by comparing baseline demand for commercial land with baseline supply of commercial land. The baseline demand was determined by applying the average space requirement and the employment to population ratio to the baseline population projections for each community. Baseline supply was determined from information on existing commercial acreage. Project-related supply effects were determined by comparing project-related commercial land use demand with the available supply of commercial land in each community. The baseline forecast of the available commercial land in each community was determined by subtracting baseline demand for commercial land from baseline supply. The difference reflects the amount of commercial land available in each community to accommodate increases in project-related demand for commercial land.

## 2.3 MAJOR ASSUMPTIONS OF THE ANALYSIS

Several assumptions were made during the analysis in order to produce

projections of housing and land use conditions in the communities selected for analysis. The analysis described in Chapters 3 and 4 was based on the Car Transportation Scenario (worst case) which assumed that all workers travel to the site using personal vehicles. Workers were expected to locate permanent residences based upon: 1) the amount of time it takes to travel to the site from various communities; and 2) community attractiveness as defined by the availability of housing, public facilities and services, commercial services, recreation opportunities, quality of schools, and land. Largely because of their proximity, the communities in the Mat-Su Borough and the Railbelt portion of the Yukon-Koyukuk census area were projected to receive the largest proportion of population in-migration resulting from the Project.

A second major assumption was that current community-specific average residential lot sizes and average space requirements per commercial employee would remain unchanged over time except for Cantwell and Nenana. In Cantwell and Nenana, the average residential lot size was assumed to increase over time. Because housing unit density is higher and growth is slower in the center of these towns as compared to outlying subdivisions, average residential lot size would increase over time.

In Nenana, the average space requirement for commercial employees was assumed to decline over time. Because the Yutana Barge line uses an estimated 43,560 square feet per employee, and the faster growing smaller business establishments in Nenana provide about 300 square feet of work space for their employees, the ratio of square feet to commercial employees would decline over time (Harvey, personal communication, 1984).

A third major assumption involved how land was classified as residential or commercial. Land was determined as residential when it contained a structure with the primary purpose of providing shelter. Land was determined as commercial when it had built on it a structure with the primary purpose of providing goods and services for sale in commercial transactions. For land parcels with structures, the distinction between residential and commercial use was straightforward because improvements on a property clearly determined the use of the property. In other cases, where no improvements or structures were evident, comprehensive

land use plans and surrounding uses determined the primary use of a property.

The were two situations where determination of primary use was ambiguous. The first occurred when a structure was used as both a business and a home. In some of these cases, it was possible to make a distinction between the amount of area used for residential and commercial use when there were designated rooms in the structure used solely for business. In other cases, it was not possible to clearly define residential use and commercial use. For these cases, it was assumed that the primary purpose of the property and structure was for residential use.

The second case occurred when businesses were seasonal operations. For these cases, it was assumed that the land was commercial if: 1) no other use occurred on the land during the off-season; or 2) if the amount of time during the year that was devoted to commercial use exceeded the amount of time during the year that was devoted to residential use.

A fourth assumption was that the supplies of residential and commercial land within each community would remain unchanged over time. For each community, the current supply of each of these types of land was not forecasted to change over the projection period. This assumption represented a conservative position in that annexation and changes to comprehensive land use plans could increase the supply of available residential and commercial land in each community. Because these changes represent political actions whose timing cannot be accurately predicted, they were not assumed to affect the supplies of residential and commercial land available for development.

# 3.0 BASELINE CONDITIONS

This chapter examines baseline housing, commercial, and land use conditions in the communities of Cantwell, Healy, Nenana, Palmer, Wasilla, Houston, Talkeetna, and Trapper Creek.

## 3.1 HOUSING DEMAND

Housing demand for each community is shown in Table 1. Slight increases in baseline housing demand are expected in the communities of Cantwell, Healy, Nenana, Talkeetna, and Trapper Creek. Growth in the number of households for these communities would range from 1 percent per year (1 household) in Cantwell to about 6 percent per year (10 households) in Talkeetna.

Moderate increases in the baseline number of households would occur in the communities of Palmer, Wasilla, and Houston. Households would increase by an average of 10 percent per year (62 households) in Houston, 8 percent per year (173 households) in Wasilla, and about 5 percent per year (70 households) in Palmer.

## 3.2 HOUSING SUPPLY

Baseline projections for housing units are also shown in Table 1. Between 1985 and 2002, average annual increases in the number of housing units across communities would range from 4 housing units in Trapper Creek to 117 housing units in Wasilla. In general, Palmer, Wasilla, and Houston are adding greater numbers of units to housing stock than the smaller communities to the north (Patterson, Soulak, Malapanes, and G. Miller, personal communications, 1984).

In 1985, vacancy rates are expected to range from 3 percent in Palmer to 39 percent in Cantwell. Generally, the vacancy rates for communities in the Yukon-Koyukuk census area would be higher than those shown for communities in the Mat-Su Borough. In Cantwell and Healy, vacancy rates are expected to increase over time because older, substandard housing would not be demolished as people move into newer housing units. If the older houses were demolished, vacancy rates would remain equal to levels shown

Table 1

Baseline Housing Demand and Supply
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community/Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|
| Cantwell | | | | | |
| Baseline Housing Demand | 83 | 88 | 93 | 98 | 101 |
| Baseline Housing Supply | 136 | 161 | 186 | 206 | 221 |
| Demand/Supply 1/ | .6 | .6 | .5 | .5 | .5 |
| Healy | | | | | |
| Baseline Housing Demand | 122 | 141 | 163 | 182 | 199 |
| Baseline Housing Supply | 185 | 235 | 285 | 325 | 355 |
| Demand/Supply 1/ | .7 | .6 | .6 | .6 | .6 |
| Nenana | | | | | |
| Baseline Housing Demand | 185 | 210 | 238 | 264 | 284 |
| Baseline Housing Supply | 242 | 277 | 302 | 322 | 337 |
| Demand/Supply 1/ | .8 | .8 | .8 | .8 | .8 |
| Talkeetna | | | | | |
| Baseline Housing Demand | 114 | 149 | 195 | 242 | 284 |
| Baseline Housing Supply | 149 | 194 | 239 | 275 | 302 |
| Demand/Supply 1/ | .8 | .8 | .8 | .9 | .9 |
| Trapper Creek | | | | | |
| Baseline Housing Demand | 78 | 97 | 121 | 145 | 165 |
| Baseline Housing Supply | 87 | 107 | 133 | 157 | 178 |
| Demand/Supply 1/ | .9 | .9 | .9 | .9 | .9 |
| Wasilla | | | | | |
| Baseline Housing Demand | 1,102 | 1,615 | 2,365 | 3,210 | 4,039 |
| Baseline Housing Supply | 1,391 | 1,977 | 2,833 | 3,797 | 4,744 |
| Demand/Supply 1/ | .8 | .8 | .8 | .8 | .8 |
| Houston | | | | | |
| Baseline Housing Demand | 254 | 411 | 664 | 975 | 1,300 |
| Baseline Housing Supply | 411 | 661 | 911 | 1,111 | 1,261 |
| Demand/Supply 1/ | .6 | .6 | .7 | .9 | 1.0 |
| Palmer | | | | | |
| Baseline Housing Demand | 1,073 | 1,476 | 1,762 | 2,028 | 2,255 |
| Baseline Housing Supply | 1,103 | 1,517 | 1,811 | 2,084 | 2,318 |
| Demand/Supply 1/ | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

1/ Supply constraints exist where the ratio of Demand/Supply exceeds one.

Source: Frank Orth & Associates, Inc., March 1984, (housing demand projections);
Mat-Su Borough Planning Department, 1981, 1982, 1983, and 1984, (base year housing information for Mat-Su communities);
Key Informant Interviews, 1984, (base year housing information for Cantwell, Healy, Nenana and growth trends in housing supply for all communities).

for 1985. Vacancy rates in the other communities are expected to fall over time. However, given currently available housing and the ability of the construction industry to add housing to the existing stock, baseline housing supply would accommodate baseline housing demand in the local study area communities between 1985 and 2002.

## 3.3 AVERAGE RESIDENTIAL LOT SIZE

Data on average residential lot size by community are shown in Table 2. As stated in Chapter 2, average residential lot sizes were not assumed to change over time in most communities. Average lot sizes for communities range in size from 0.2 acres/dwelling unit in Palmer to 4.13 acres in Trapper Creek.

## 3.4 COMMERCIAL SPACE

The ratios used to determine commercial space are also shown in Table 2. Average commercial space requirements for each commercial employee would range from 375 feet in Palmer to 10,890 feet in Houston.

## 3.5 RESIDENTIAL AND COMMERCIAL LAND

The estimated residential and commercial acreages in each community are shown in Table 3. In order to provide a conservative analysis, supplies of residential and commercial land were not assumed to increase over the projection period.

In Healy, no direct information on the supply of commercial land was available. However, observed commercial acreage probably did not exceed 10 acres in 1984; this includes Brannon's, the Healy Roadhouse, the KOA campground, and one cafe. Actual acreage was probably closer to 15 acres as many businesses were operated out of homes and some were operated seasonally.

Table 2

Average Residential Lot Size (Acres) and Square Footage
Per Commercial Employee
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community/Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|
| Cantwell | | | | | |
| Avg. Residential Lot Size | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 |
| Sq. Ft./Commercial Emp. | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| Healy | | | | | |
| Avg. Residential Lot Size | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Sq. Ft./Commercial Emp. | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| Nenana | | | | | |
| Avg. Residential Lot Size | 0.5 | 0.8 | 1.0 | 1.1 | 1.2 |
| Sq. Ft./Commercial Emp. | 8,566 | 7,095 | 5,894 | 5,071 | 4,548 |
| Talkeetna | | | | | |
| Avg. Residential Lot Size | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Sq. Ft./Commercial Emp. | 2,640 | 2,640 | 2,640 | 2,640 | 2,640 |
| Trapper Creek | | | | | |
| Avg. Residential Lot Size | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| Sq. Ft./Commercial Emp. | 2,640 | 2,640 | 2,640 | 2,640 | 2,640 |
| Wasilla | | | | | |
| Avg. Residential Lot Size | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Sq. Ft./Commercial Emp. | 4,987 | 4,987 | 4,987 | 4,987 | 4,987 |
| Houston | | | | | |
| Avg. Residential Lot Size | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| Sq. Ft./Commercial Emp. | 10,890 | 10,890 | 10,890 | 10,890 | 10,890 |
| Palmer | | | | | |
| Avg. Residential Lot Size | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Sq. Ft./Commercial Emp. | 375 | 375 | 375 | 375 | 375 |

Source: CH2M Hill, July 1982, (Palmer data);
DOWL Engineers, February 1983 (land use data for Mat-Su communities);
DOWL Engineers, June 1982, (Houston data);
Frank Orth & Associates, Inc., February 1984, (base year housing unit information for Cantwell, Trapper Creek, and Talkeetna);
Frank Orth & Associates, Inc., March 1984 (growth in housing units for all communities);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities);
Overall Economic Development Program Inc., July 1980 (commercial data for Palmer, Wasilla, and Houston); and
Key Informant Interviews, 1984.

Table 3

Supply of Residential Land and Commercial Land
Selected Communities
1985 - 2002

| Community/Variable | 1985 - 2002 |
|---|---|
| Cantwell | |
| Residential Land (acres) | 240 |
| Commercial Land (acres) | 10 |
| Healy | |
| Residential Land (acres) | 446 |
| Commercial Land (acres) | 15 |
| Nenana | |
| Residential Land (acres) | 1,575 |
| Commercial Land (acres) | 65 |
| Talkeetna | |
| Residential Land (acres) | 600 |
| Commercial Land (acres) | 34 |
| Trapper Creek | |
| Residential Land (acres) | 4,300 |
| Commercial Land (acres) | 18 |
| Wasilla | |
| Residential Land (acres) | 5,932 |
| Commercial Land (acres) | 828 |
| Houston | |
| Residential Land (acres) | 4,668 |
| Commercial Land (acres) | 439 |
| Palmer | |
| Residential Land (acres) | 612 |
| Commercial Land (acres) | 121 |

Source: CH2M Hill, July 1982 (Palmer data);
DOWL Engineers, February 1983, (commercial data for Mat-Su communities);
DOWL Engineers, June 1982 (Houston data);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities); and
Key Informant Interviews, 1984.

The long term supplies of developable acreages shown in Table 3 are subject to change depending on several conditions. First, the supply of land within the community boundaries used for this report does not include Native lands. If Native land were made available, moderate increases in the supply of developable land would occur inside the boundaries used for Cantwell.

Second, the boundaries used in this report were chosen so that they would conform with those used in the socioeconomic model. If these boundaries were enlarged, then there would be greater supplies of developable land available near the Mat-Su Borough communities and Healy. For example, there are approximately 210 acres of private land within one mile of Talkeetna, 1,280 acres of private land within one mile of Trapper Creek, and 640 acres of private land within one mile of Healy (DOWL Engineers, 1983; U.S. Department of Interior, 1976). There is substantially more private acreage surrounding the communities of Houston, Wasilla, and Palmer as private lands account for about 95 percent of the land surrounding these communities (DOWL Engineers, 1983). For Cantwell and Nenana, there is little available private land outside of the boundaries used for these two communities (U.S Department of Interior, 1976).

Third, the long-term supply of developable land can be increased over time through land use regulations governing development densities and through annexations for second and first class cities. Currently, the cities of Houston and Palmer have set-aside enough residential and commercial land to accommodate foreseeable growth for a 20-year period (DOWL Engineers, 1982 and 1983). In addition, the communities of Wasilla, Palmer, and Houston can expand by annexing adjacent land area.

### 3.5.1 Residential Land Demand and Supply.

The comparison of residential land demand to supply is shown in Table 4 for each community. As shown in Table 4, no residential land use constraints would exist for any community under baseline conditions.

Table 4

Baseline Demand for Residential Land and Supply of Residential Land
(in Acres)
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community | Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|---|
| Cantwell | Demand | 56 | 62 | 71 | 76 | 81 |
| | Supply | 240 | 240 | 240 | 240 | 240 |
| | Ratio 1/ | .2 | .3 | .3 | .3 | .3 |
| Healy | Demand | 194 | 224 | 259 | 289 | 316 |
| | Supply | 446 | 446 | 446 | 446 | 446 |
| | Ratio 1/ | .4 | .5 | .6 | .7 | .7 |
| Nenana | Demand | 91 | 170 | 236 | 278 | 327 |
| | Supply | 1,575 | 1,575 | 1,575 | 1,575 | 1,575 |
| | Ratio 1/ | .1 | .1 | .2 | .2 | .2 |
| Talkeetna | Demand | 131 | 171 | 224 | 278 | 327 |
| | Supply | 600 | 600 | 600 | 600 | 600 |
| | Ratio 1/ | .2 | .3 | .4 | .5 | .6 |
| Trapper Creek | Demand | 322 | 401 | 500 | 599 | 681 |
| | Supply | 4,300 | 4,300 | 4,300 | 4,300 | 4,300 |
| | Ratio 1/ | .1 | .1 | .1 | .1 | .2 |
| Wasilla | Demand | 1,256 | 1,841 | 2,696 | 3,659 | 4,604 |
| | Supply | 5,932 | 5,932 | 5,932 | 5,932 | 5,932 |
| | Ratio 1/ | .2 | .3 | .5 | .6 | .8 |
| Houston | Demand | 279 | 452 | 730 | 1,073 | 1,430 |
| | Supply | 4,668 | 4,668 | 4,668 | 4,668 | 4,668 |
| | Ratio 1/ | .1 | .1 | .2 | .2 | .3 |
| Palmer | Demand | 215 | 295 | 352 | 406 | 451 |
| | Supply | 612 | 612 | 612 | 612 | 612 |
| | Ratio 1/ | .4 | .5 | .6 | .7 | .7 |

1/ Supply constraints exist where the Ratio (demand/supply) exceeds one.

Source: CH2M Hill, 1982, (Palmer data);
DOWL Engineers, 1983 (land use data for Mat-Su communities);
DOWL Engineers, 1982, (Houston data);
Frank Orth & Associates, Inc., February 1984, (base year housing unit information for Cantwell, Trapper Creek, and Talkeetna);
Frank Orth & Associates, Inc., March 1984 (growth in housing units for all communities);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities);
Overall Economic Development Program Inc., July 1980 (commercial data for Palmer, Wasilla, and Houston); and
Key Informant Interviews, 1984.

In 1985, residential land use would not exceed 44 percent of available land in any community. In Nenana and Houston, only 6 percent of the supply of residential land would be used. By 2002, 78 percent of residential land in Wasilla would be in use. Only 16 percent of available residential land in Trapper Creek would be used in 2002. The other communities would fall within the 16 to 78 percent range in 2002.

### 3.5.2 Commercial Land Demand and Supply.

Table 5 compares the demand for commercial land with the available supply of land in each community. The demand for commercial land would increase rapidly in the communities of Cantwell, Talkeetna, Houston, Healy, and Trapper Creek, ranging from 44 percent in Cantwell to 374 percent in Houston between 1985 and 2002. In absolute terms, the changes in Cantwell and Trapper Creek represent a total of less than two acres in either community.

The percentage of available commercial land in use would not exceed 100 percent in any community under baseline conditions during 1985. In Trapper Creek, only 10 percent of the available commercial land would be in use. In Cantwell, 40 percent of commercial land would be in use during 1985. By 2002, the use of commercial land would range from 20 percent in Trapper Creek to 100 percent in Nenana. Only Cantwell, Nenana, Talkeetna, Healy, and Wasilla would use 50 percent or more of the available commercial land in their communities by 2002.

Table 5

Baseline Demand for Commercial Land and Supply of Commercial Land
(in Acres)
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community | Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|---|
| Cantwell | Demand | 4 | 4 | 4 | 5 | 5 |
| | Supply | 10 | 10 | 10 | 10 | 10 |
| | Ratio 1/ | .4 | .4 | .4 | .5 | .5 |
| Healy | Demand | 7 | 8 | 9 | 10 | 11 |
| | Supply | 15 | 15 | 15 | 15 | 15 |
| | Ratio 1/ | .5 | .5 | .6 | .7 | .7 |
| Nenana | Demand | 62 | 62 | 63 | 63 | 64 |
| | Supply | 65 | 65 | 65 | 65 | 65 |
| | Ratio 1/ | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Talkeetna | Demand | 7 | 9 | 12 | 15 | 17 |
| | Supply | 34 | 34 | 34 | 34 | 34 |
| | Ratio 1/ | .2 | .3 | .4 | .4 | .5 |
| Trapper Creek | Demand | 1 | 2 | 2 | 2 | 3 |
| | Supply | 18 | 18 | 18 | 18 | 18 |
| | Ratio 1/ | .1 | .1 | .1 | .1 | .2 |
| Wasilla | Demand | 344 | 427 | 497 | 549 | 597 |
| | Supply | 828 | 828 | 828 | 828 | 828 |
| | Ratio 1/ | .4 | .5 | .6 | .7 | .7 |
| Houston | Demand | 39 | 59 | 95 | 139 | 185 |
| | Supply | 439 | 439 | 439 | 439 | 439 |
| | Ratio 1/ | .1 | .1 | .2 | .3 | .4 |
| Palmer | Demand | 20 | 24 | 28 | 31 | 34 |
| | Supply | 121 | 121 | 121 | 121 | 121 |
| | Ratio 1/ | .2 | .2 | .2 | .3 | .3 |

1/ Supply constraints exist where the ratio of Demand/Supply exceeds one.

Source: CH2M Hill, 1982, (Palmer data);
DOWL Engineers, 1983 (land use data for Mat-Su communities);
DOWL Engineers, 1982, (Houston data);
Frank Orth & Associates, Inc., February 1984, (base year housing unit information for Cantwell, Trapper Creek, and Talkeetna);
Frank Orth & Associates, Inc., March 1984 (growth in housing units for all communities);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities);
Overall Economic Development Program Inc., July 1980 (commercial data for Palmer, Wasilla, and Houston); and
Key Informant Interviews, 1984.

# 4.0 PROJECT EFFECTS

A major assumption of the socioeconomic projections in this chapter was that the baseline supplies of housing, residential land, and commercial land were used to determine the with-project supplies of housing and land use characteristics in the communities selected for analysis. In other words, the Project was assumed to affect the demand side of housing and land use markets and not the supply side. Therefore, baseline supplies of housing and land defined the ability of communities to accept in-migrating project-related workers.

## 4.1 HOUSING DEMAND

Project effects on the demand for housing are shown in Table 6. This table shows the number of project-related households that would relocate to a specific community if sufficient housing were available. For Cantwell, two groups of project-related workers are identified. The first group are nonlocal Railhead workers accompanied by families. While all nonlocal, unaccompanied Railhead workers would be accommodated at single status housing provided by the Power Authority, it was assumed that about 7 percent of the nonlocal workers would be accompanied by families and require housing in the community (Frank Orth & Associates, Inc., April 1985). The second group represents workers who would move their permanent residence to Cantwell to obtain work on the project-related facilities at the dam site. It was assumed that each of these dam site workers would obtain housing in Cantwell and that their housing would not be provided by the Alaska Power Authority except when they are working at the Project site.

Large increases in project-related housing demand would occur in the communities of Cantwell, Healy, Trapper Creek, and Talkeetna. Over the Project construction period, between 175 and 241 project-related workers would seek housing in Cantwell, between 23 and 86 project-related workers would seek housing in Healy and Trapper Creek, and between 16 and 59 project-related workers would seek housing in Talkeetna. These project-related increases would account for increases over baseline demand of between 40 and 274 percent for these communities during 1990.

Table 6

Project-Related Housing Demand and Available Housing [1]
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community/Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|
| Cantwell | | | | | |
| P-Related Housing Demand | 175 | 241 | 189 | 211 | 186 |
| Railhead Households [2] | 13 | 8 | 0 | 0 | 0 |
| Other Worker Households | 162 | 233 | 189 | 211 | 186 |
| Available Housing | 53 | 73 | 93 | 108 | 120 |
| Unmet P-Related Demand | 122 | 168 | 96 | 103 | 66 |
| Healy | | | | | |
| P-Related Housing Demand | 25 | 86 | 67 | 74 | 66 |
| Available Housing | 63 | 94 | 122 | 143 | 156 |
| Unmet P-Related Demand | 0 | 0 | 0 | 0 | 0 |
| Nenana | | | | | |
| P-Related Housing Demand | 11 | 41 | 33 | 36 | 31 |
| Available Housing | 57 | 67 | 64 | 58 | 53 |
| Unmet P-Related Demand | 0 | 0 | 0 | 0 | 0 |
| Talkeetna | | | | | |
| P-Related Housing Demand | 16 | 59 | 46 | 51 | 46 |
| Available Housing | 35 | 45 | 44 | 33 | 18 |
| Unmet P-Related Demand | 0 | 14 | 2 | 18 | 28 |
| Trapper Creek | | | | | |
| P-Related Housing Demand | 23 | 86 | 67 | 74 | 65 |
| Available Housing | 9 | 10 | 12 | 12 | 13 |
| Unmet P-Related Demand | 14 | 76 | 55 | 62 | 52 |
| Wasilla | | | | | |
| P-Related Housing Demand | 11 | 39 | 32 | 35 | 30 |
| Available Housing | 289 | 365 | 468 | 587 | 705 |
| Unmet P-Related Demand | 0 | 0 | 0 | 0 | 0 |
| Houston | | | | | |
| P-Related Housing Demand | 10 | 36 | 28 | 31 | 28 |
| Available Housing | 157 | 250 | 247 | 136 | 0 |
| Unmet P-Related Demand | 0 | 0 | 0 | 0 | 28 |
| Palmer | | | | | |
| P-Related Housing Demand | 9 | 33 | 28 | 31 | 27 |
| Available Housing | 30 | 41 | 49 | 56 | 63 |
| Unmet P-Related Demand | 0 | 0 | 0 | 0 | 0 |

[1] Available housing equals vacant housing under baseline conditions.
[2] Indicates Railhead workers that would be accompanied by dependents All unaccompanied Railhead workers would live in single-status housing on-site.

Source: Frank Orth & Associates, Inc., March 1984, (housing demand data). Key Informant Interviews, 1984, (available housing data).

Moderate increases in housing demand would occur in other communities from project-related construction and operations activities. The number of households that would relocate to Nenana, Palmer, Wasilla, or Houston would range from 9 households per community to 41 households per community over the Project construction period. The percent increase over baseline housing demand would range from 2 percent in Wasilla to 20 percent in Nenana in 1990.

## 4.2 HOUSING SUPPLY

The ability of a community to accommodate project-related housing demand is determined by the number of housing units that would be vacant after baseline housing demand is met. The number of available housing units is shown in Table 6 for each community. If the assumptions outlined in chapters two and three continue to apply for the with-project scenario, sufficient housing would exist in Healy, Nenana, Wasilla, and Palmer to accommodate the population influx caused by the Project as shown in Table 6. However, insufficient housing would be available in the communities of Houston, Cantwell, Talkeetna, and Trapper Creek.

In Houston, insufficient housing to accommodate project-related demand would not occur until 2002. However, there is excess capacity in the local construction industry in Houston. Full use of the capability of this industry would add 306 units to the total shown for Houston in 2002. Thus, Houston would probably be able to accommodate potential housing demand created by the Project.

The number of households that cannot be accommodated in Cantwell would range from about 122 in 1985 to 168 in 1990. Unmet housing demand in Cantwell would represent about 70 percent of the project-related households seeking to in-migrate to the town in 1990. In addition, demand for housing would exceed supply in every year after 1990. Currently, there is no excess capacity in the Cantwell construction industry to increase available housing.

Available housing in Cantwell can be increased in two ways. First, large contractors from Fairbanks could enter the Cantwell market to help meet the expected demand for housing (Anchorage contractors are considered to

be too far away). It is likely that Fairbanks contractors may enter the Cantwell market as several have already entered the Healy market. Banks in Fairbanks also have some experience with financing in the Cantwell market (Looney, personal communication, 1984).

Second, the potential shortage of housing could be alleviated by project workers bringing their own mobile homes into a community. According to surveys of construction workers conducted on the Anchorage-Fairbanks Intertie Transmission Line Project and the Terror Lake Hydroelectric Project, between 7 and 24 percent of the workers resided in mobile homes during construction (Frank Orth & Associates, July 1984; Harza-Ebasco, April 1985). Assuming that these percentages would be representative of the percentage of Susitna Project construction workers living in mobile homes, unmet project-related demand in Cantwell would be reduced by 10 to 33 percent in 1990. However, unmet project-related demand would still exist in every year between 1985 and 2002.

Sufficient housing would exist in Talkeetna during 1985 but not in subsequent years because project-related demand would continue to increase while available housing is expected to decrease. As shown in Table 6, unmet project-related demand would range from 2 households in 1995 to 28 households in 2002. According to available secondary data, as many as 19 housing units per year have been added to the Talkeetna housing stock between 1982 and 1983 (Mat-Su Borough Planning Department, 1982-1983). However, the average rate of new housing units added each year since 1980 was 9 units per year. The average rate was assumed for the projections shown in Table 6. The ability to add 19 units in a year suggests that excess capacity exists in the local construction industry. If 19 units were added in each year after 1985, there would be sufficient housing in Talkeetna during the 1985 to 2002 period to accommodate all Project workers who might relocate there.

Assuming an increase in housing supply of 9 units per year and 24 percent of the in-migrating construction workers bring their own mobile homes with them, unmet project-related demand would not exist in Talkeetna until 1999. Under these conditions, unmet project-related demand would range from 6 units in 1999 to 17 units in 2002. Therefore, it is unlikely that Talkeetna would experience a housing shortage due to project-

related effects on housing if a greater percentage of construction capacity were used to provide housing, some workers bring mobile homes, or a combination of both of these occurs.

In Trapper Creek, there would be less available housing than in Talkeetna between 1985 and 2002. Fourteen households would not be accommodated in 1985, and this would grow to 76 households by 1990. Unmet demand would exceed 88 percent of project-related workers who would relocate here in 1990. However, excess capacity in the construction industry probably exists in this community as well. Between 1982 and 1983, an estimated 11 housing units were added to the total housing stock. If this rate is assumed to be a measure of the ability of the construction industry to add housing in Trapper Creek, then housing supply estimates for the community could be much higher than those shown in Table 6 which are based on an average increase of four households per year. Applying the rate of 11 units per year to estimates of Trapper Creek housing stock in 1984 (83 units), would increase the number of available housing units to 16 units in 1985, 52 units by 1990, and 83 units by 1995. Based on this information, unmet demand would still exist in the community during 1985 and 1990, however, it would be substantially reduced. Thereafter, available housing would be sufficient to accommodate project-related demand for housing.

The introduction of mobile homes to Trapper Creek would reduce, but not eliminate, unmet project-related demand for housing. If 24 percent of the in-migrating workers to Trapper Creek bring mobile homes and net additions to housing supply are assumed to occur at the rate of 4 units per year, then unmet project-related demand would decrease by 20 to 30 percent between 1990 and 2002.

For the communities of Talkeetna and Trapper Creek, the entrance of Mat-Su Valley contractors into the local housing market in 1985 could increase the capacity of the construction industry in these two communities so that a sufficient number of housing units could be constructed to accommodate expected increases in housing demand (Berberich, Buell, Davis, Malapanes, McMasters, Miller, Nail, Waelbrock, Wilkins, Wilson,

and Woods, personal communications, 1984). The incentive for these contractors to move into these communities would not be very great as the area they are presently working is experiencing substantial growth and construction financing may be more difficult to obtain in Talkeetna and Trapper Creek because of the unfamiliarity of banks about conditions in those communities. However, many of the Mat-Su Valley contractors have established performance records with Anchorage banks and the risk of building homes in Trapper Creek and Talkeetna would be substantially reduced if the homes that they build are pre-sold.

In summary, Trapper Creek and Talkeetna are likely to experience difficulty in providing project-related housing. Excess construction capacity, the introduction of mobile homes, and entry by additional contractors may provide the means to meet housing demand. In Cantwell, the demand would be greatest and excess construction capacity would not be sufficient to meet that demand.

## 4.3 RESIDENTIAL AND COMMERCIAL LAND

### 4.3.1 Residential Land Demand and Supply.

Table 7 compares the project-related demand for residential land with the available supply of land in each community. The Project demand for residential land would be greatest in those communities experiencing the greatest increase in project-related households. Thus, Cantwell, Healy, Trapper Creek, and Talkeetna would experience relatively greater impacts from construction of the Project than would Nenana and communities in the southern Mat-Su Borough.

The communities with the most limited amount of available residential land would include Cantwell, Healy, Talkeetna, and Palmer. Other communities such as Wasilla, Houston, Trapper Creek, and Nenana would have larger supplies of residential acreage available.

Table 7

Project-Related Demand for Residential Land
and Available Supply of Residential Land (in Acres)
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community | Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|---|
| Cantwell | P-Related DRL | 118 | 169 | 144 | 165 | 149 |
| | Available SRL | 184 | 178 | 169 | 164 | 159 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 1 | 0 |
| Healy | P-Related DRL | 40 | 137 | 107 | 118 | 105 |
| | Available SRL | 252 | 222 | 187 | 157 | 130 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Nenana | P-Related DRL | 6 | 33 | 33 | 40 | 37 |
| | Available SRL | 1,484 | 1,405 | 1,339 | 1,282 | 1,234 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Talkeetna | P-Related DRL | 18 | 68 | 53 | 59 | 53 |
| | Available SRL | 469 | 429 | 376 | 322 | 273 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Trapper Creek | P-Related DRL | 95 | 355 | 277 | 306 | 269 |
| | Available SRL | 3,978 | 3,899 | 3,800 | 3,701 | 3,619 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Wasilla | P-Related DRL | 13 | 45 | 37 | 40 | 35 |
| | Available SRL | 4,676 | 4,091 | 3,236 | 2,273 | 1,328 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Houston | P-Related DRL | 11 | 40 | 31 | 35 | 31 |
| | Available SRL | 4,389 | 4,216 | 3,938 | 3,595 | 3,238 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |
| Palmer | P-Related DRL | 2 | 7 | 6 | 7 | 6 |
| | Available SRL | 397 | 317 | 260 | 206 | 161 |
| | Unmet Demand 1/ | 0 | 0 | 0 | 0 | 0 |

1/ Unmet demand is equal to zero whenever supply exceeds demand.

Source: CH2M Hill, 1982, (Palmer data);
DOWL Engineers, 1983 (land use data for Mat-Su communities);
DOWL Engineers, 1982, (Houston data);
Frank Orth & Associates, Inc., February 1984, (base year housing unit information for Cantwell, Trapper Creek, and Talkeetna);
Frank Orth & Associates, Inc., March 1984 (growth in housing units for all communities);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities);
Key Informant Interviews, 1984.

Residential land use constraints would not exist in any community except possibly Cantwell. In 1990, available supply of residential land would exceed project-related demand for residential land by 9 acres. The 178 acres of available land could accommodate a total of 254 households at the prevailing average lot size of 0.7 acres in 1990. Project-related demand for land has the greatest likelihood of exceeding available supply in 1999. However, slight variations in the forecast assumptions and rounding procedures could easily reduce unmet demand for Cantwell in 1999 to zero. By 2002, there would be 10 acres of residential land available for use in Cantwell out of the total 240 acres. The land use constraints in Cantwell are minor and could disappear if Ahtna Native Corporation develops some of its land to provide housing or if the 160-acre parcel of land being disputed because of litigation over title is placed in non-Native private ownership.

### 4.3.2 Commercial Land Demand and Supply.

Table 8 compares the project-related demand for commercial land with the available supply of land in each community. The project-related demand for commercial land would increase rapidly in the communities of Cantwell, Talkeetna, Nenana, and Trapper Creek. As a percent of available commercial land, project-related demand would range from 2 percent in Wasilla to 67 percent in Nenana during 1990. The changes in the amount of commercial acreage affected by the Project would range from 1 acre in Healy and Cantwell in 1990 to 8 acres in Houston.

Less than 8 acres of commercial acreage would be available in either Cantwell, Healy, or Nenana during the Project construction period. Acreage would be more plentiful in Trapper Creek and Talkeetna (between 15 and 30 acres) during the construction period. All other communities would have unused commercial acreage in excess of 30 acres.

Table 8

Project-Related Demand for Commercial Land
and Available Supply of Commercial Land (in Acres)
Selected Communities
1985, 1990, 1995, 1999, and 2002

| Community | Variable | 1985 | 1990 | 1995 | 1999 | 2002 |
|---|---|---|---|---|---|---|
| Cantwell | P-Related DCL [1] | 2 | 1 | 1 | 1 | 1 |
| | Available SCL [1] | 6 | 6 | 6 | 5 | 5 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Healy | P-Related DCL | 0 | 1 | 0 | 0 | 0 |
| | Available SCL | 8 | 7 | 6 | 6 | 5 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Nenana | P-Related DCL | 0 | 2 | 0 | 1 | 0 |
| | Available SCL | 3 | 3 | 2 | 2 | 1 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Talkeetna | P-Related DCL | 1 | 3 | 0 | 1 | 0 |
| | Available SCL | 27 | 25 | 22 | 19 | 17 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Trapper Creek | P-Related DCL | 1 | 3 | 1 | 1 | 0 |
| | Available SCL | 17 | 16 | 16 | 16 | 15 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Wasilla | P-Related DCL | 1 | 6 | 1 | 3 | 1 |
| | Available SCL | 484 | 401 | 331 | 279 | 231 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Houston | P-Related DCL | 2 | 8 | 1 | 4 | 1 |
| | Available SCL | 400 | 380 | 344 | 300 | 254 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |
| Palmer | P-Related DCL | 0 | 2 | 0 | 0 | 0 |
| | Available SCL | 101 | 97 | 93 | 90 | 87 |
| | Unmet Demand | 0 | 0 | 0 | 0 | 0 |

[1] The Railhead facility which would lease a 25-acre site from 1985-1993 is not shown under either supply or demand.

Source: CH2M Hill, 1982, (Palmer data);
DOWL Engineers, 1983 (land use data for Mat-Su communities);
DOWL Engineers, 1982, (Houston data);
Frank Orth & Associates, Inc., February 1984, (base year housing unit information for Cantwell, Trapper Creek, and Talkeetna);
Frank Orth & Associates, Inc., March 1984 (growth in housing units for all communities);
Frank Orth & Associates, Inc., 1985 (Cantwell housing data);
Mat-Su Borough Assessment Department, November 1981, (residential land use data for Mat-Su communities);
Mat-Su Borough Planning Department, January 1982, (residential land use data for Mat-Su communities);
Key Informant Interviews, 1984.

# 5.0 RECOMMENDATIONS

Based on the analysis in this report, the communities of Cantwell, Talkeetna, and Trapper Creek may experience difficulties in meeting project-related increases in housing demand. In Cantwell, it is assumed that 15 percent of the project-related demand for housing is met through use of mobile homes, that 5 percent of the project-related demand for housing is met through entry by Fairbanks contractors, and that 2 percent is allowed for error. However, the increase in available housing units from these sources is assumed to be offset by the number of available housing units in Cantwell which are substandard in condition. Therefore, the number of available housing units shown in Table 6 are assumed to represent the number of housing units that can actually be used for shelter. Unaccommodated workers at Cantwell would be allocated to Healy, Nenana, and Fairbanks which have the capacity to absorb them.

For Talkeetna, assuming that 15 percent of the project-related demand for housing is met through the use of mobile homes, that 5 percent of the project-related demand is met through entry of Mat-Su Valley contractors, that an additional 3 units per year can be provided by local contractors, and that 2 percent is allowed for error, unmet project-related demand would be eliminated between 1985 and 2002. Because most of the available housing units in Talkeetna are in good condition, unmet project-related demand in Talkeetna is assumed to be very close to zero.

Applying the assumptions used for Talkeetna to Trapper Creek, unmet demand from the Project would be reduced between 1985 and 1999 and eliminated thereafter. Under these conditions, unmet project-related demand would be reduced by about 50 percent in 1985 and 1990 in Trapper Creek. During 1995 and 1999, unmet project-related demand would be reduced to 20 and 3 percent of the respective numbers shown in Table 6. However, because the condition of the housing units that are available after baseline housing demand is met is not known, a conservative constraint using the unmet project-related demand numbers shown in Table 6 is used. Workers that cannot be accommodated at Trapper Creek are allocated to the suburban area of the Mat-Su Borough.

The following recommendations regarding the incorporation of capacity

constraints into the Susitna gravity model are made:

1) Cantwell would be unable to accommodate the expected housing demand placed upon it by the Susitna Project under the conditions assumed to occur in this report. Therefore, housing capacity constraints should be incorporated into the gravity model allocations for Cantwell to prevent more households from in-migrating into Cantwell than can adequately be accommodated by the supply of housing and the production capabilities of the local construction industry.

2) Using baseline supply forecasts, Talkeetna would be able to accommodate almost all the housing demand expected from the Susitna Project. Because there appears to be excess capacity in the local construction industry, no capacity constraint should be incorporated in the gravity model allocations for this community.

3) Trapper Creek would be unable to accommodate over 88 percent of the households projected to in-migrate to the community as a result of Susitna Project construction during 1990. These households are unable to move into this community because of the inability of the local construction industry to keep up with housing demand. Although some excess capacity exists in the local construction industry, it is not sufficient to accommodate all the project-related demand for housing. Therefore, it is recommended that capacity constraints as outlined above be incorporated into gravity model allocations for Trapper Creek.

The presence of housing constraints Trapper Creek could be removed under certain conditions. Since there is plenty of residential land available in the community (78 percent vacant in Trapper Creek during 2002), the penetration of the housing market by Mat-Su valley contractors could provide sufficient housing to accommodate project-related demand. However, the likelihood that entry by Mat-Su valley contractors would occur is not known at this time. Therefore, the recommendation is not modified. For all other communities, constraints in housing supply, residential land supply, and commercial land supply are not expected to occur.

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## LIST OF PERSONAL COMMUNICATIONS


Joel Berberich, Palmer contractor, personal communication, December 18, 1984.

Jim Blakeway, Healy Contractor, personal communication, October 25, 1984.

Bob Buell, Wasilla contractor, personal communication, December 12, 1984.

Jack Coghill, Nenana contractor, personal communication, November 23, 1984.

William Cotter, Nenana contractor, personal communication, November 23, 1984.

George Davis, Wasilla Contractor, personal communication, November 28, 1984.

Bob Gilbertson, Cantwell Contractor, personal communication, October 26, 1984.

Robert Hall, Ben Lomand Construction Co., personal communication, November 23, 1984.

Karen Harvey, City Clerk, City of Nenana, personal communication, October 24, 1984 and December 27, 1984.

Carl Jouhala, Nenana contractor, personal communication, October 24, 1984.

Jeff King, McKinley Park contractor, personal communication, November 29, 1984.

Steve Lindahl, Healy contractor, personal communication, October 25, 1984.

Jim Looney, National Alaska Bank of the North, personal communication, December 3, 1984.

Jim Malapanes, Wasilla-Palmer contractor, personal communication, November 27, 1984.

Robert McMasters, McMasters Homes, personal communication, December 18, 1984.

Gary Miller, Houston contractor, personal communication, November 27, 1984.

Mike Miller, Cantwell contractor, personal communication, October 26, 1984.

Jim Nail, Houston contractor, personal communication, December 26, 1984.

LIST OF PERSONAL COMMUNICATIONS
(continued)

Joan Patterson, Secretary, City of Wasilla, personal communication, November 28, 1984.

David Soulak, City Manager, City of Palmer, personal communication, November 28, 1984.

Dan Waelbrock, Mat-Su Valley contractor, personal communication, December 12, 1984.

Jim Wilkins, Wasilla area contractor, personal communication, November 29, 1984.

Orie Williams, Nenana contractor, personal communication, November 20, 1984.

Dallas Wilson, Wasilla area contractor, personal communication, November 28, 1984.

John Woods, Houston contractor, personal communication, December 17, 1984.